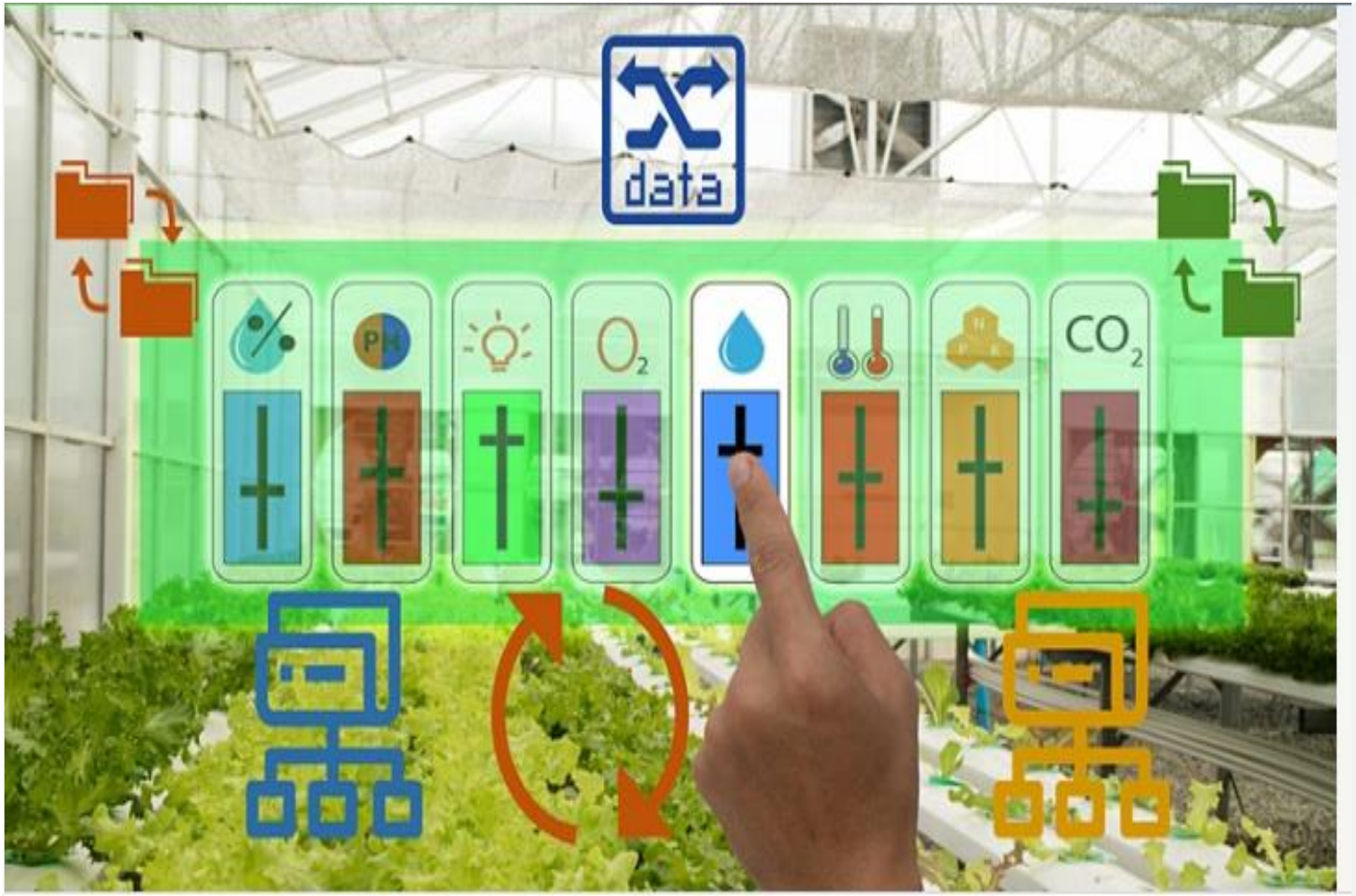

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Data sharing in agriculture. Towards a European agriculture data space.

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https://european-iot-pilots.eu/data-sharing-in-agriculture-webinar-2020/

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Data sharing in agriculture. Towards a European agriculture data space.

Luis Pérez-Freire
Executive Director - Gradiant
Chair “Smart farming and food security” - AIOTI

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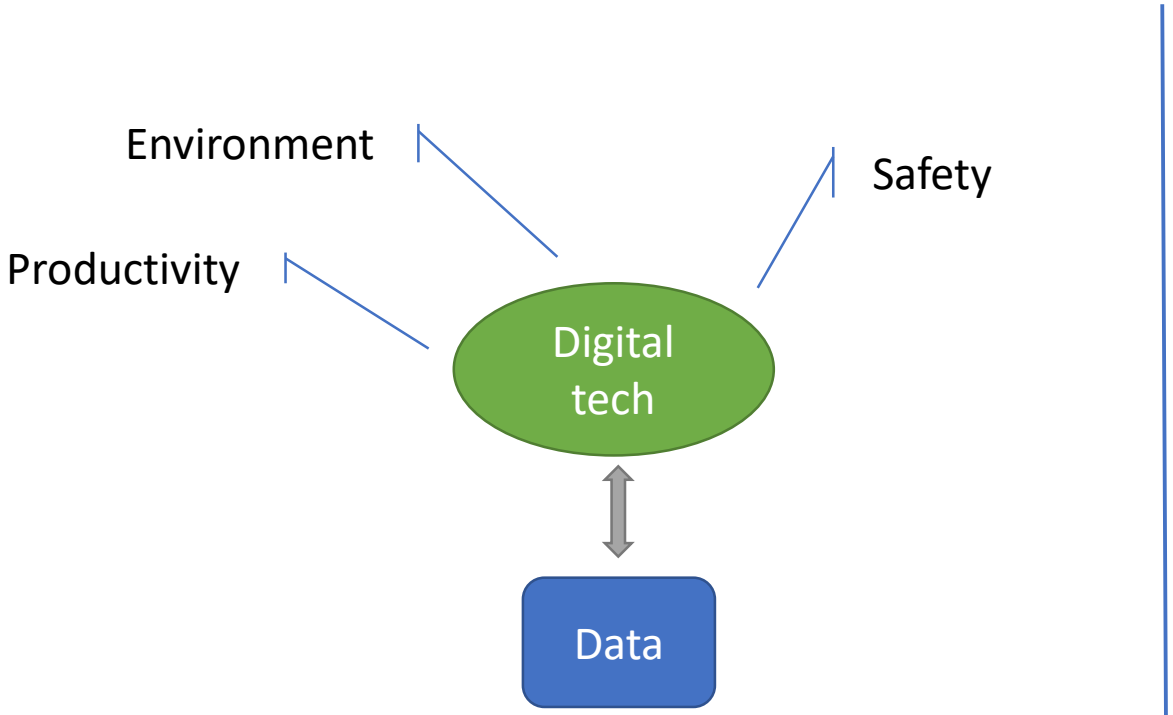
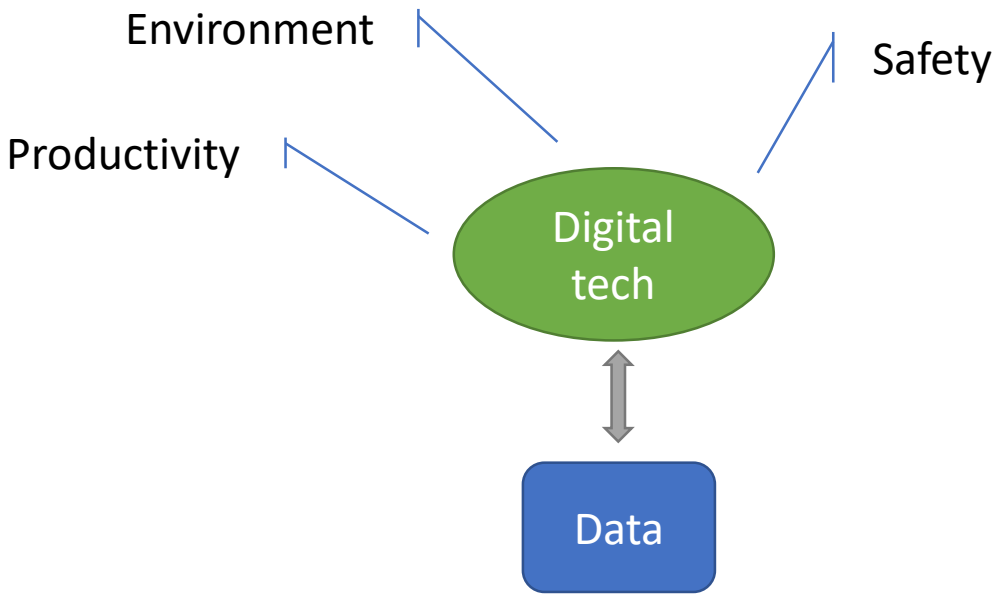
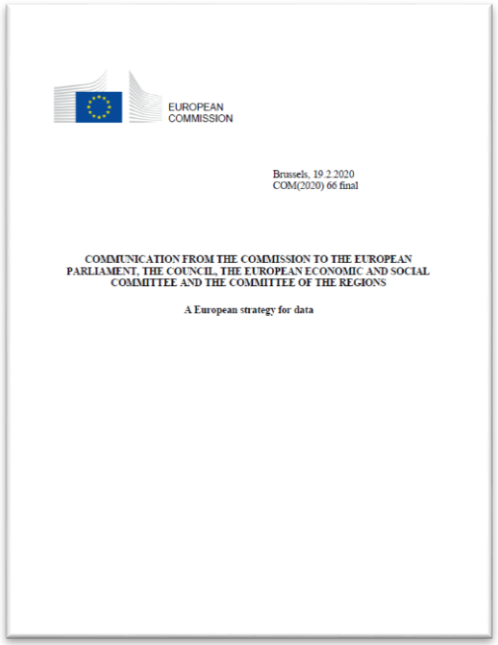
Data sharing in agriculture. Towards a European ag. data space



Data sharing in agriculture. Towards a European ag. data space



European strategy for data


EUROPEAN COMMISSION

Brussels, 19.2.2020
COM(2020) 66 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

A European strategy for data

European Data Space

a genuine single market for data, open to data from across the world where personal as well as non-personal data, including sensitive business data, are secure and businesses also have easy access to an almost infinite amount of high-quality industrial data, boosting growth and creating value, while minimising the human carbon and environmental footprint.

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AIOTI WG06 white paper: IoT data marketplaces for the agri-food sector: a first look to use cases for smart farming and across the food chain

https://aioti.eu/paper-iot-data-marketplaces-for-the-agri-food-sector-use-cases/

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Data sharing in agriculture. Towards a European agriculture data space.

Joel Bacquet

European Commission

DG CONNECT

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Data sharing in agriculture. Towards a European agriculture data space.

Doris Marquardt

European Commission

DG AGRI

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Join at
slido.com
#40905

During the webinar: questions for the speakers

After the webinar: questionnaire for helping in the definition of the agriculture data space

http://www.agridataspace.eu/

Afternoon session agenda

Welcome and Introduction	
15:00-15:20	Luis Pérez-Freire. Gradiant, executive director. AIOTI, chair of WG06 “smart farming and food security” Joel Bacquet. European Commission. DG CONNECT Doris Marquardt. European Commission, DG AGRI
Presentations	
15:20-15:30	High-level distributed architectures for agriculture data sharing Tom de Block. Nearcom. AIOTI, chair of “distributed ledger technologies”
15:30-15:50	Practical implementation of data sharing in agriculture and lessons learned The case of Gaiasense. Nikos Kalatzis, Neuropublic, technical project manager. The case of DJustConnect. Jurgen Vangeyte, ILVO, scientific director.
15:50-16:10	Approaches for data sharing in current agriculture Large Scale Pilots Stefan Rilling. Fraunhofer IAIS. ATLAS project coordinator Kevin Doolin. TSSG. DEMETER project coordinator
Roundtable discussion	
16:10-16:50	Moderated by: Grigoris Chatzikostas. Biosense Institute. Senior Advisor for EU Initiatives, Deputy Coordinator of SmartAgriHubs project.
Closing of the afternoon session	
16:50-17:00	Summary/wrap-up and closing

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Data sharing in agriculture. Towards a European agriculture data space.

15.20 High-level distributed architectures for agriculture data sharing

Tom de Block

Nearcom

AIOTI, chair of “distributed ledger technologies”

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Alliance for Internet of Things Innovation

Contributing to a dynamic European IoT ecosystem
We aim to strengthen the dialogue and interaction among Internet of Things (IoT) players in Europe, and to contribute to the creation of a dynamic **European IoT ecosystem**

180 members
14 working groups

Founding members:

vodafone, signify, BOSCH, ARTHUR'S LEGAL, BT, IBM, Schneider Electric, SIEMENS, JOHN DEERE, CATAPULT Digital, Infineon, NOKIA, CNH INDUSTRIAL, life.augmented, Gradiant, Telit, HUAWEI

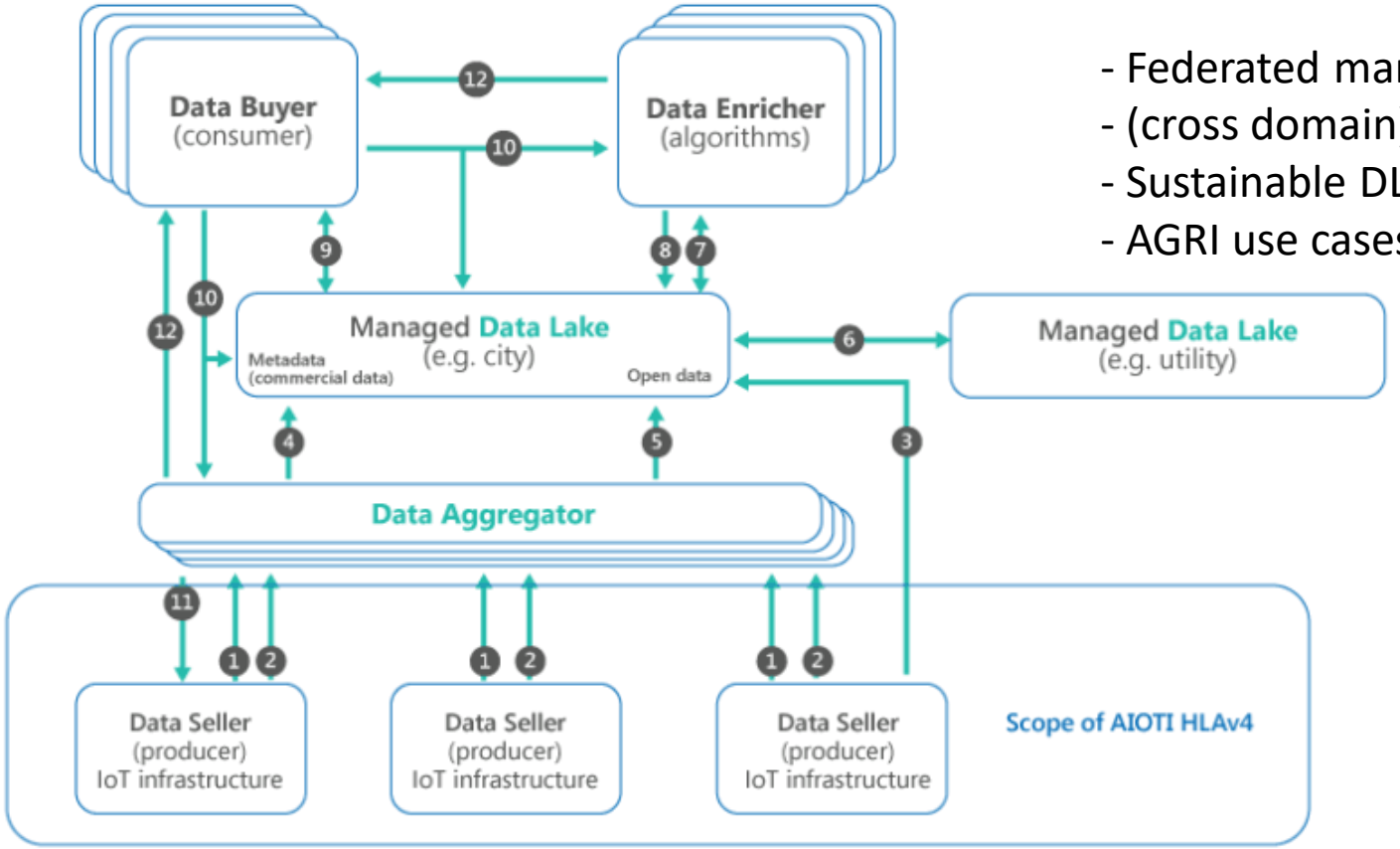
Working groups

Alliance for Internet of Things Innovation

		WG 05	WG 06	WG 08	WG 09	WG 10	WG 11	WG 12	WG 13
		Smart Living Environment for Ageing Well	Smart Farming and Food Security	Smart Cities	Smart Mobility	Smart Water Management	Smart Manufacturing	Smart Energy	Smart Buildings and Architecture
WG 01	IoT Research								
WG 02	Innovation Ecosystems								
WG 03	IoT Standardisation								
WG 04	IoT Policy								
	SME Interests								
	Distributed Ledger Technologies								

The DLT empowered **Data Economy**

https://aioti.eu/what-could-be-the-architecture-that-unlocks-the-true-value-of-iot-enabled-data-marketplaces/



- Federated market model
- (cross domain) model & terms
- Sustainable DLT driven business models
- AGRI use cases

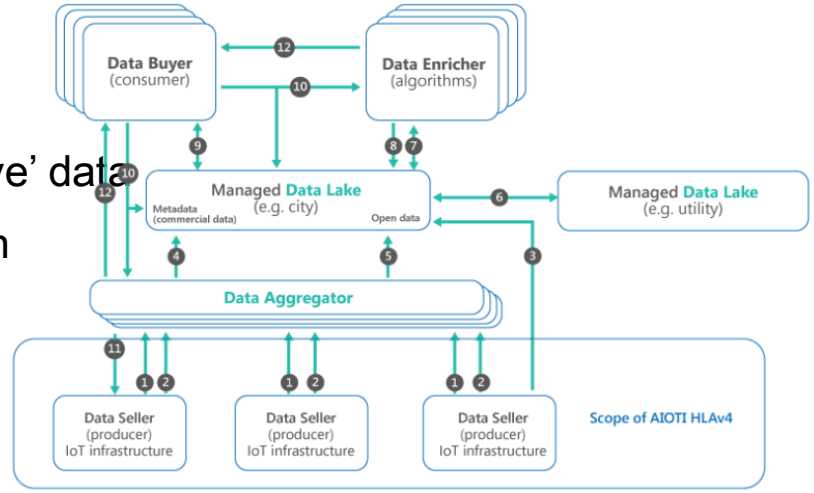
Alliance for Internet of Things Innovation

No “Data sharing” without “Data discovery” upfront

Covid crisis is an “eye opener”, and recovery is an opportunity for the sector to work together in common public interest.

Detected Problems:

- Platforms and the IoT sector failed upon its promise to deliver *crucial* ‘live’ data
- The rerouted sector fails to deliver on daily up-to-date data for mitigation
- No cross-platform data interoperability (to many overlapping standards)



Priorities:

- Focus on **data discovery** to unlock the markets
- Enable a fair and federated market information system

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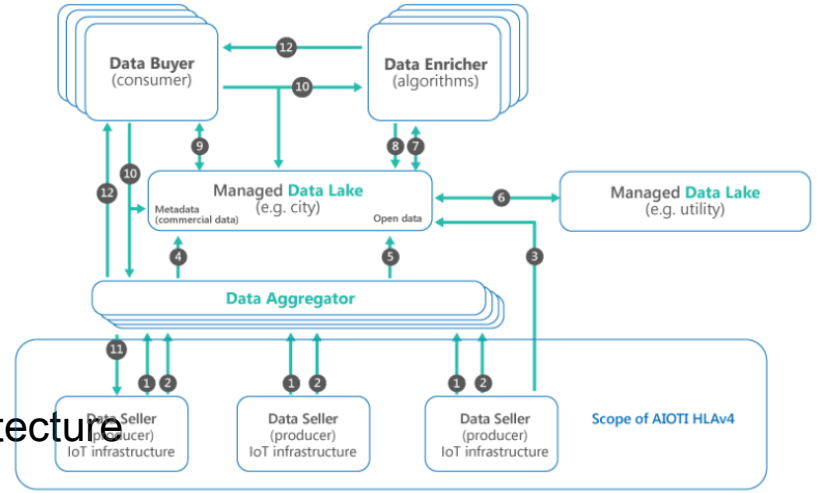
The impact of COVID-19 on supply chains and FOOD SAFETY

When:

June 30, 16.00h – "**IoT solutions World congress**" (online event)

Detected Problem:

The rerouted sector fails to deliver on daily up-to-date data for mitigation



Solution:

A federated market information system based on High Level Reference Architecture

Builds upon:

https://aioti.eu/paper-iot-data-marketplaces-for-the-agri-food-sector-use-cases/

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Alliance for Internet of Things Innovation

www.aioti.eu

LinkedIn: Tom De Block

28 05 2020

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Data sharing in agriculture. Towards a European agriculture data space.

15.30 Practical implementation of data sharing in agriculture and lessons learned.
The case of Gaiasense

Nikos Kalatzis

Technical project manager

Neuropublic

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PRACTICAL IMPLEMENTATION OF DATA SHARING IN AGRICULTURE AND LESSONS LEARNED

THE CASE OF GAIASENSE

Data sharing in agriculture. Towards a European agriculture data space.

Online Workshop - 10 June 2020

Co-organised and supported by:

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European Commission

Alliance for Internet of Things Innovation

NIKOS KALATZIS, NEUROPUBLIC - TECHNICAL PROJECT MANAGER, RESEARCHER
N_KALATZIS@NEUROPUBLIC.GR

SUMMARY

NEUROPUBLIC
Information Systems & Technologies

- Gaiasense - Smart Farming As a Service
  - Irrigation
  - Fertilisation
  - Crop protection

- Agriculture data sharing – Crop protection example
- Barriers
- Practical solutions

GAIASENSE:
SMART FARMING AS A SERVICE (I)

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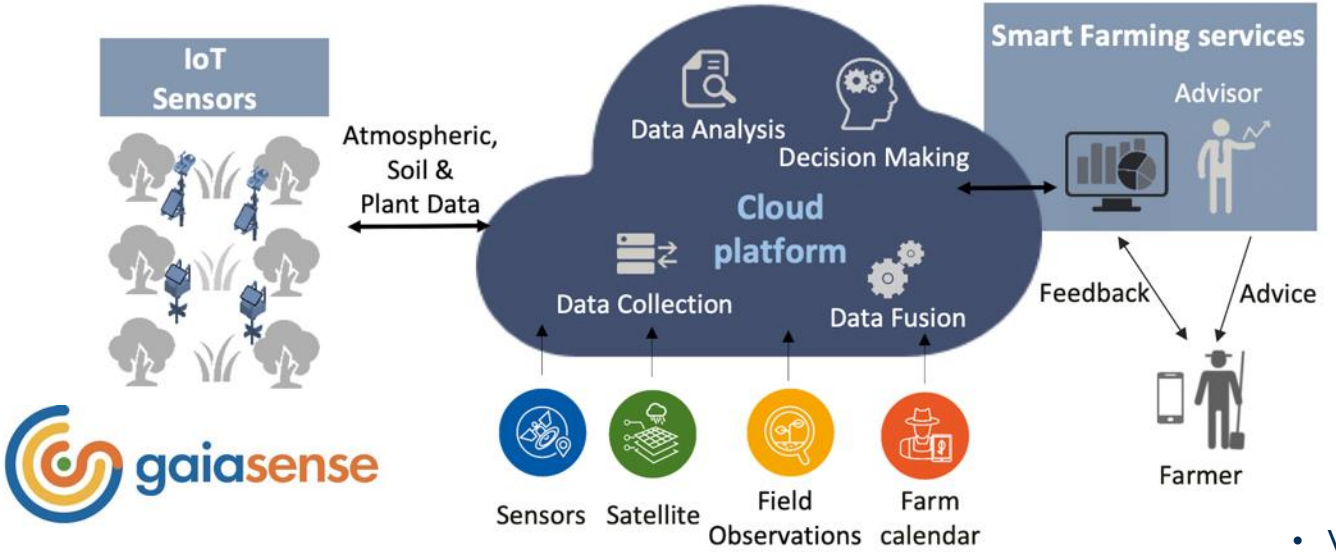
- A technological solution offering a range of innovative smart farming services that provides **advice** to farmers based on data collected from the field.
- It is offered as an inexpensive service with **zero technological related investment** for farmers, making it accessible even to farmers with small holdings.
  - **Smart farming infrastructure** owned and operated by the service provider.



- How much water and when?
- When do I have to spray?
- What is the risk level?
- What is the precise type and the exact amount of fertilizers needed?

SMART IRRIGATION

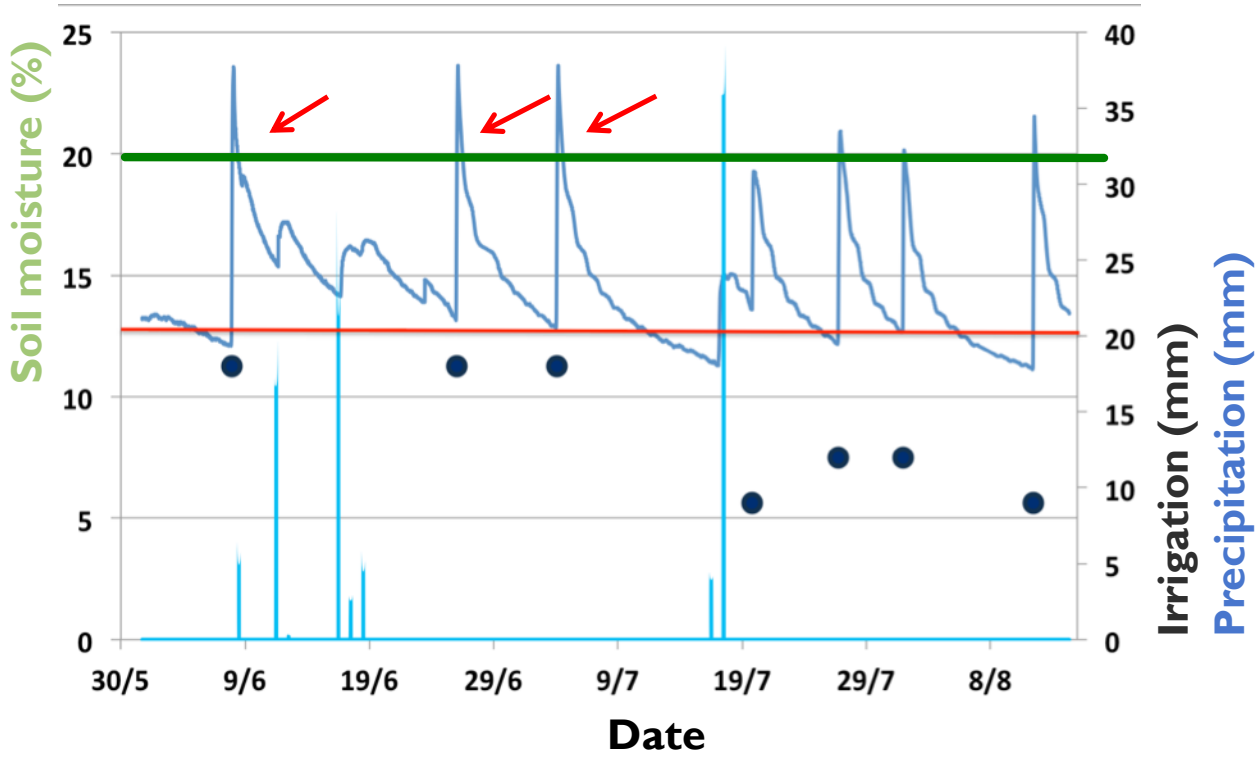
NEUROPUBLIC
Information Systems & Technologies

Aims

- Definition of the critical minimum-maximum Soil Moisture limits
- Definition of the most appropriate **time** for initiating the irrigation
- Optimum irrigation **dose** calculation

Based on

- Soil quality characteristics
- Soil moisture measurements
  - Real time - Different depths
  - Mapping of the active root system
- Precise recording of precipitation and performed irrigations
- Calculated Evapotranspiration



SMART FERTILIZATION

NEUROPUBLIC
Information Systems & Technologies

Aims:

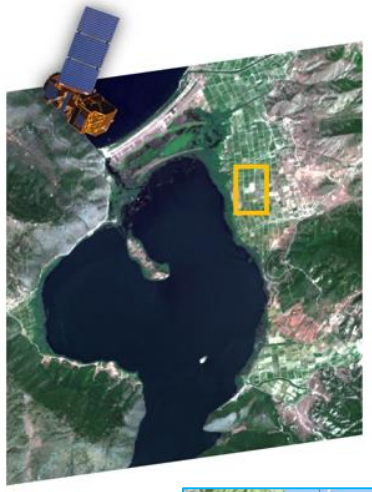
- Address precisely the nutritional needs

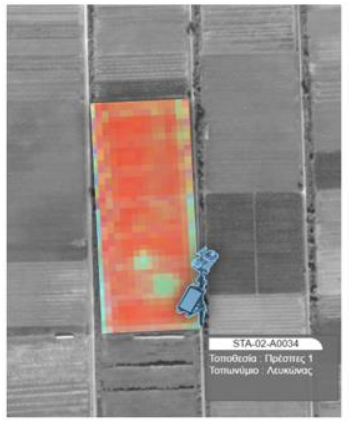
of a given crop

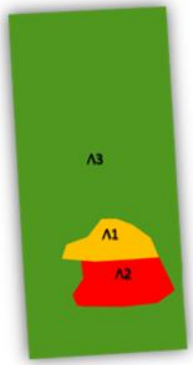
- Avoid excess or deficiency of nutrients

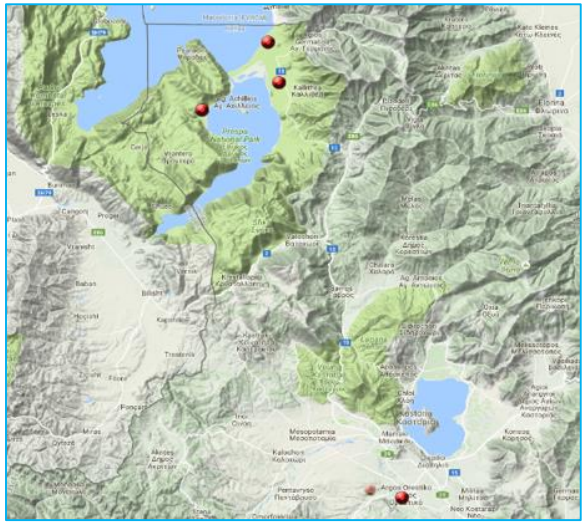
Based on:

- Soil sampling and analysis
- Consideration of the specific crop's needs
- Use of other data types (e.g. plant growth stage)









SMART CROP PROTECTION (I)

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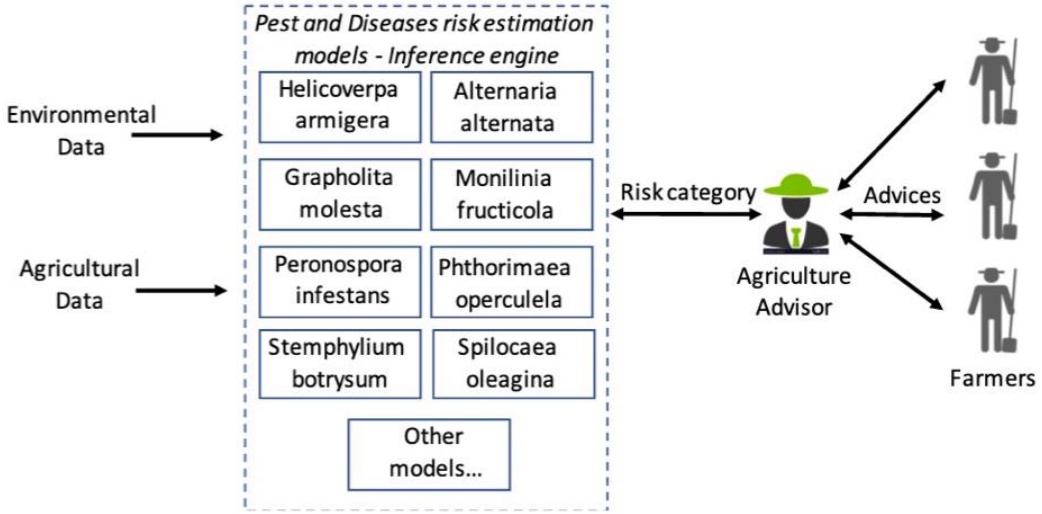
Aims

- Avoid unnecessary applications
- Ensure the timely application of pesticides



Based on

- Precise recording of atmospheric conditions that favor the infection/infestation of a given crop, plants phenological stage, applied cultivation practices
- Scientific models specialized for each pest / disease of a given crop and adapted to the microclimatic conditions of an area

SMART CROP PROTECTION (II)

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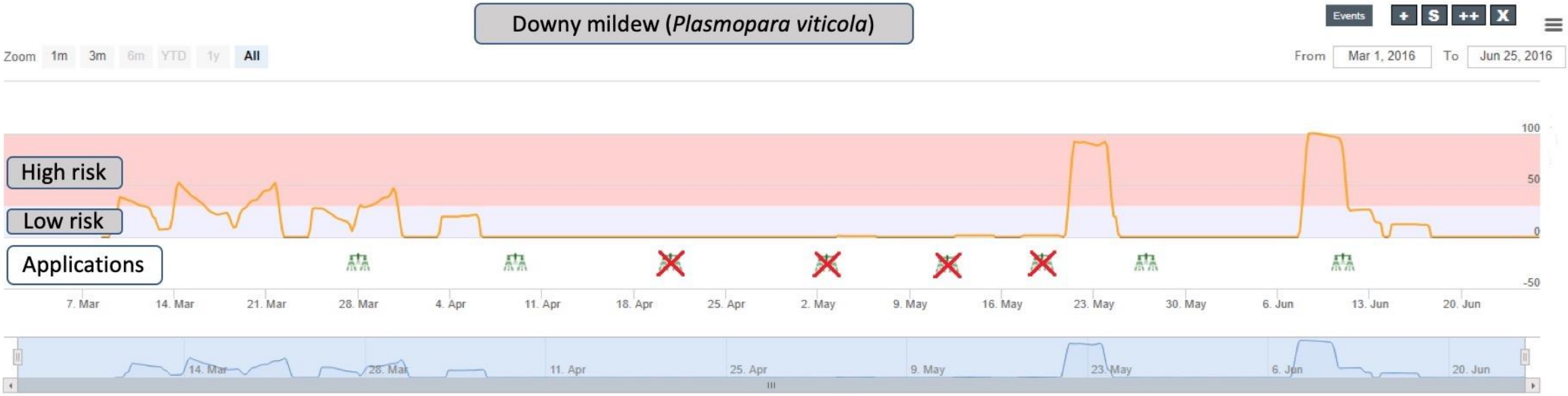
The following example presents a sample of the gaiasense's User Interface (Pest management)

- Calculated risk
- Unnecessary vs Accurate Pesticides Applications



SMART FARMING PROJECTS

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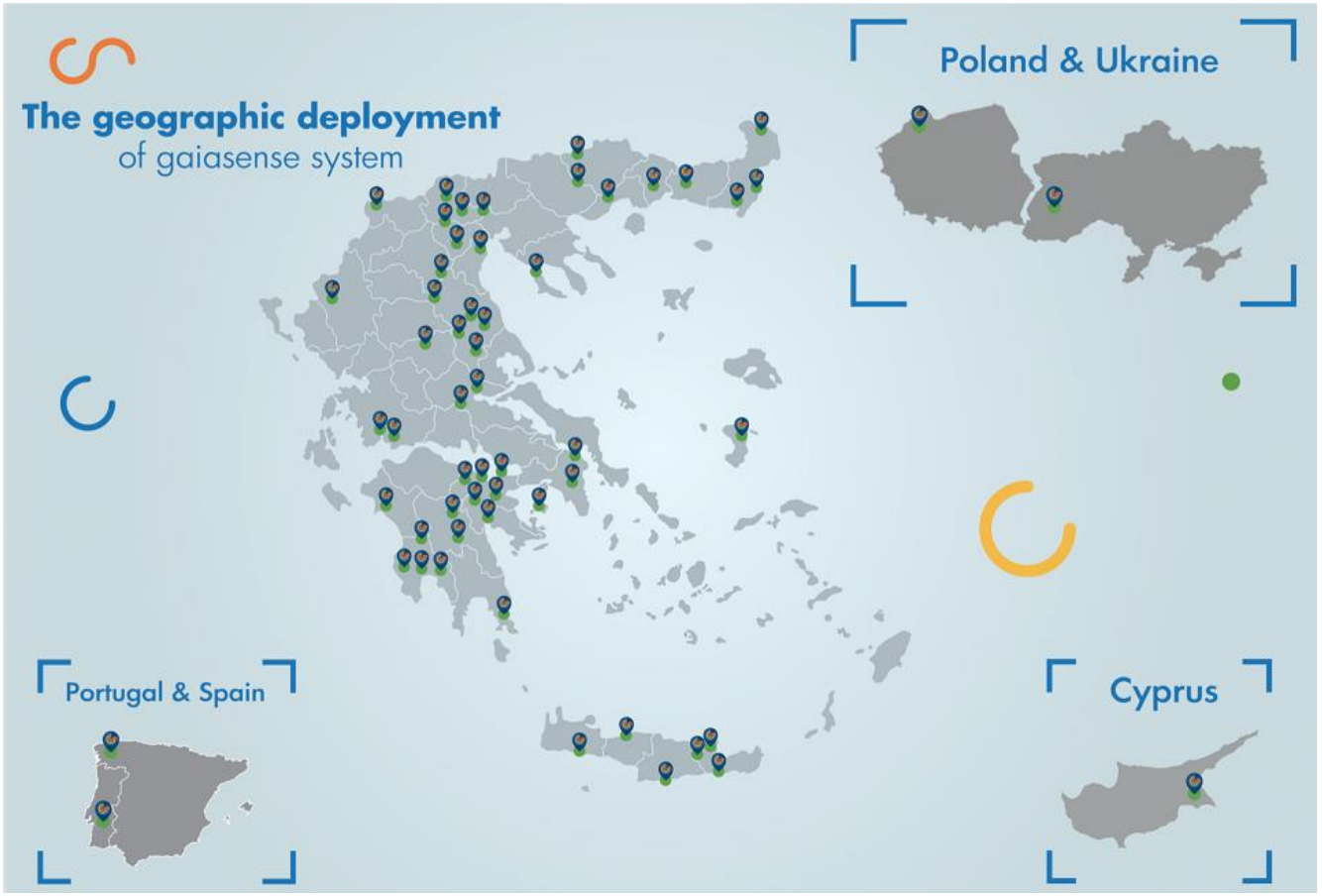
- >26 pilot sites
  >200 IoT Stations
  >24.000 ha
  >11 different crops
- Pest Management/
  Hazard warnings against 15 pests and 29 diseases
- 6 European countries



AGRICULTURE DATA SHARING – CROP PROTECTION EXAMPLE (I)

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- **Pest and diseases risk estimation models /algorithms**
  - Difficult to be trained
  - Protected by IPR
  - Existing models need continuous calibration due to climate change e.g. behavior of insects is affected by changes of temperature.
- **Gaisense has an extensive network of collaborators for developing such models in Greece**
  - Agricultural Universities , Research Centers
- **Accurate Pest Management Models is an issue when trying to expand and apply pest managemtn to other European Countries**
  - Example: Infestation prediction models developed and trained in Greece may not work for Poland's climate
- **Necessary to collect infestation evidences in untreated parcels for one cultivation period and retrain/ calibrate the models**
  - Expensive and time consuming

AGRICULTURE DATA SHARING – CROP PROTECTION EXAMPLE (II)

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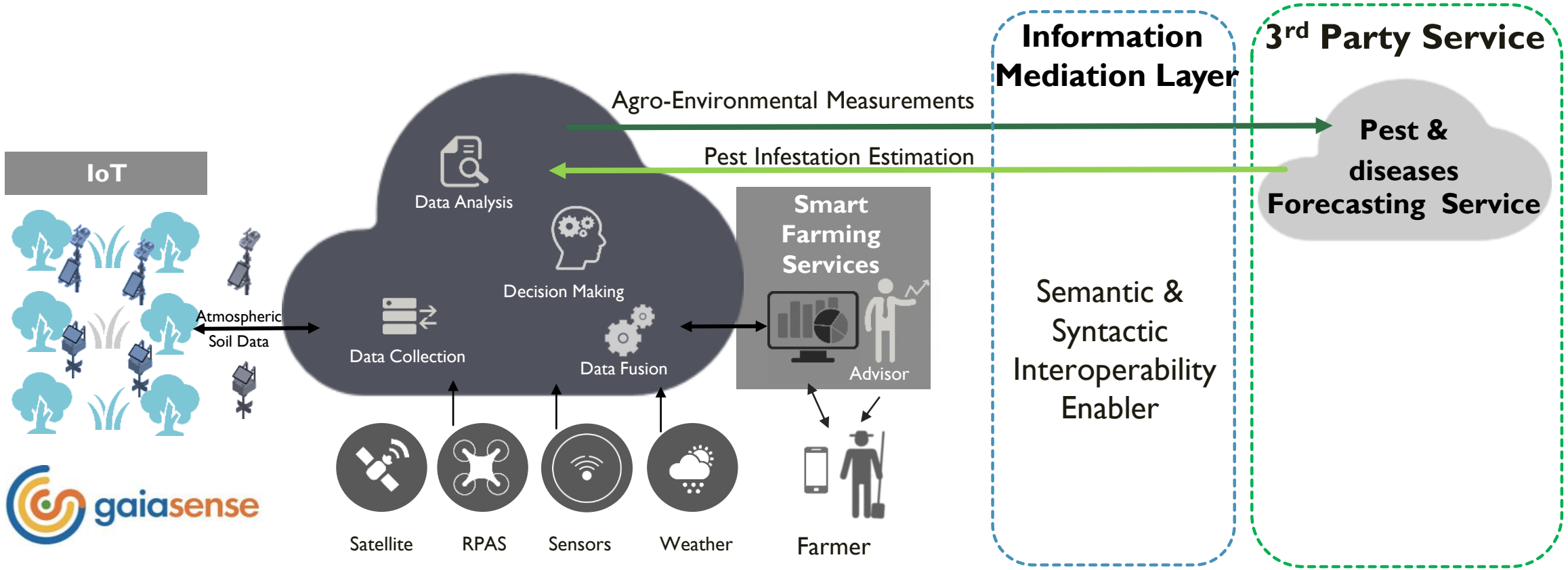

BARRIERS ON AGRICULTURE DATA SHARING

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*Data Interoperability mechanisms and adoption of **standards** is currently a dominant approach for data sharing.*

Barriers from a technical perspective:

- **Harmonized information models, vocabularies and APIs.**

  Lack of common accepted standards or different standards for the same application domain

- **Implementation effort for standards integration within operational systems**

  Hardware/Software engineers are struggling to make a smart farming system operate in 24/7. Interoperability enablers introduce additional complexities while the envisioned benefits are not always clear to them.

- **Data volume optimization**

  Data modeling standards are usually based on complex structures e.g. ontologies. Increase of data volumes.

- **Control of information flow – Data governance**

  The administrative entity that owns or manages the IoT data should have the means to control which information elements are leaving their cyber-premises and how it will be utilized.

- **Security and Access Control**

SOLUTIONS

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- **Internet of Food and Farm 2020 Large Scale Pilot** - System of Systems Approach
  - Gaiasense achieved data sharing using interoperability enablers based on FIWARE Orion Context Broker (Connecting Europe Facility) and NGSIv2 data model-vocabularies
  - "Offline data translation" combined with "Real time data-sharing"

- **AIOTI Whitepaper**: "IoT data marketplaces for the agri-food sector: a first look to use cases for smart farming and across the food chain" - AIOTI WG06 –Smart Farming and Food Security
  - Interesting approach, technical elaboration towards implementation is necessary

- **H2020 DEMETER and ATLAS Large Scale Pilots**
  - Waiting for the first results

- Standardization initiatives focusing (also) on agriculture
  - ETSI-NGSI-LD (Agriculture vocabulary), SAREF4AGRI, UN-eCrop, ISOBUS, AgGateway's ADAPT

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Information Systems & Technologies

THANK YOU

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Jurgen Vangeyte
Scientific director
ILVO

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DJUST CONNECT

DjustConnect:

Digitizing the Ag Code of Conduct to create a Digital Data Ecosystem with the Farmer at the Steer

EFRO EUROPEES FONDS VOOR REGIONALE ONTWIKKELING

Europese Unie

ILVO Instituut voor Landbouw- en Visserijonderzoek

Smart Digital Farming

- Ambassador for Precision farming and Digital AgriFood
- Digital Farming is part of the solution towards sustainable food production
- Support our ecosystem to bring valuable products for the end-users

- Ag. Engineer fascinated by all farm machinery and equipment
- Director of the Agrifood Technology department at ILVO
- (Technical) expert in precision and digital farming with interest in the business aspect

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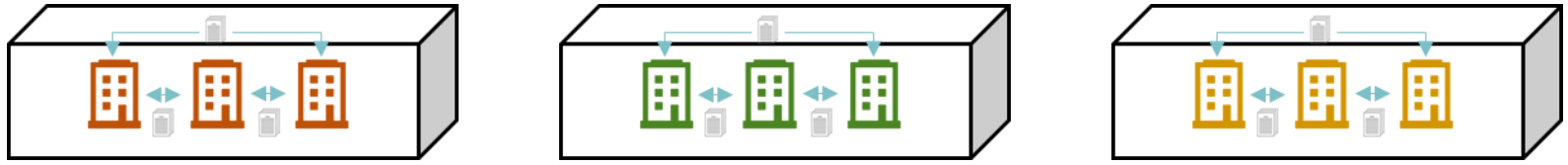
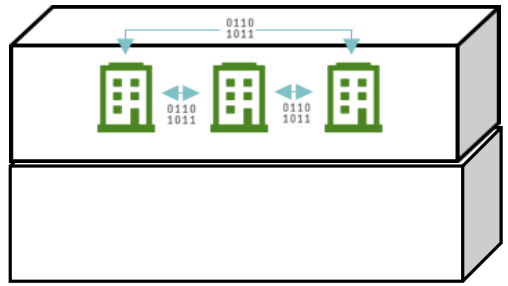
Data sharing 4.0

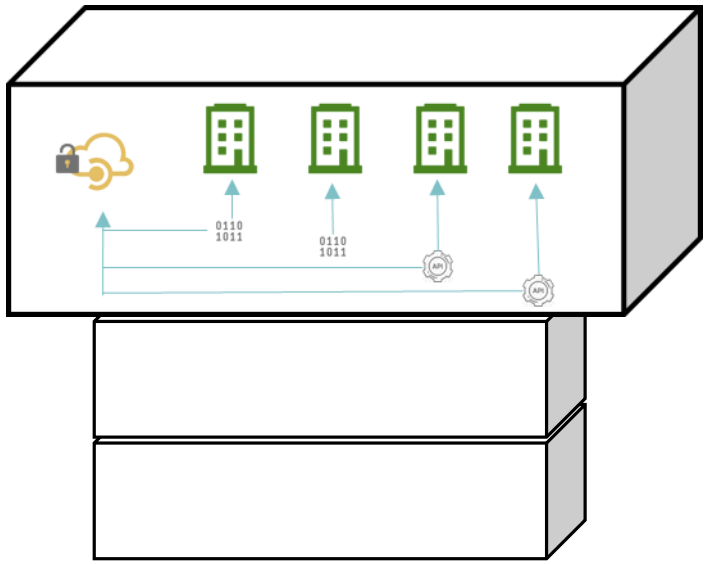
Data sharing 1.0



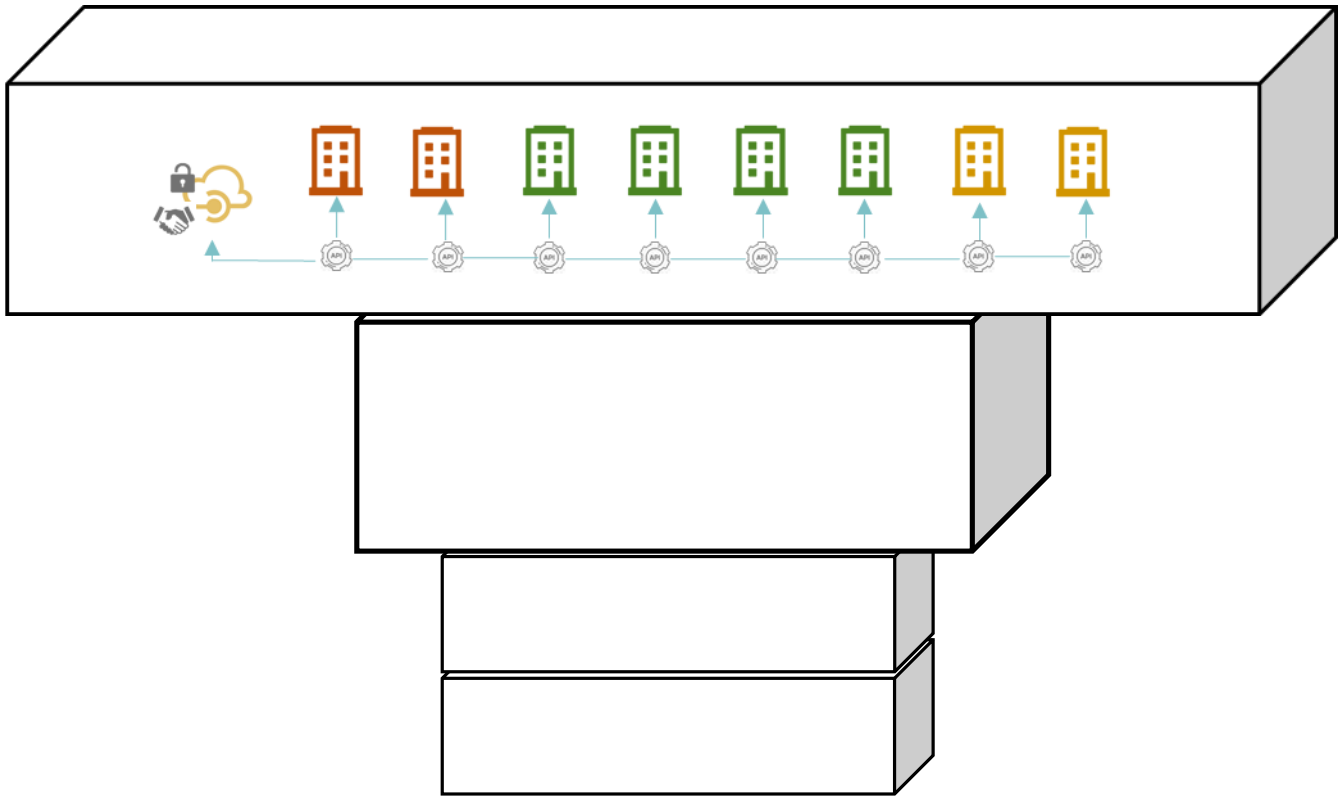
Data sharing 2.0



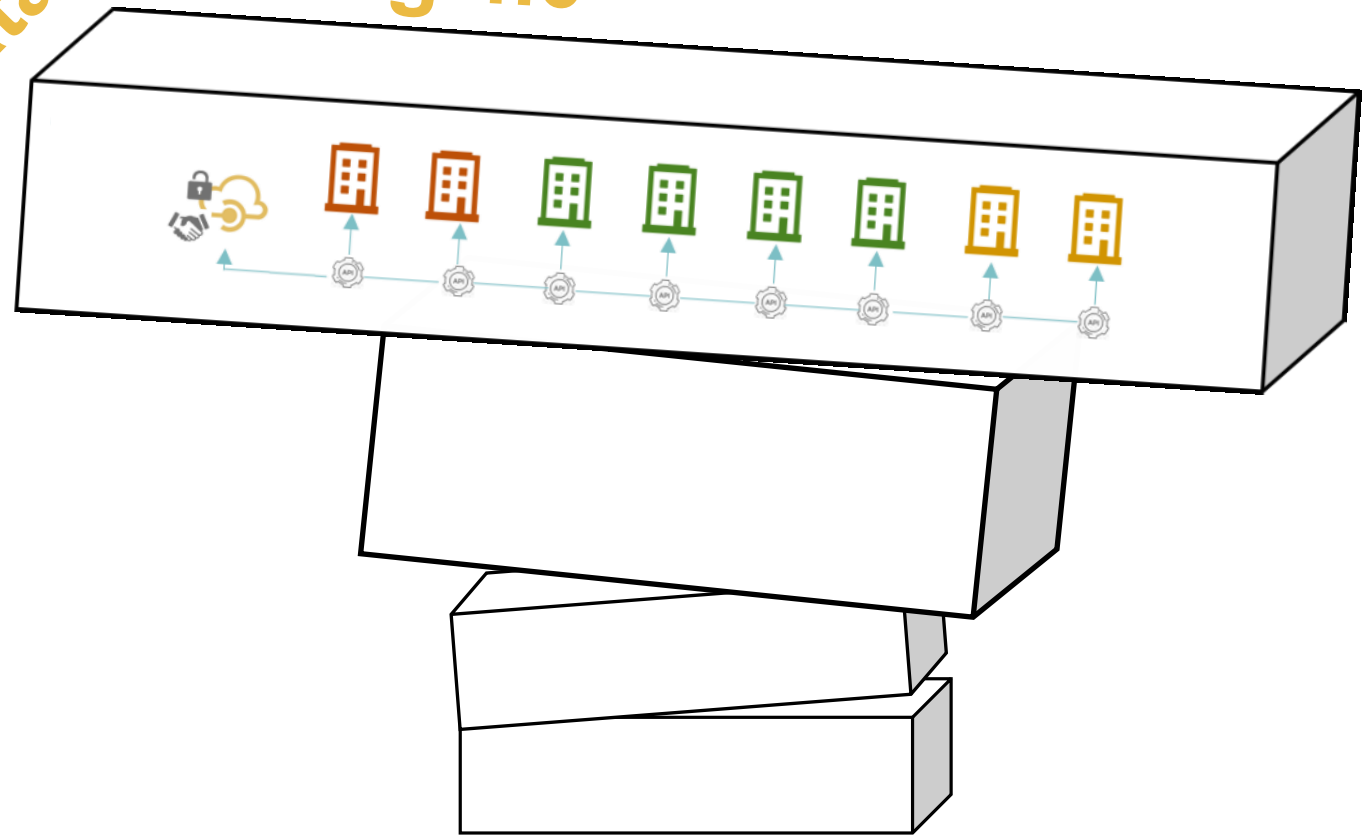
Data sharing 3.0

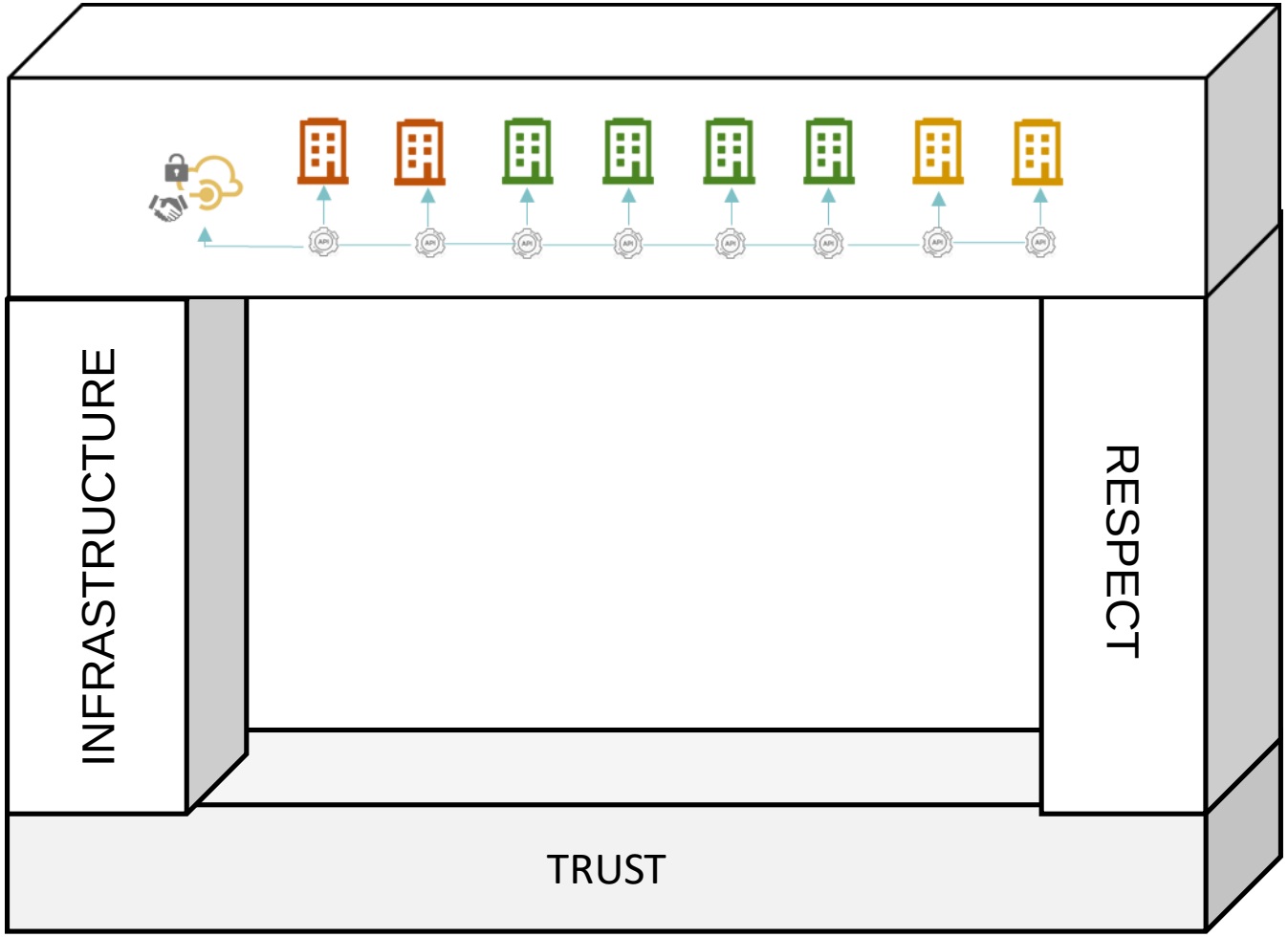


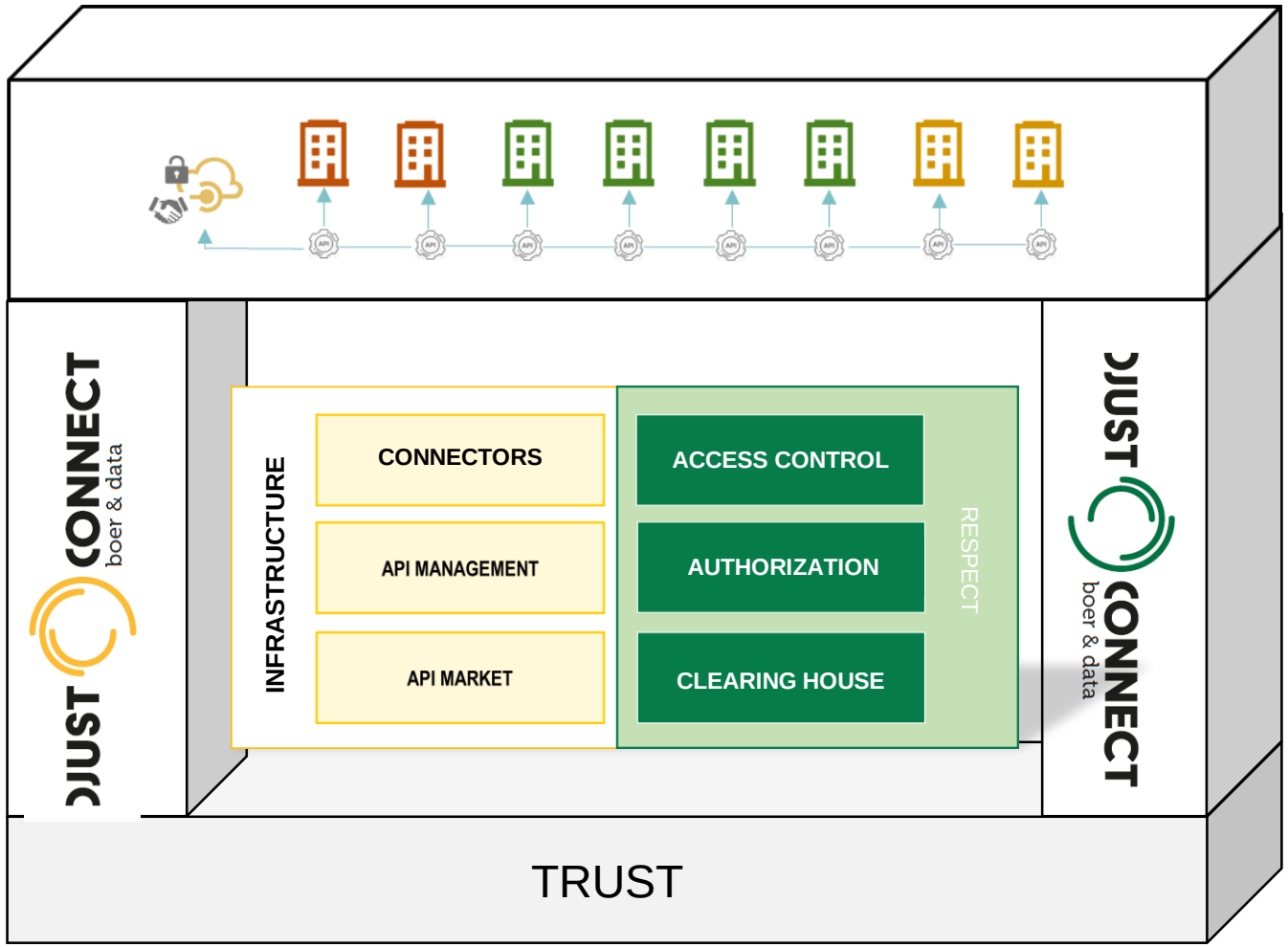
Data sharing 4.0



Data sharing 4.0




INFRASTRUCTURE
RESPECT
TRUST


CONNECTORS
API MANAGEMENT
API MARKET
INFRASTRUCTURE
ACCESS CONTROL
AUTHORIZATION
CLEARING HOUSE
RESPECT
TRUST

CONNECT
boer & data

Infrastructure

DJUST CONNECT
boer & data

CONNECT
boer & data

DJUST

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Instituut voor Landbouw-,
Visserij- en Voedingsonderzoek

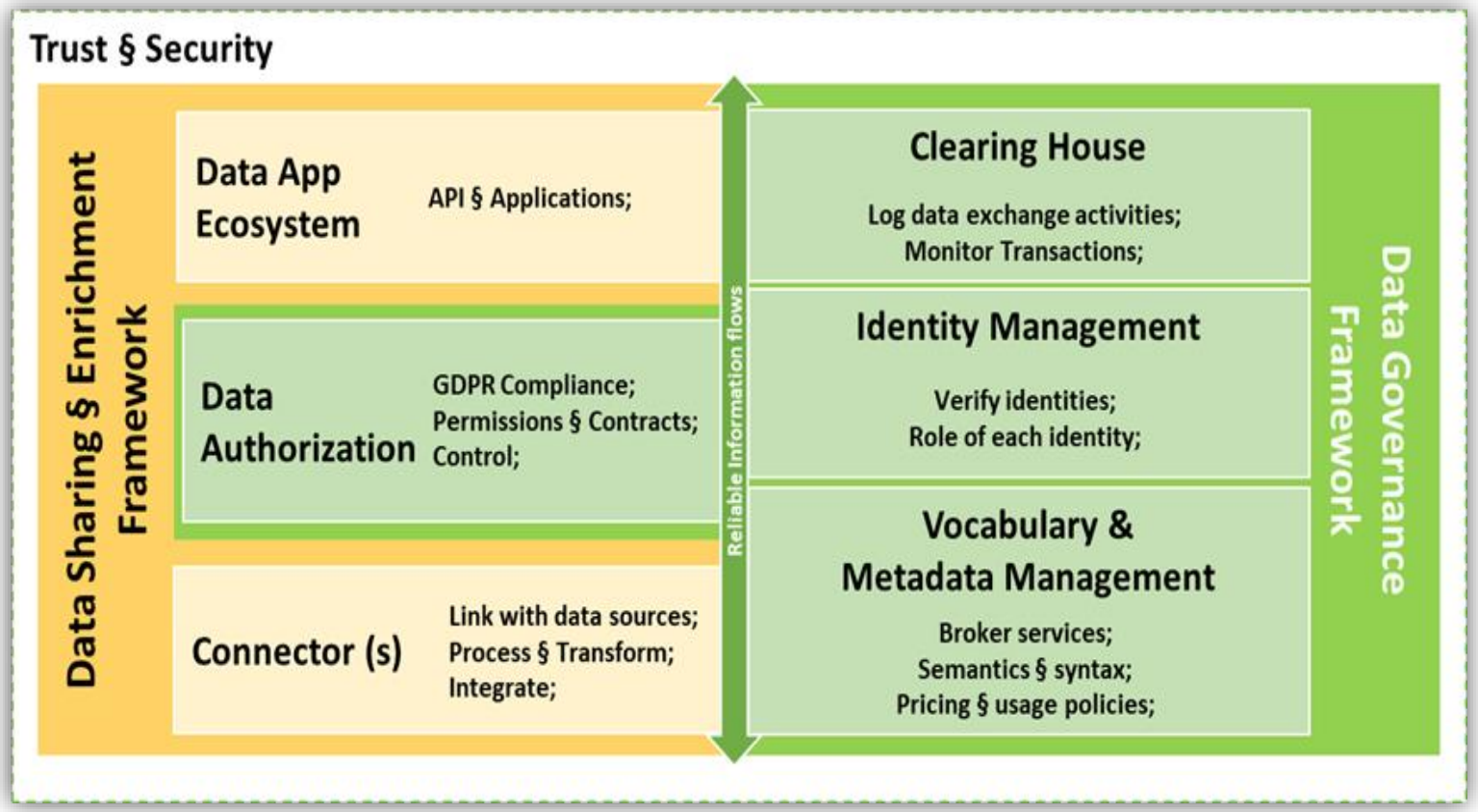
cegeka
IN CLOSE COOPERATION

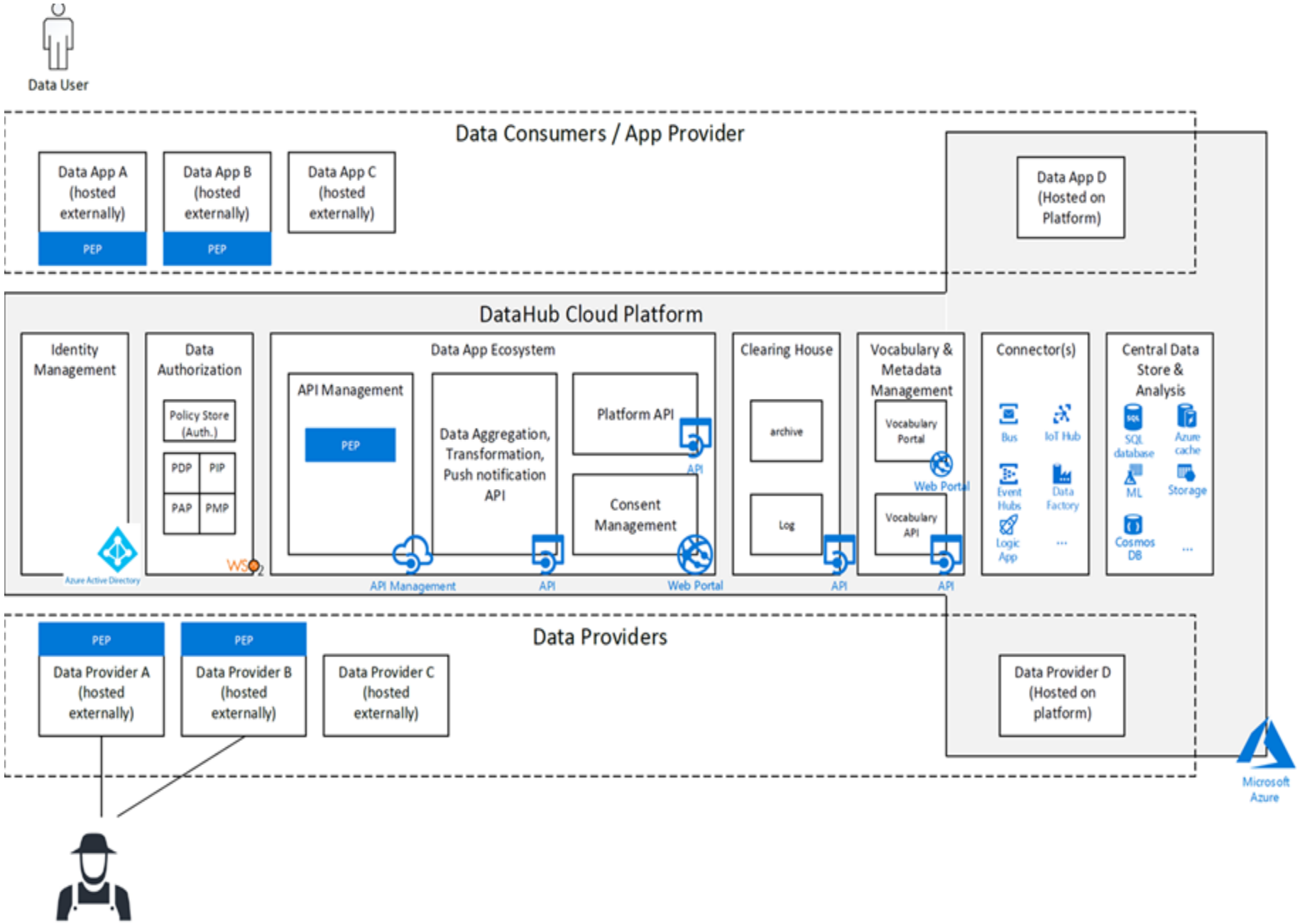
Architecture

Architecture

Standards for Data Exchange

Common Governance Models




Data User
Data Consumers / App Provider
Data App A (hosted externally)
PEP
Data App B (hosted externally)
PEP
Data App C (hosted externally)
Data App D (Hosted on Platform)
DataHub Cloud Platform
Identity Management
Azure Active Directory
Data Authorization
Policy Store (Auth.)
PDP
PIP
PAP
PMP
Data App Ecosystem
API Management
PEP
Data Aggregation, Transformation, Push notification API
Platform API
API
Consent Management
API Management
API
Web Portal
Clearing House
archive
Log
API
Vocabulary & Metadata Management
Vocabulary Portal
Web Portal
Vocabulary API
API
Connector(s)
Bus
IoT Hub
Event Hubs
Data Factory
Logic App
...
Central Data Store & Analysis
SQL database
Azure cache
ML
Storage
Cosmos DB
...
Data Providers
PEP
Data Provider A (hosted externally)
PEP
Data Provider B (hosted externally)
Data Provider C (hosted externally)
Data Provider D (Hosted on platform)
Microsoft Azure

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Respect

Data originator:

- created/collected the data either by technical means or by himself or commissioned data providers for this purpose
- initial rights
- gives access rights
- benefits or compensation
- data portability

Data provider

- delivers the data to the user/originator

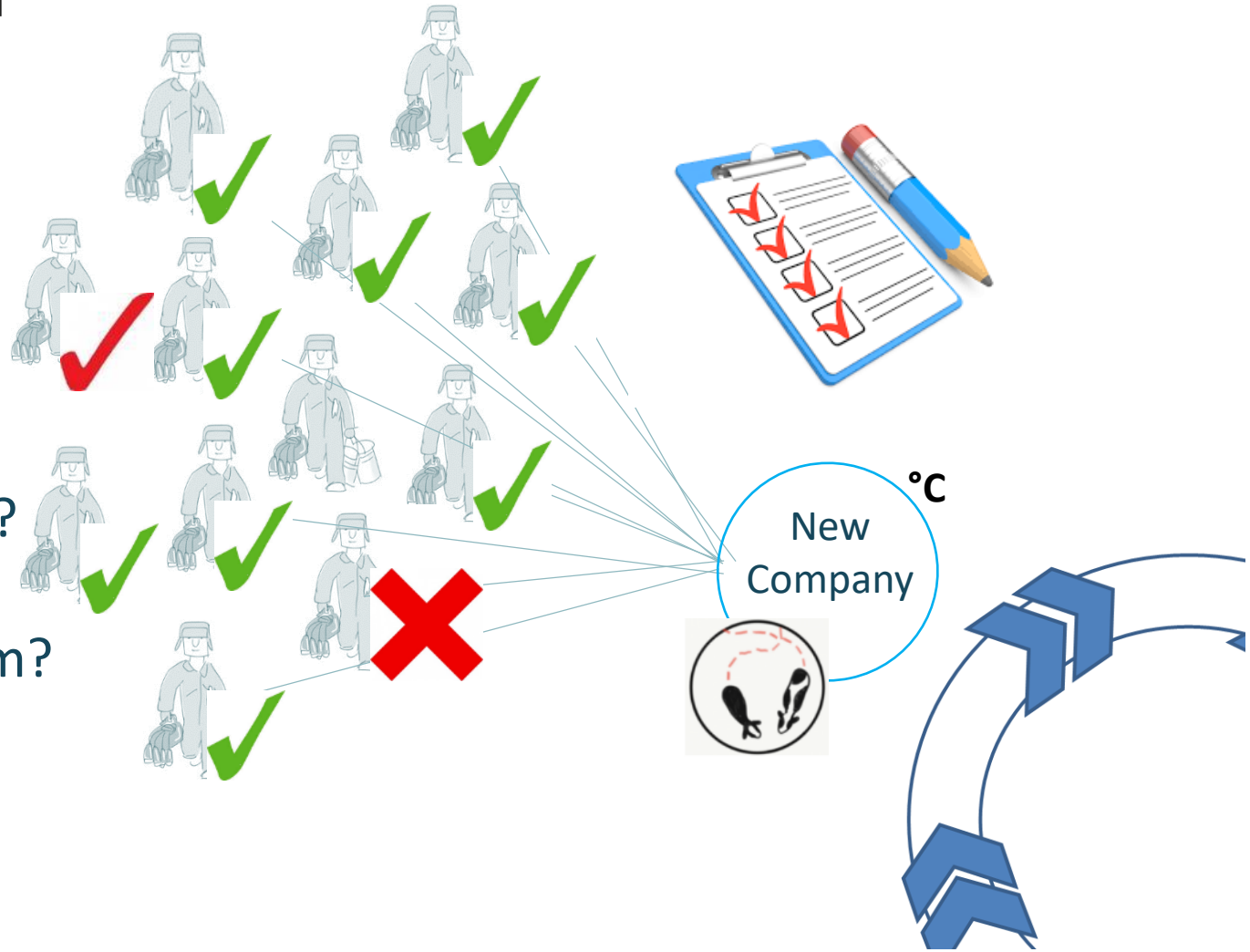
Data user

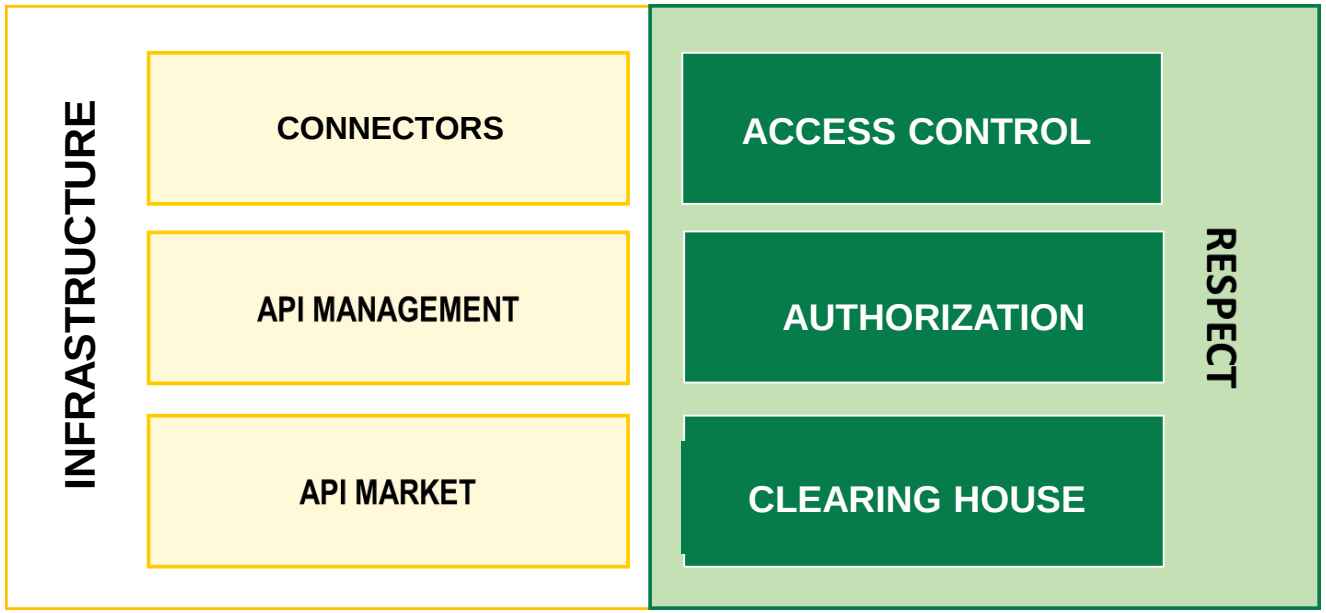
- Receives data form orginator or provider

fertilizers europe
Ceettar
EFFAB
copa cogeca
european farmers
european agri-cooperatives
ESA
CEMA
European Agricultural Machinery
CEJA
FEFAC
European Crop Protection

DJUST CONNECT
boer & data

- What Data?
- With Whom?
- Why?
- How Long?




INFRASTRUCTURE
CONNECTORS
API MANAGEMENT
API MARKET
ACCESS CONTROL
AUTHORIZATION
CLEARING HOUSE
RESPECT

JUST CONNECT boer & data Aanmelden

Kies manier van aanmelden

Kies hieronder hoe u wil aanmelden. Klik op "meer info" voor uitleg over die manier van aanmelden. Klik op de knop "hulp nodig?" (rechts) voor veelgestelde vragen over aanmelden of om contact op te nemen met de helpdesk.

itsme®
UW LAATSTE KEUZE
Meer info

eID en aangesloten kaartlezer
VEILIGSTE KEUZE
Meer info

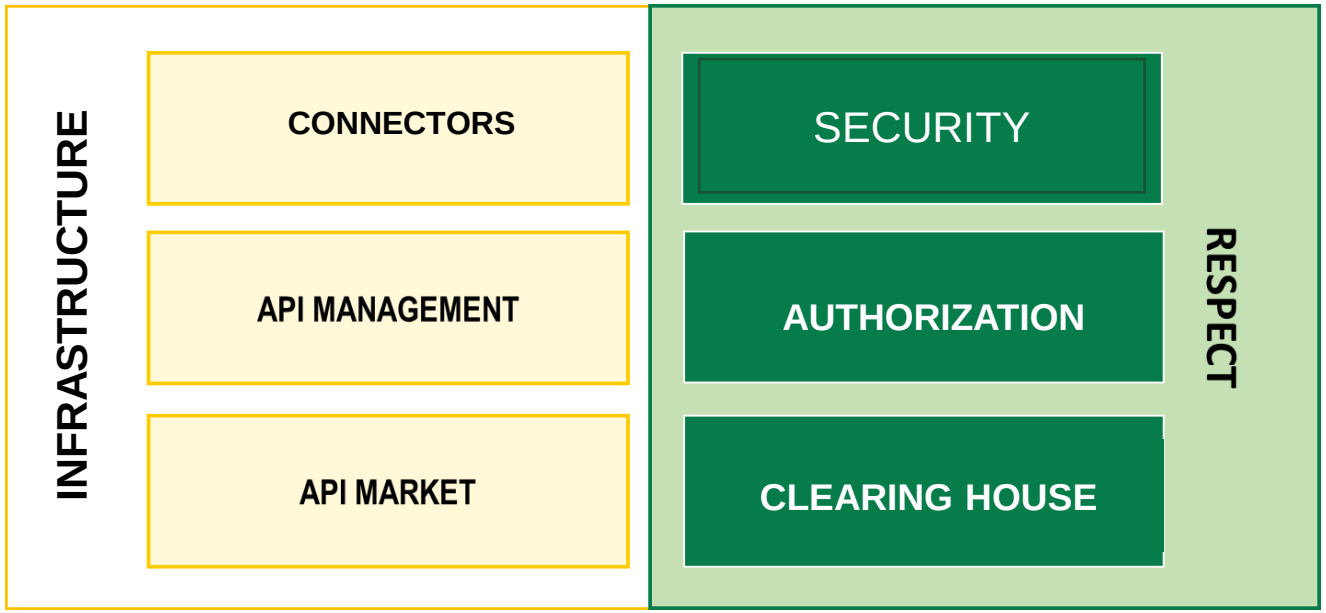
Beveiligingscode via mobiele app
GEMAKKELIJKSTE KEUZE
Eerste gebruik? Manier van aanmelden eerst activeren
Meer info

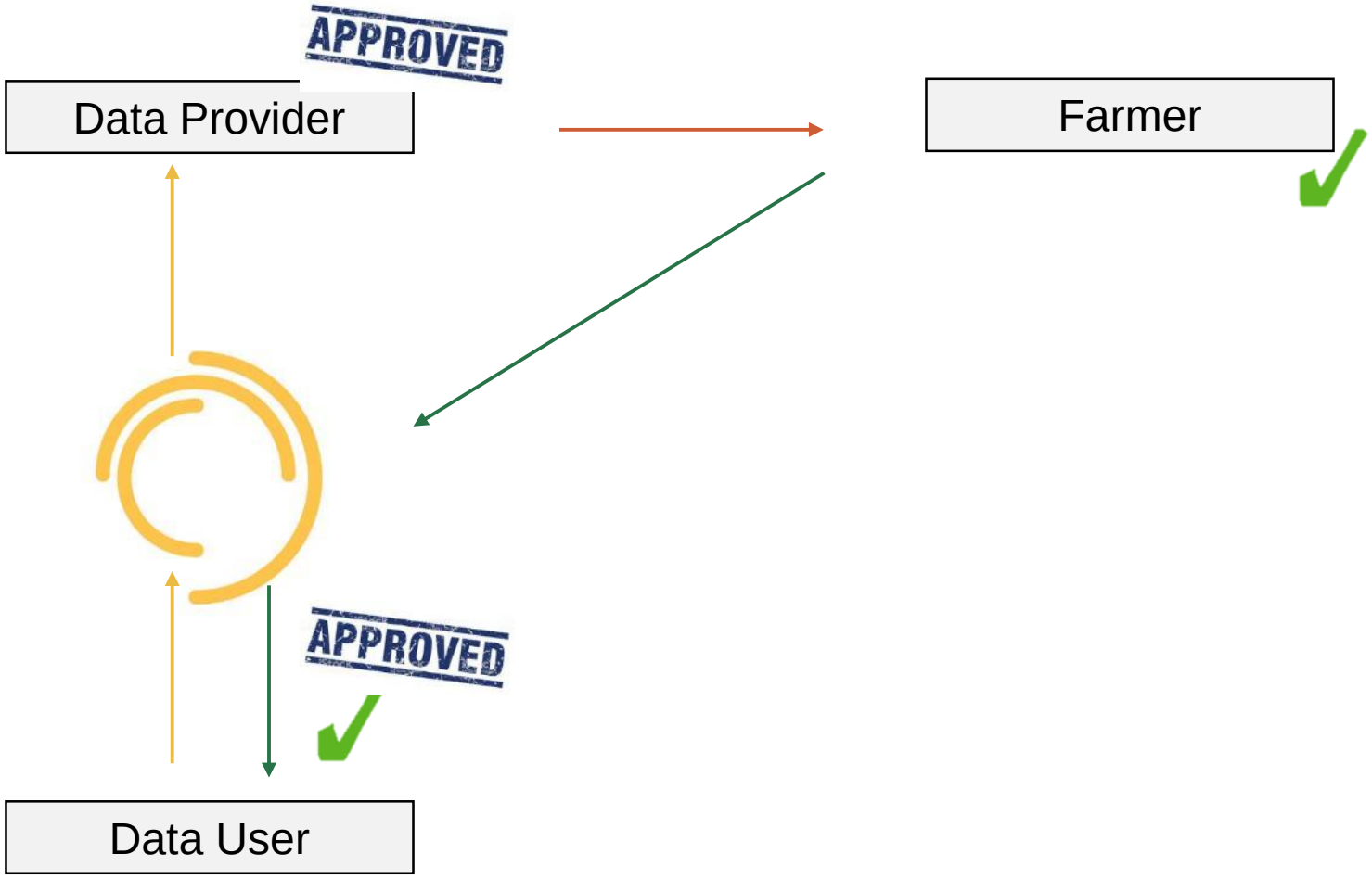
Beveiligingscode via SMS
Eerste gebruik? Manier van aanmelden eerst activeren
Meer info

VO-token (Vlaamse overheid)
Meer info

Federaal token
Meer info

Farmer


INFRASTRUCTURE
CONNECTORS
API MANAGEMENT
API MARKET
SECURITY
AUTHORIZATION
CLEARING HOUSE
RESPECT


APPROVED
Data Provider
Farmer
APPROVED
Data User

Overview Data Requests

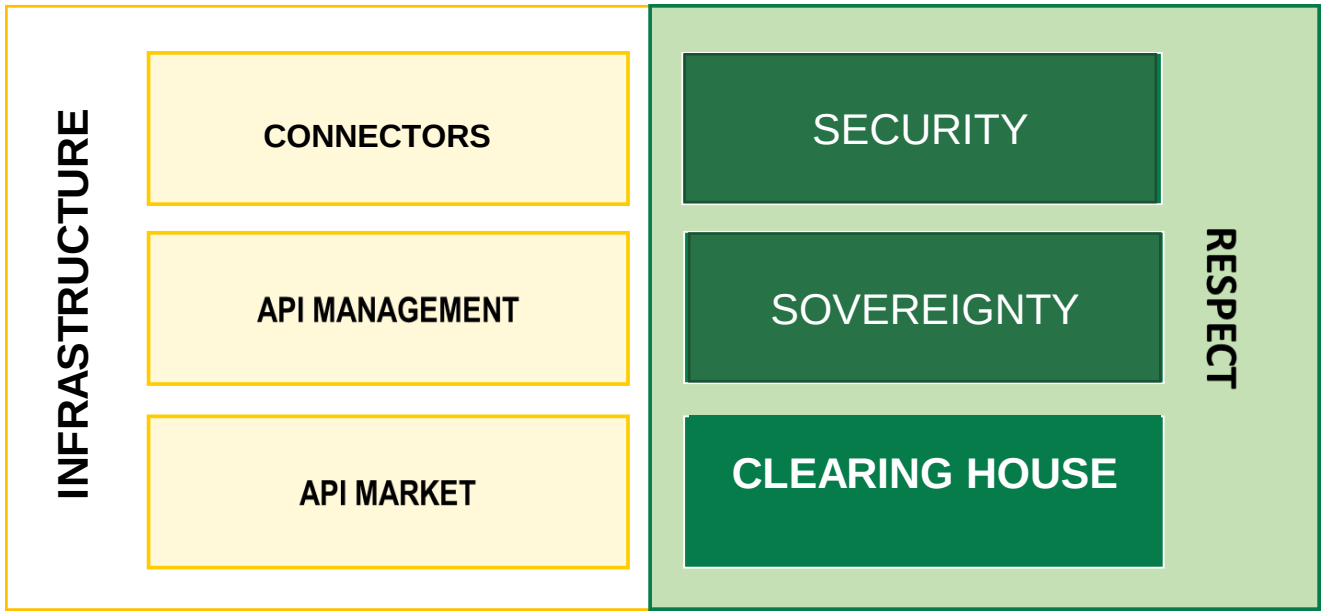
#	Request received at	Data User	Goal	
1	10/06/2019	IKM	Administrative Simplification	Details

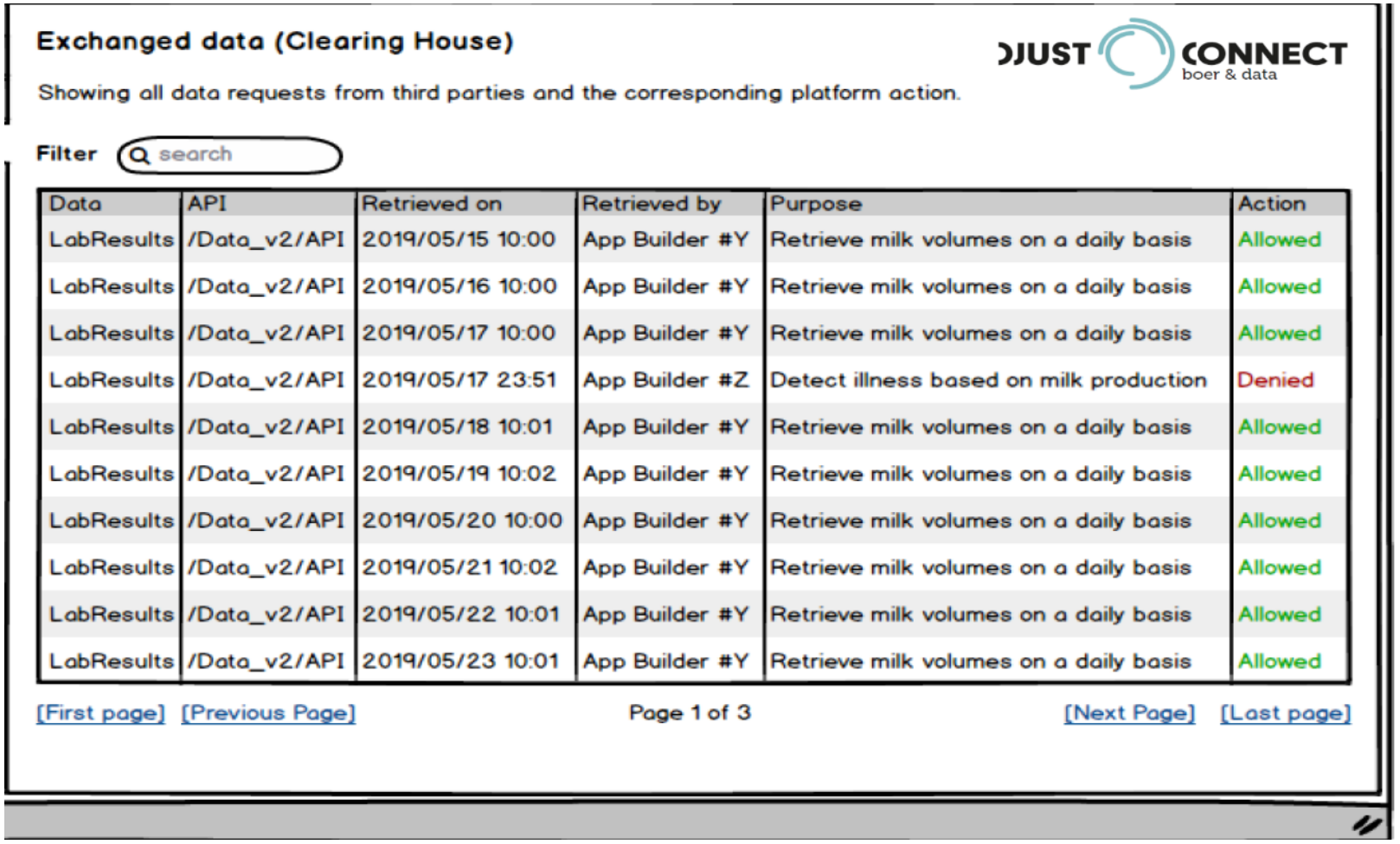
Details

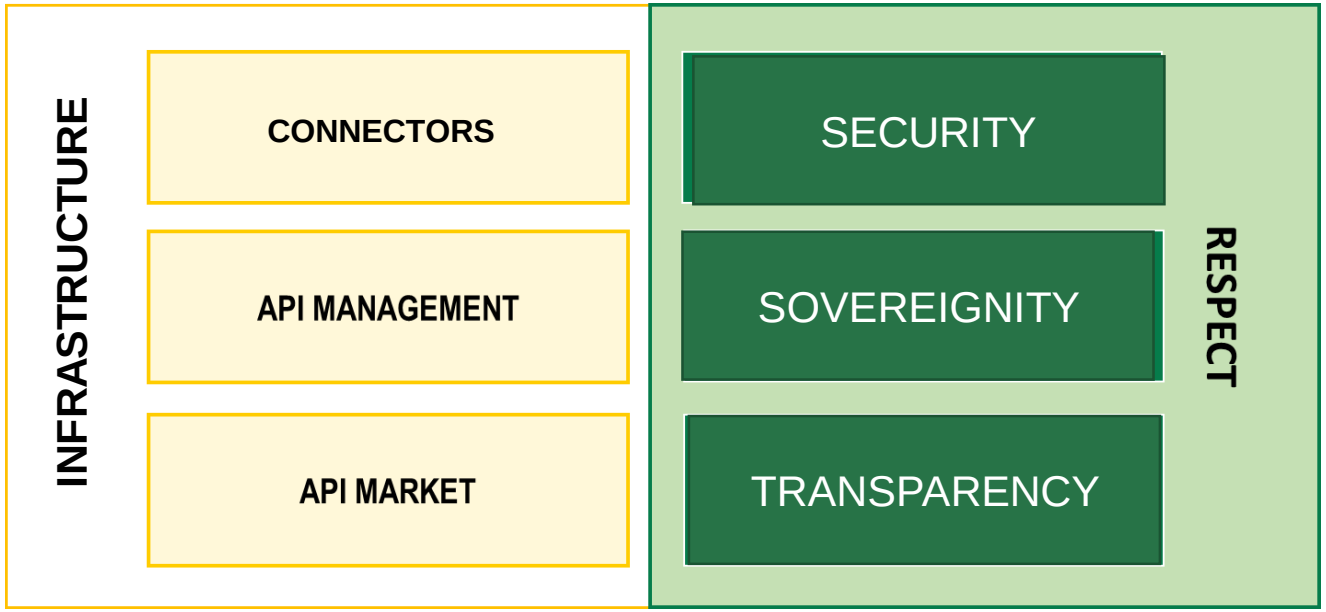
<< Details sluiten

Data overzicht

- **MilControl** GetReports : Overzicht meet- en adviesrapporten
- **MilControl** GetReportDocument : Meet- en adviesrapport ophalen (pdf)
- **DGZ** GetVeterinary : Bedrijfsdierenartsen ophalen


INFRASTRUCTURE
CONNECTORS
API MANAGEMENT
API MARKET
SECURITY
SOVEREIGNTY
CLEARING HOUSE
RESPECT


Exchanged data (Clearing House)
JUST CONNECT
boer & data
Showing all data requests from third parties and the corresponding platform action.
Filter
search
Data | API | Retrieved on | Retrieved by | Purpose | Action
LabResults | /Data_v2/API | 2019/05/15 10:00 | App Builder #Y | Retrieve milk volumes on a daily basis | Allowed
LabResults | /Data_v2/API | 2019/05/16 10:00 | App Builder #Y | Retrieve milk volumes on a daily basis | Allowed
LabResults | /Data_v2/API | 2019/05/17 10:00 | App Builder #Y | Retrieve milk volumes on a daily basis | Allowed
LabResults | /Data_v2/API | 2019/05/17 23:51 | App Builder #Z | Detect illness based on milk production | Denied
LabResults | /Data_v2/API | 2019/05/18 10:01 | App Builder #Y | Retrieve milk volumes on a daily basis | Allowed
LabResults | /Data_v2/API | 2019/05/19 10:02 | App Builder #Y | Retrieve milk volumes on a daily basis | Allowed
LabResults | /Data_v2/API | 2019/05/20 10:00 | App Builder #Y | Retrieve milk volumes on a daily basis | Allowed
LabResults | /Data_v2/API | 2019/05/21 10:02 | App Builder #Y | Retrieve milk volumes on a daily basis | Allowed
LabResults | /Data_v2/API | 2019/05/22 10:01 | App Builder #Y | Retrieve milk volumes on a daily basis | Allowed
LabResults | /Data_v2/API | 2019/05/23 10:01 | App Builder #Y | Retrieve milk volumes on a daily basis | Allowed
[First page] [Previous Page]
Page 1 of 3
[Next Page] [Last page]


INFRASTRUCTURE
CONNECTORS
API MANAGEMENT
API MARKET
SECURITY
SOVEREIGNITY
TRANSPARENCY
RESPECT

CONNECT
boer & data

DJUST

Does not build apps

Provides the sector with **strong foundations** for doing this

Roll-out

JUST CONNECT
boer & data

10/10/2019: Launch event

PERSOONLIJKE UITNODIGING

Netwerkontbijt met lancering IKM-NET

-1ste applicatie powered by DjustConnect-

28 februari 2020

8u30 – 10u

Tent Rundveesymposium

Agridagen Ravels

De driejaarlijkse IKM-audit. Een fantastische hefboom voor kwaliteitsborging van onze Vlaamse melk.

Alleen, de bijbehorende administratieve rompslomp is er voor melkveehouders vaak net iets te veel aan.

Niemand houdt van papierwerk op zondag. En niemand stuurt graag een tweede kopie van een rapport of factuur omdat het eerste ondergesneeuwd raakte.

Gelukkig hoeft een audit vanaf 2020 niet meer zo'n gedoe te zijn, want **IKM en ILVO lanceren een nieuwe app**. Mits expliciete goedkeuring van de melkveehouder op zijn DjustConnect dashboard krijgt IKM van onderstaande partners de informatie digitaal aangeleverd.

We vertellen u graag tijdens het lanceringsevent net voor de start van de Agridagen in Ravels:

- Welke functionaliteiten de nieuwe app heeft?
- En waarom dit zo'n grote stap vooruit is voor álle betrokkenen?

Nadien krijgt u de kans om te netwerken bij een heerlijk ontbijt.

Gelieve uw komst te bevestigen vóór 21 februari via deze link.

Indien u graag een inkomkaart voor de Agridagen wenst te ontvangen kan u dit ook via de link laten weten.

IKM-NET wordt mogelijk gemaakt dankzij de medewerking van:

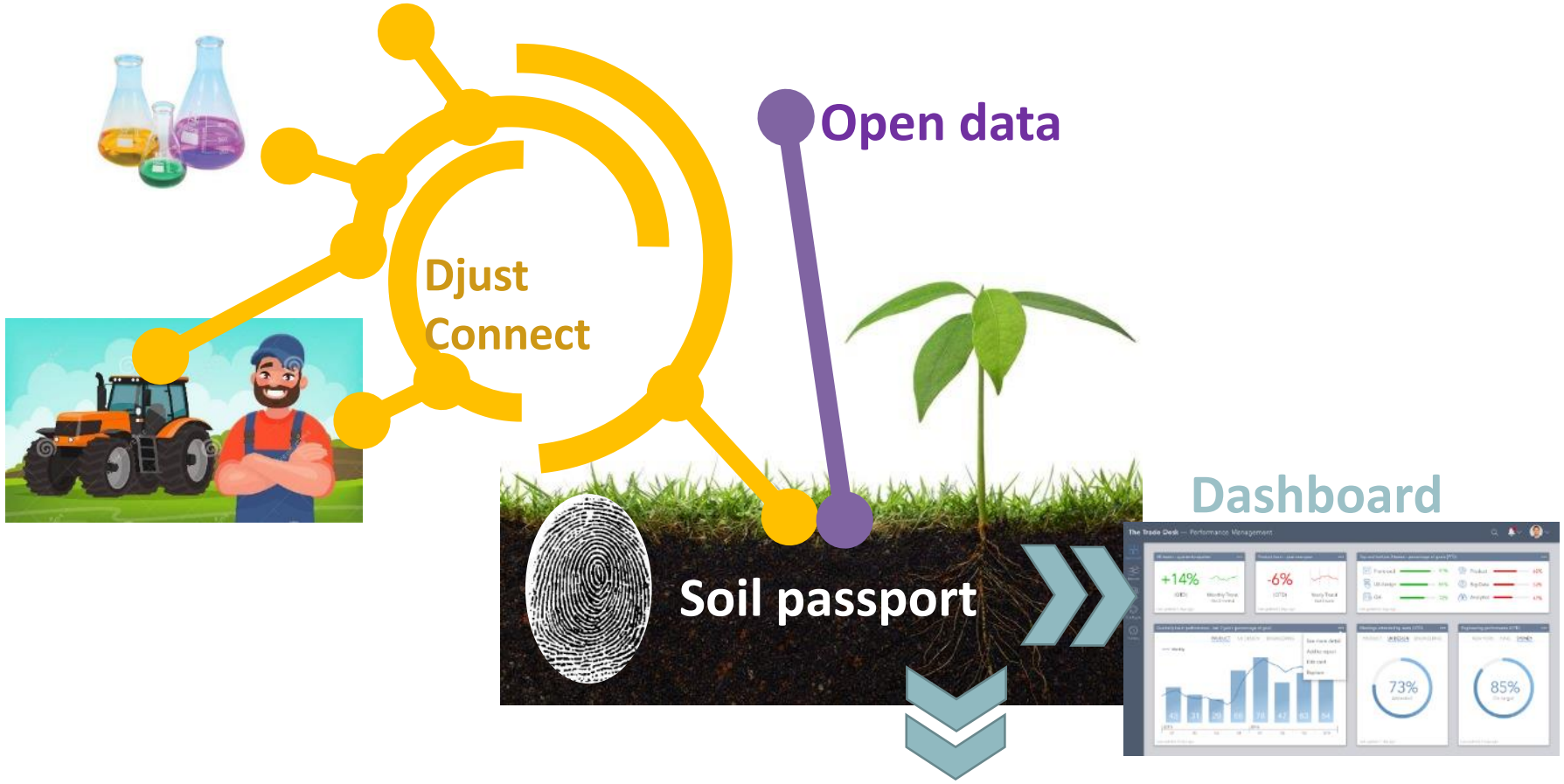
18/02/2020:

1ste application

12 data providers

4000 users (farmers)

Future: Connected data – soil passport



Vlaanderen
is landbouw & visserij

DjustConnect - Conclusion

- B2B-platform
- Funding Partners are cooperatives
- We have a neutral party in the middle for the governance
- We do not build applications
- Eu code of conduct on Agricultural Data Sharing is the centre: Farmer can decide and change opinion

CONNECT
boer & data

DJUST

https://www.youtube.com/watch?v=GaB3jz_oGko

JUN
10

Data sharing in agriculture. Towards a European agriculture data space.

15.50 Approaches for data sharing in current agriculture Large Scale Pilots

Stefan Rilling

Fraunhofer IAIS

ATLAS project coordinator

Co-organised and supported by:

IoT European Large-Scale Pilots Programme

European Commission

AIOTI Alliance for Internet of Things Innovation

CREATE-IoT

ATLAS
AGRICULTURAL INTEROPERABILITY AND ANALYSIS SYSTEM

Data Sharing in Agriculture | +++
Online Workshop, June 10th 2020 | +++

ATLAS Reference Architecture for Data Exchange in Agriculture

Stefan Rilling
Fraunhofer IAIS

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement no. 857125.

Farming is complex!

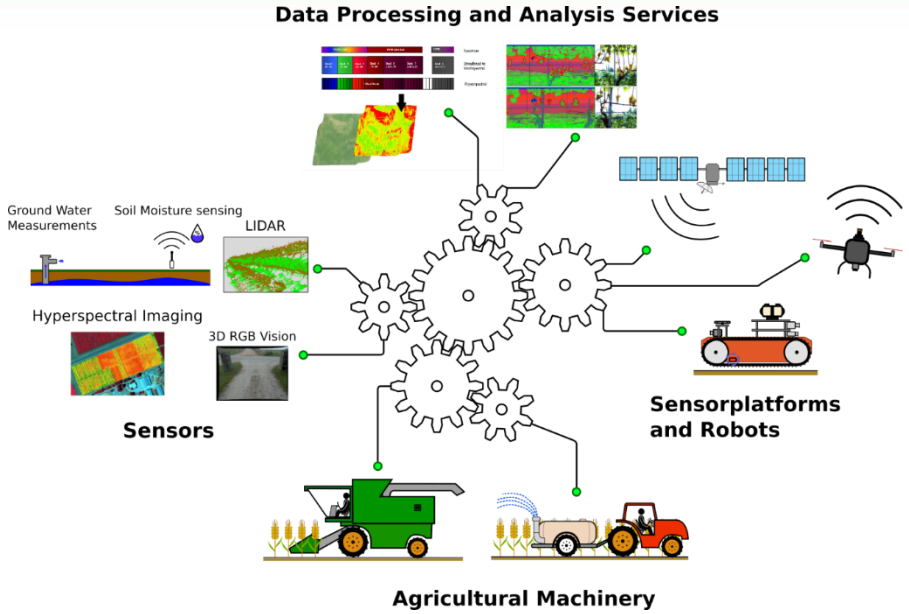
Example: One Farm, 7 different Software Systems

- This will probably increase in the future

Lots of things to manage

Heterogeneous fleets

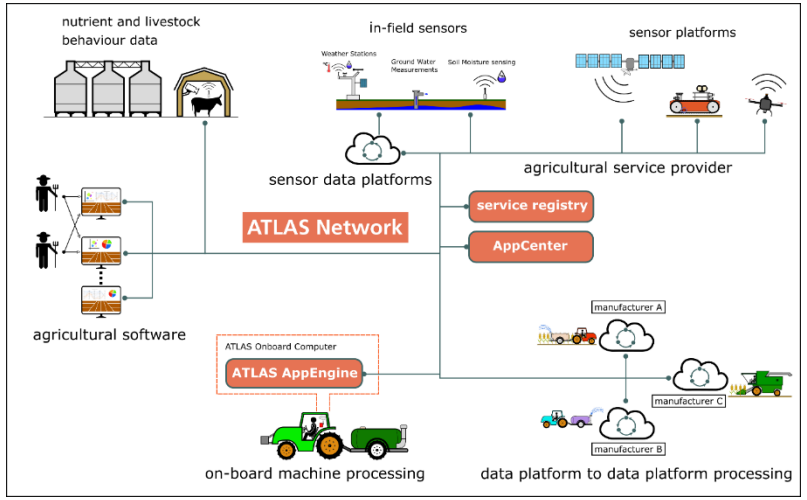
Interoperability in digital Agriculture



Very heterogeneous landscape of machines, sensors and data platforms
Exchange of data between all entities is a key-capability
Interoperability between

- Agricultural machines, sensors and data services

ATLAS Interoperability Architecture



INTERNATIONAL DATA SPACES ASSOCIATION

Trusted and autonomous participants

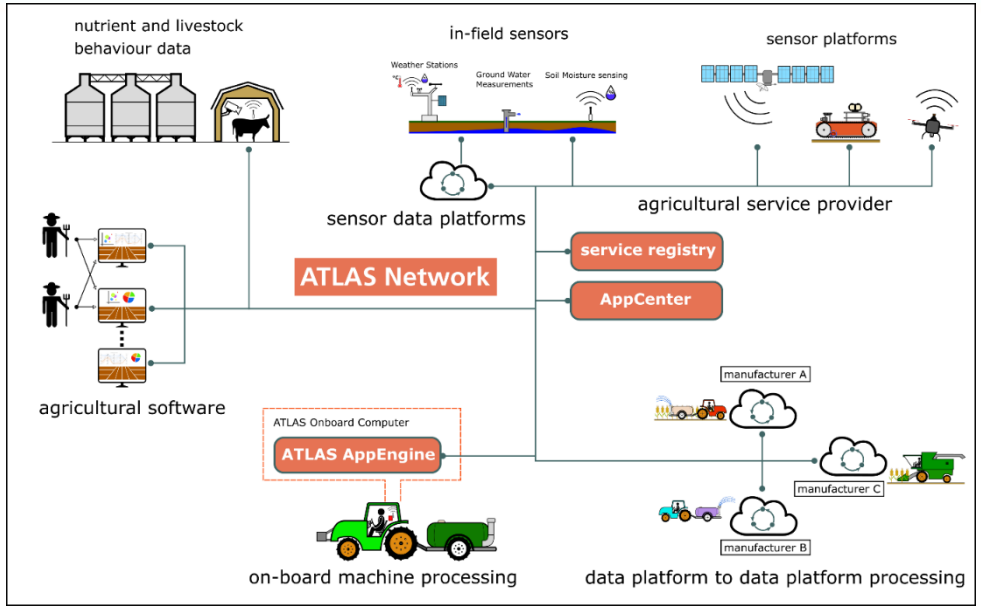
- Data sovereignty and full control over the data
- Certification mechanisms for security critical applications

Minimum of centralized components

- No data silos, no central data hubs

Data Exchange through dedicated connectors (Services)

ATLAS Interoperability Architecture



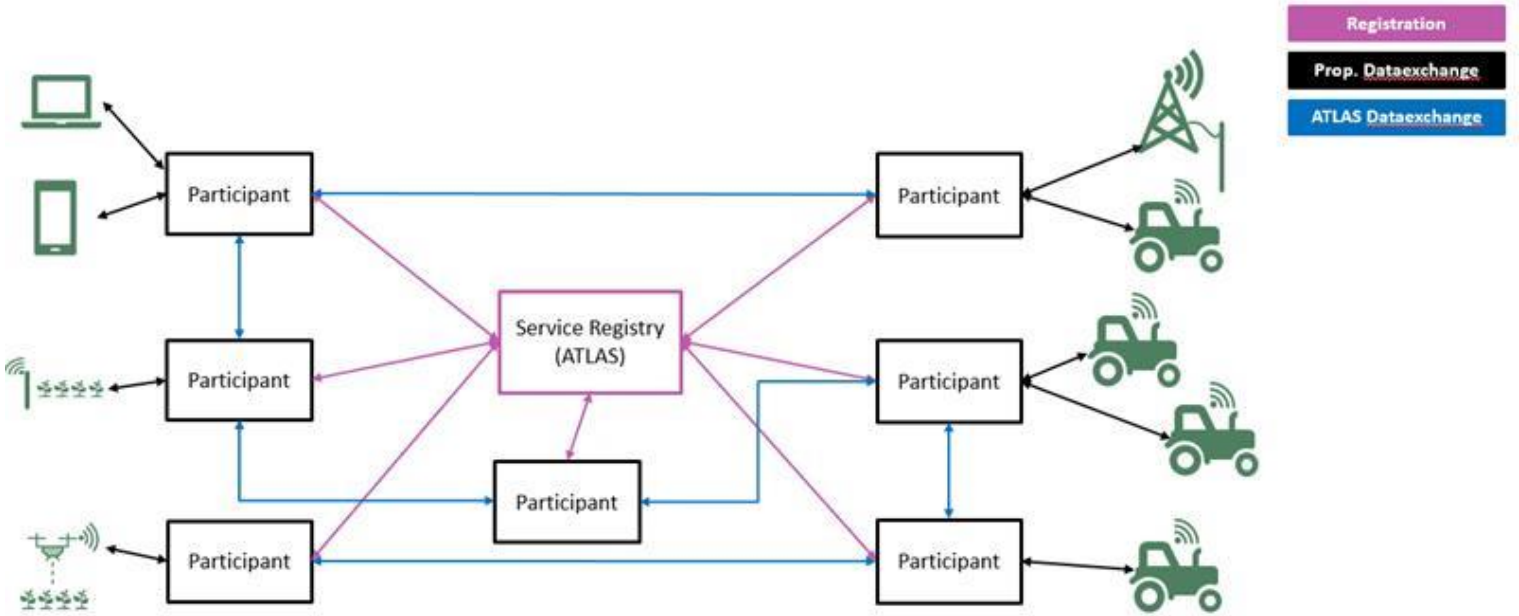
High-level reference architecture Designed along concrete use-cases

- Collaborative development process between industry partners, software developers, agricultural service providers

Two basic concepts complementing each other:

- Data-platform based data exchange and processing
- On-board / on-site computing and processing capabilities

ATLAS Service Mesh Network

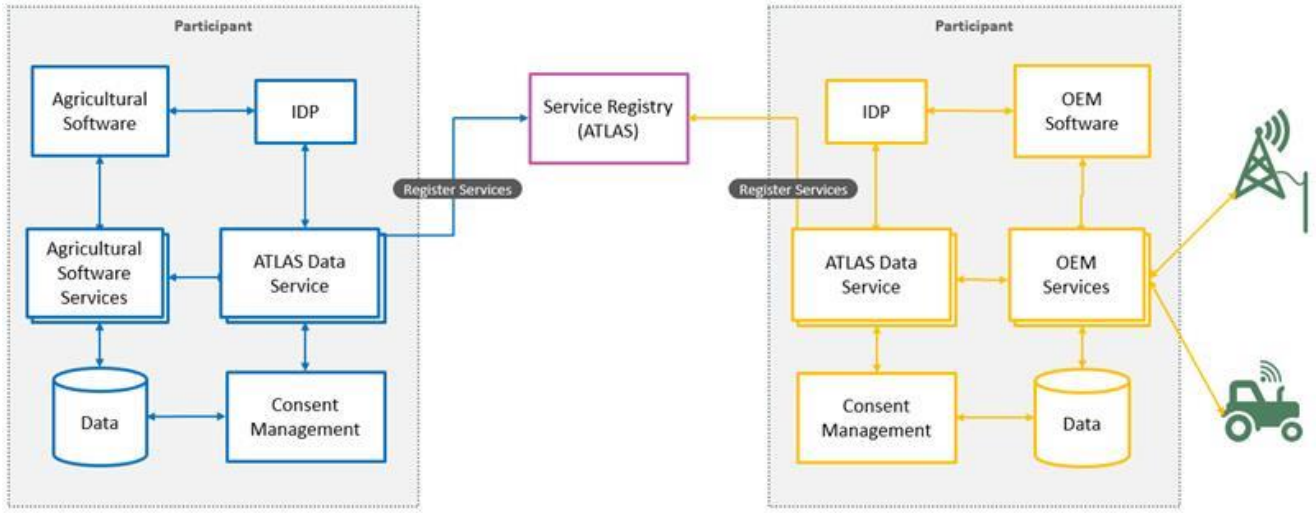


Each participant stays autonomous

- Responsible for implementing and providing services

Central components kept to a minimum

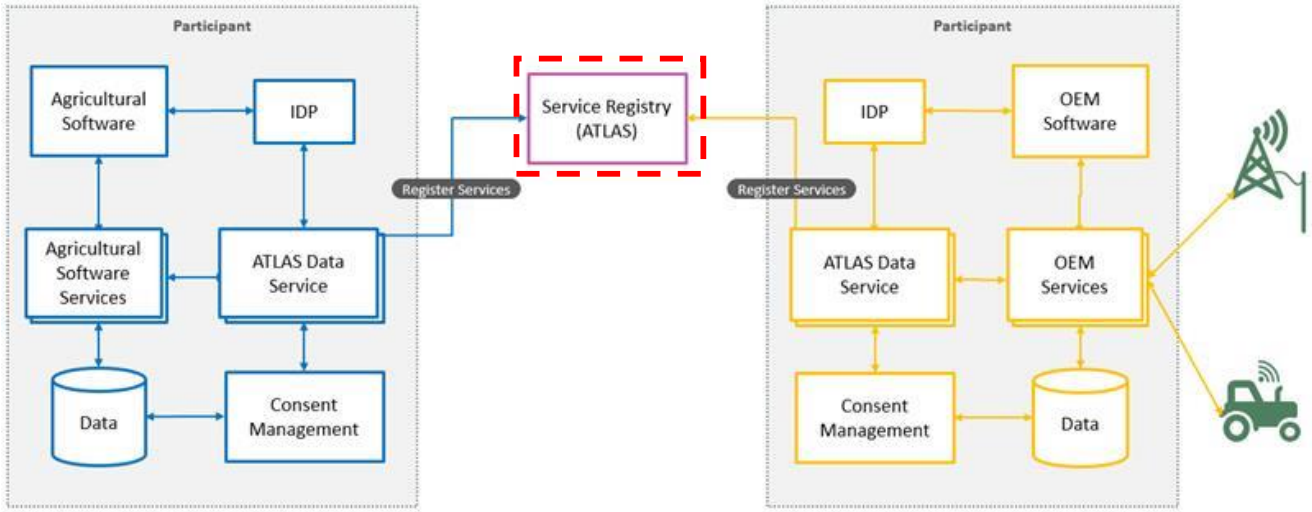
ATLAS Network Participants



Participants are defined through

- Own software and proprietary services
- ATLAS Data Services
- Identity Provider (IDP) service to store and authenticate service identities
- Consent management system
- Data storage capabilities

Service Registry



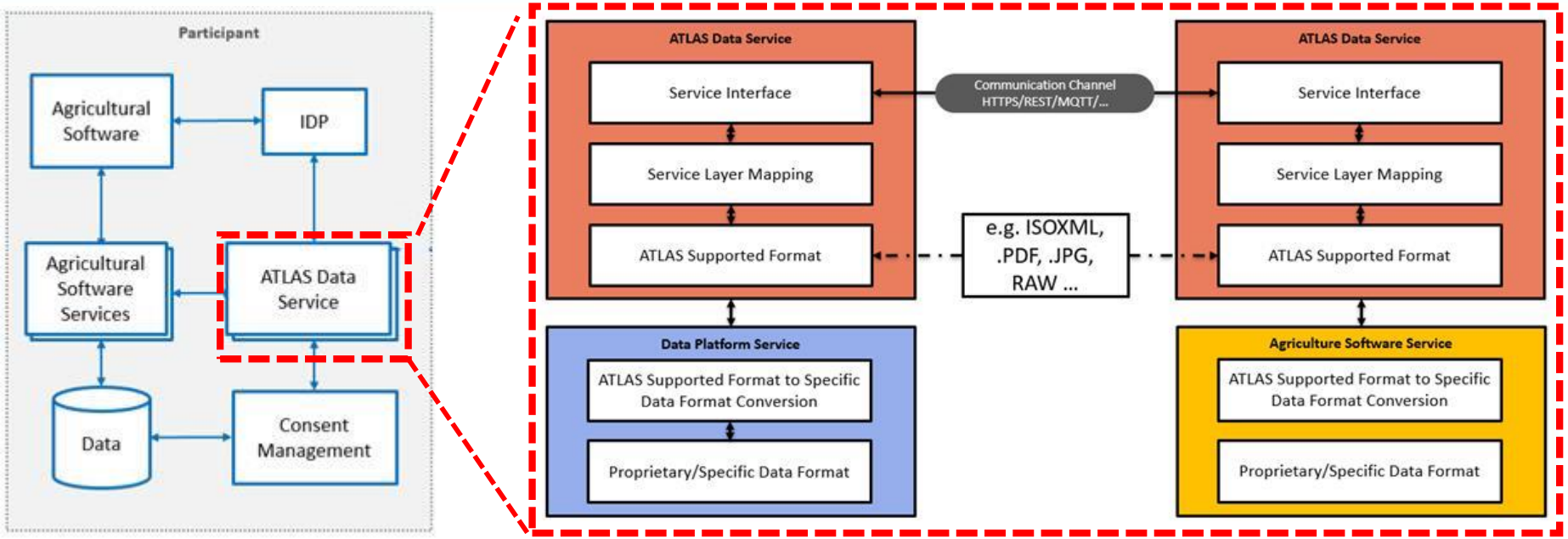
Central Component serving as a trusted directory

- Identified participants can register services upon request
- Provided and required service capabilities are part of the request

Service capabilities are granular endpoint accesses

- Type of resource and operation (CRUD)
- Service verifies that requested operation is within the capability scope

Data Services

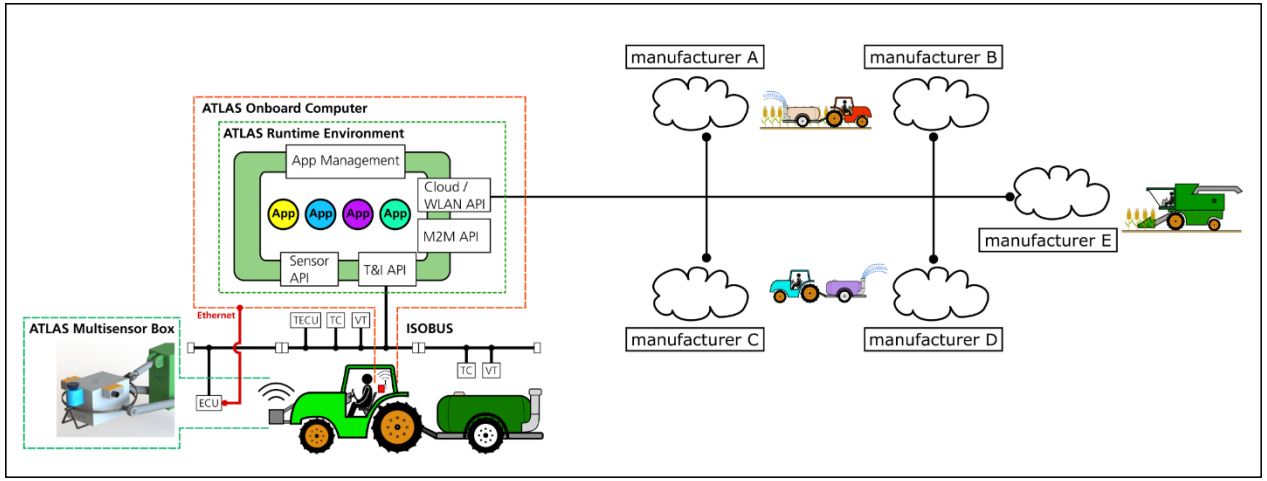


Data Service Instances as the central participant component

- Data- and transport-technology agnostic

Multiple Layers defined by ATLAS or (optionally) by participant

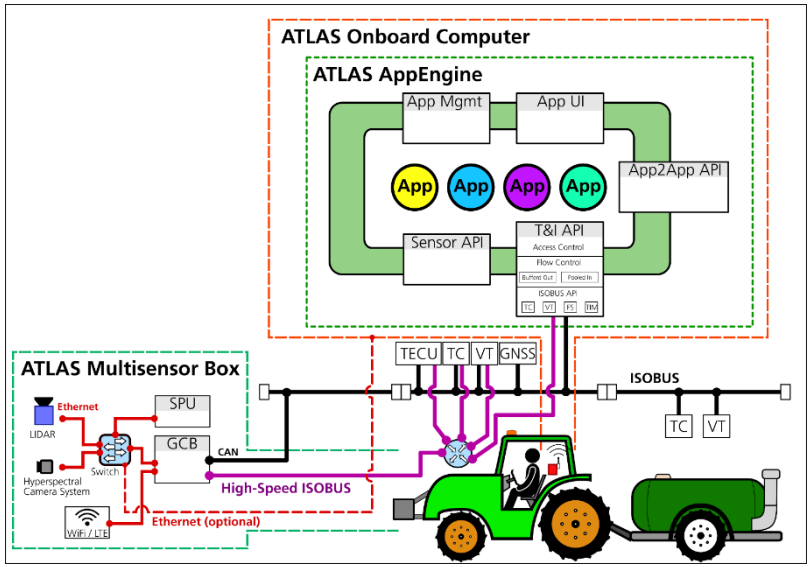
ATLAS AppEngine for on-board Computing



Provides a platform for executing applications

- with little or no internet connectivity
- apps that require very low latency when processing nearby sensor data to actuate adjustments in real-time on local devices

ATLAS Apps



Apps run within the AppEngine on an onboard computer
Different type of Apps: Real-time apps, job-apps, utility apps, platoon apps
Apps come with a cloud-based companion service registered to the Service Registry

Certification and Safety

Different AppEngine instances may offer different type of features

- AEF ISOBUS certification required for AppEngine implementations destined to be installed on tractors and connecting to ISOBUS, TIM or Steering/Sequence Control

Some app functions can impact machinery operations in a potential hazardous way

- Example: setting tractor's speed, unfolding implements

Apps requiring high safety class permissions will have to undergo a stricter certification process before being approved

Summary

ATLAS interoperability reference architecture with two basic concepts:

- Data platform based data exchange and processing
- On-board computing and processing capabilities through a self-contained computing platform

Only two central components

- Service Registry and AppCenter

Implementations of the architecture will be conducted along concrete use cases

Thank you!

WP3 - ATLAS Reference Architecture

Stefan Rilling
Fraunhofer IAIS

stefan.rilling@iais.fraunhofer.de

ATLAS
AGRICULTURAL INTEROPERABILITY
AND ANALYSIS SYSTEM

JUN
10

Data sharing in agriculture. Towards a European agriculture data space.

16.00 Approaches for data sharing in current agriculture Large Scale Pilots

Kevin Doolin

TSSG, Waterford Institute of Technology. Director of Innovation
DEMETER project coordinator

Co-organised and supported by:

IoT European Large-Scale Pilots Programme

European Commission

AIOTI Alliance for Internet of Things Innovation

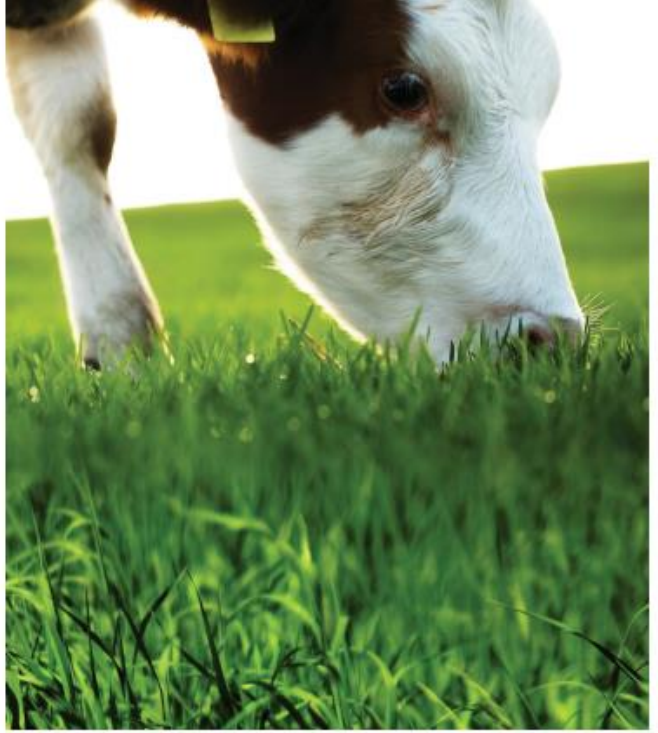
CREATE-IoT

demeter

DEMETER Reference Architecture Overview

Kevin Doolin

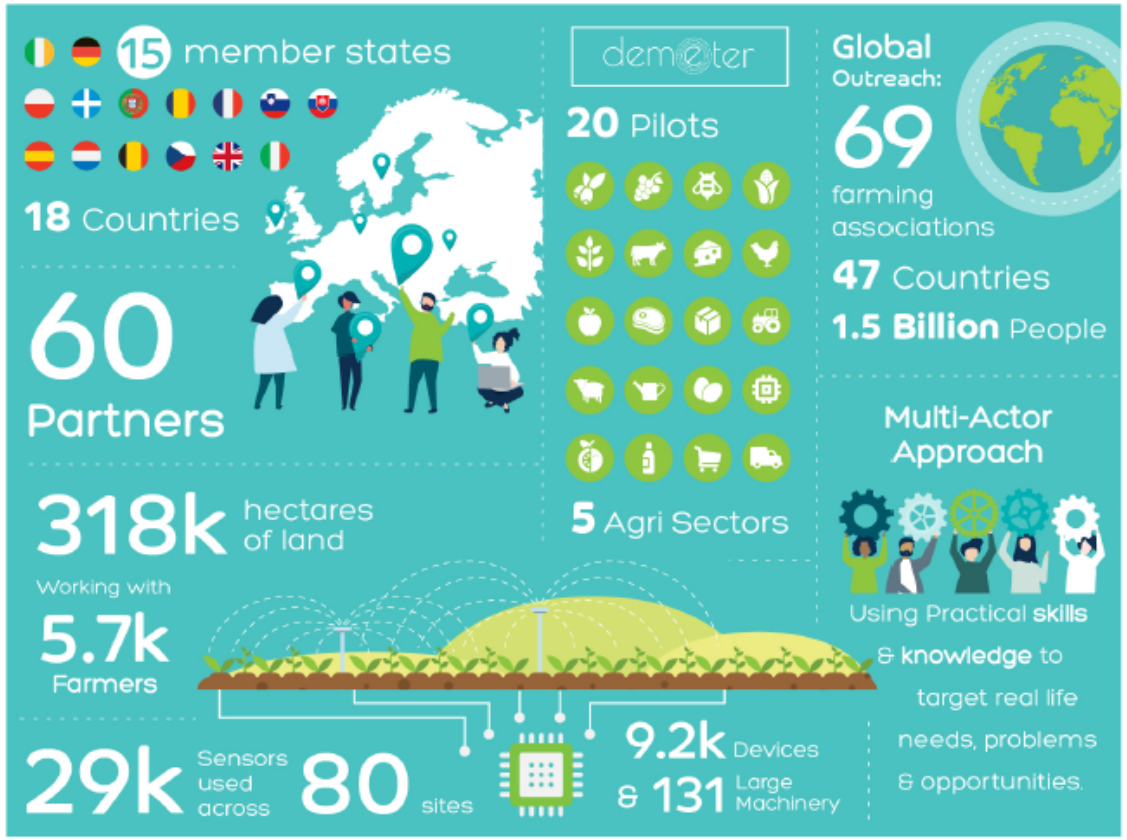
TSSG, Waterford Institute of Technology

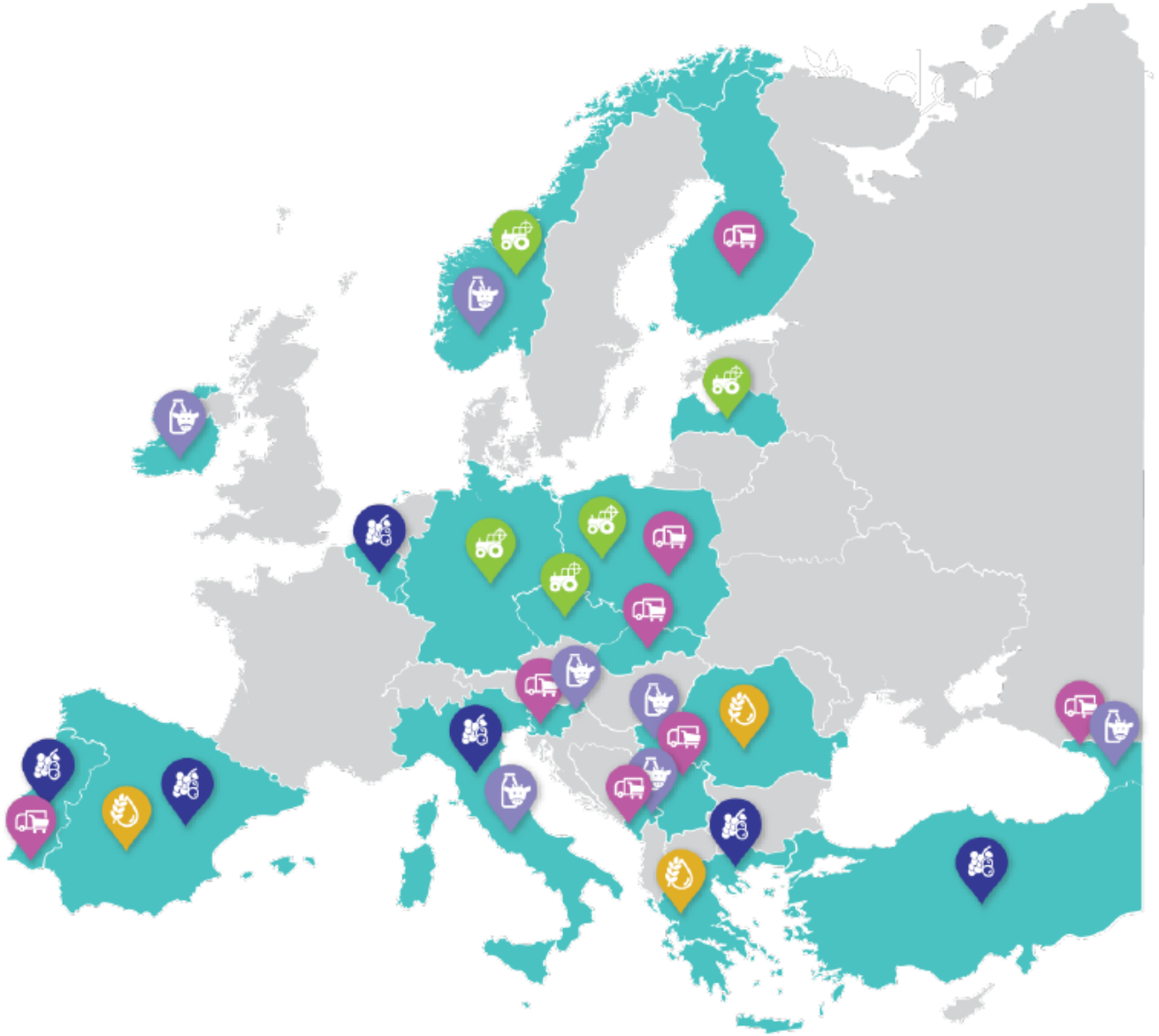


European Union
European Regional Development Fund

European Commission
Horizon 2020
European Union funding for Research & Innovation

In a nutshell





Pilot(s) Overview

Sector: Arable Crops

Focus: Water & Energy Management

- Water savings in irrigated crops
- Smart energy management in irrigated & arable crops
- Optimal Quality Rice Irrigation
- IoT Corn Management & Decision Support Platform

Sector: Arable Crops

Focus: Agricultural Machinery, Precision Farming

- In-Service Condition Monitoring of Agricultural Machinery
- Automated documentation of arable crop farming processes
- (Farming)Data Brokerage Service and Decision Support System for Farm Management
- Benchmarking at Farm Level Decision Support System

Sector: Fruit & Vegetables

Focus: Health and high-quality crops

- Decision Support System to support olive growers
- Precision Farming for Mediterranean Woody Crops
- Pest Management Control on Fruit Fly
- Open platform for improved crop monitoring in potato farms

Sector: Livestock

Focus: Animal Health, High Quality

- Dairy Farmers Dashboard for the entire milk and meat production value chain
- Consumer awareness: Milk quality and animal welfare tracking
- Proactive milk quality control
- Optimal chicken farm management

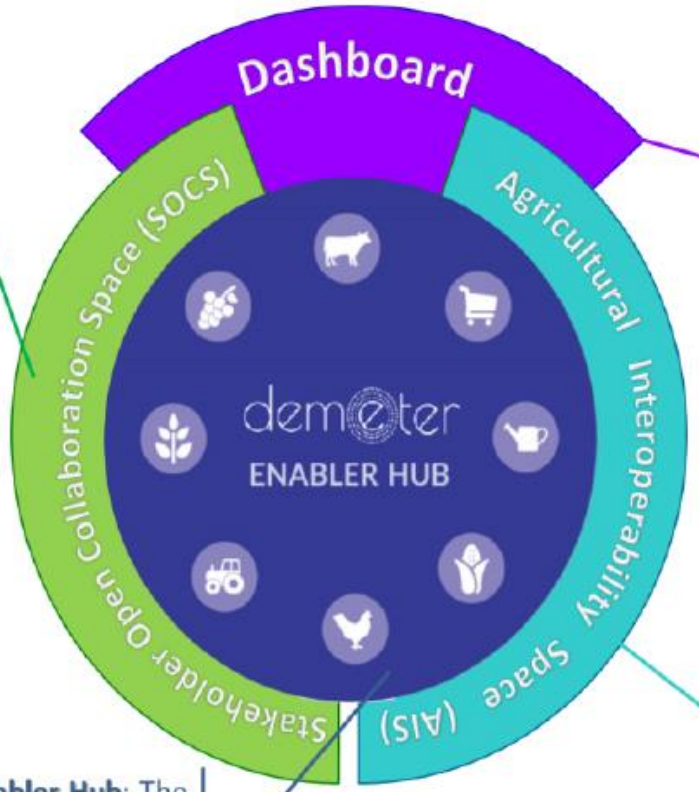
Sector: Cross-sectorial

Focus: Full supply chain, interoperability, robotics

- Disease prediction and supply chain transparency for orchards/vineyards
- Farm of things in extensive cattle holdings
- Pollination optimisation in apiculture
- Transparent supply chain in poultry industry

Architecture from a height

Knowledge sharing and co-creation space where
- Farmers/service advisors express their needs and
- Service advisors and providers team-up to define the most appropriate combination of tools.



DEMETER Dashboard: Sole entry point to the DEMETER ecosystem for all DEMETER Stakeholders.

DEMETER Enabler Hub: The available collaboration spaces (SOCS and AIS) are built around this hub that enables access to all resources that are available for integration and deployment.

Implementation Space: A virtual space where providers team-up and interoperate to develop and deliver the appropriate combinations and customisations of tools to the farmers ensuring interoperability with existing solutions.

Architecture from a height

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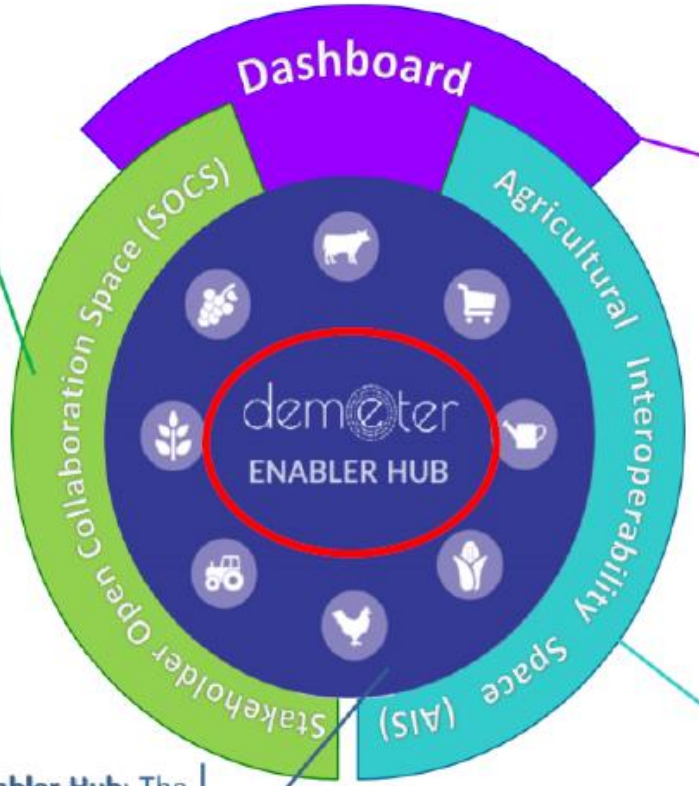

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Architecture from a height

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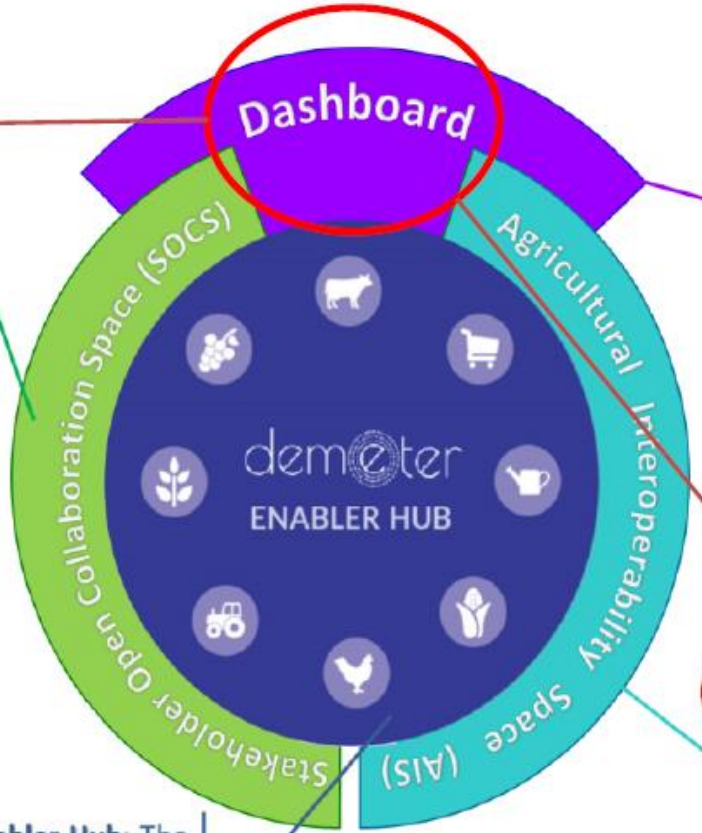

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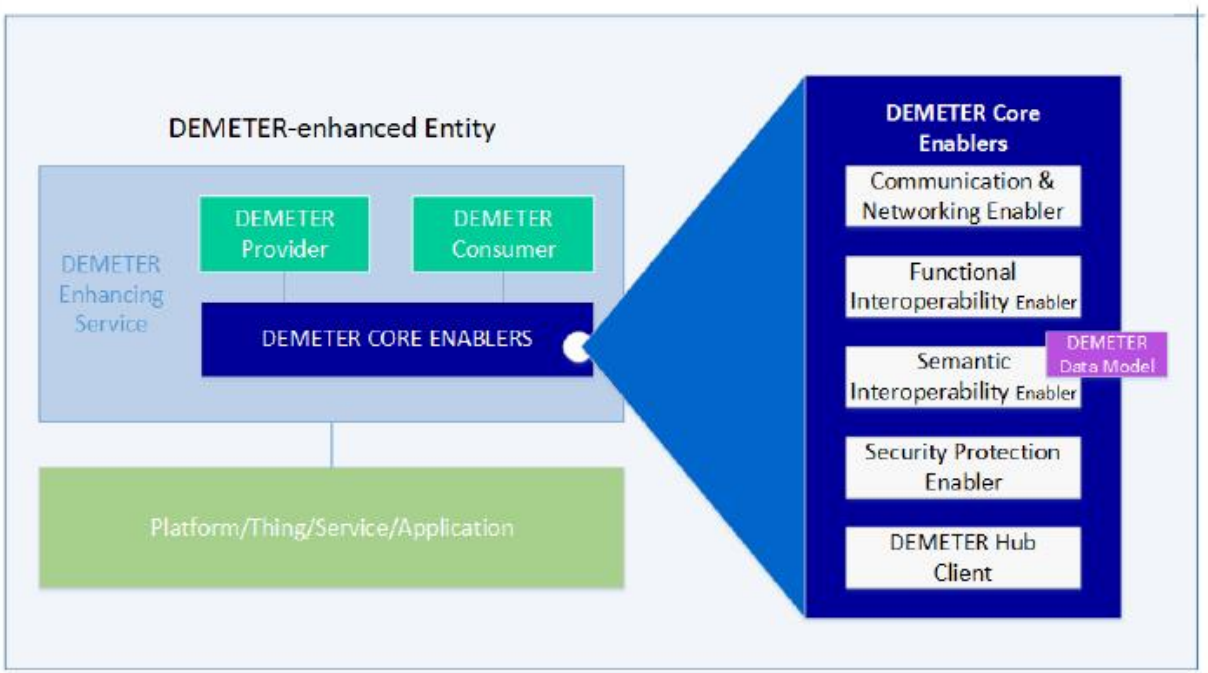
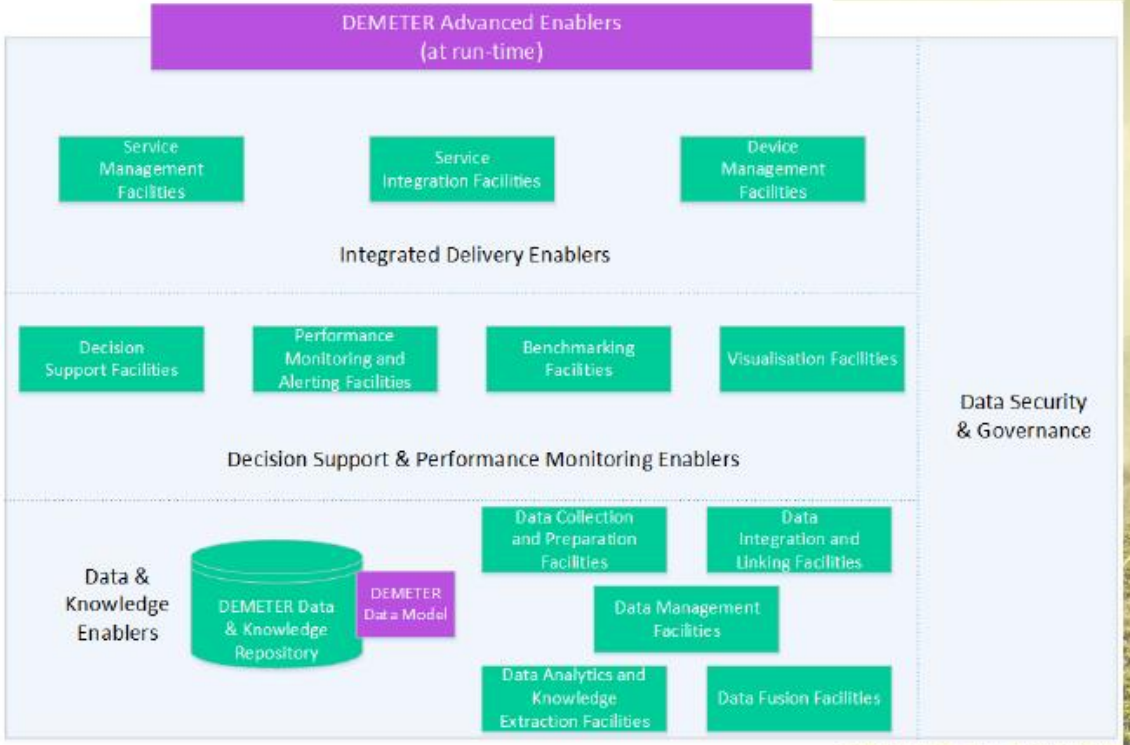
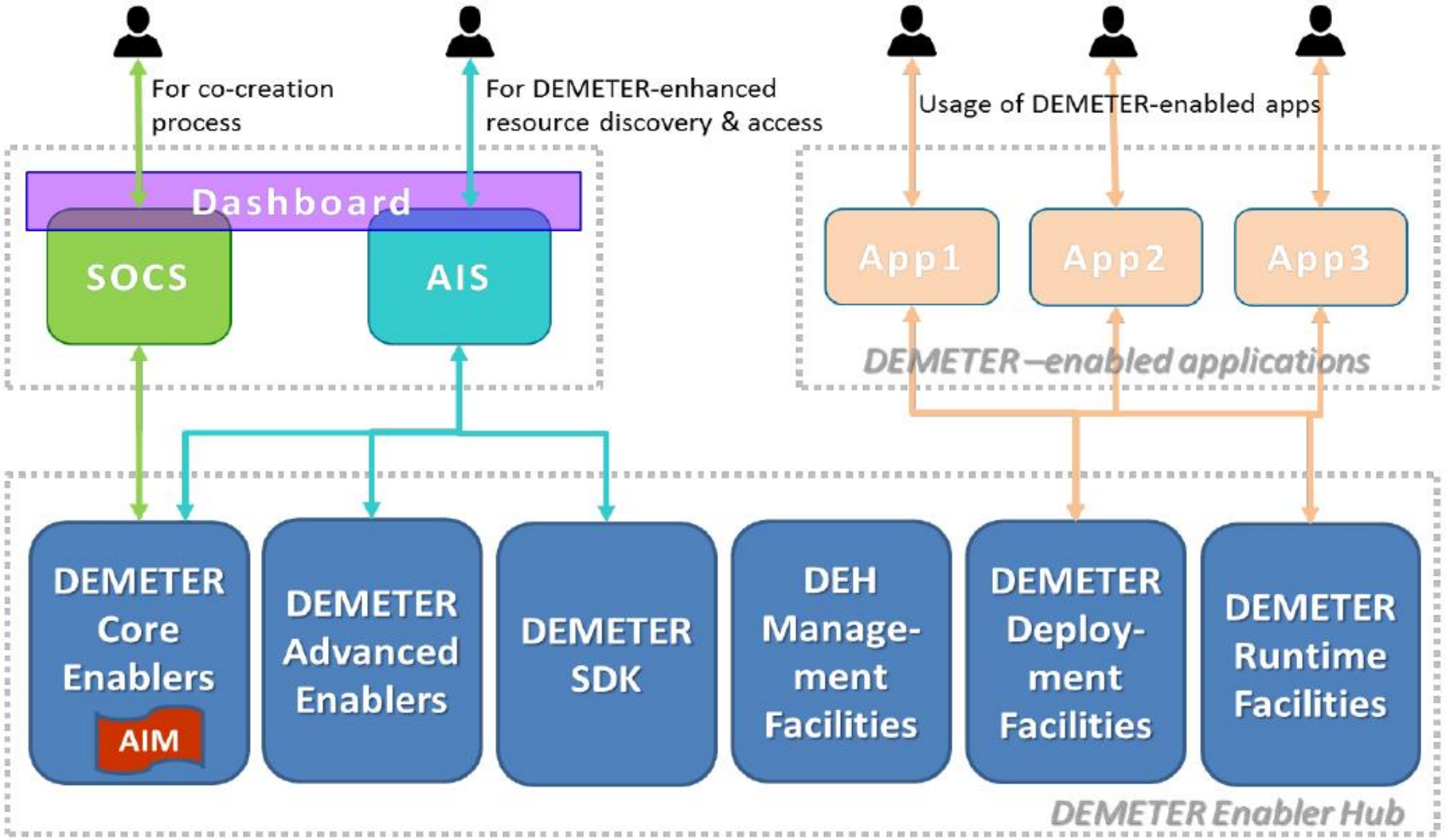
DEMETER Enablers





Functional Architecture and AIM

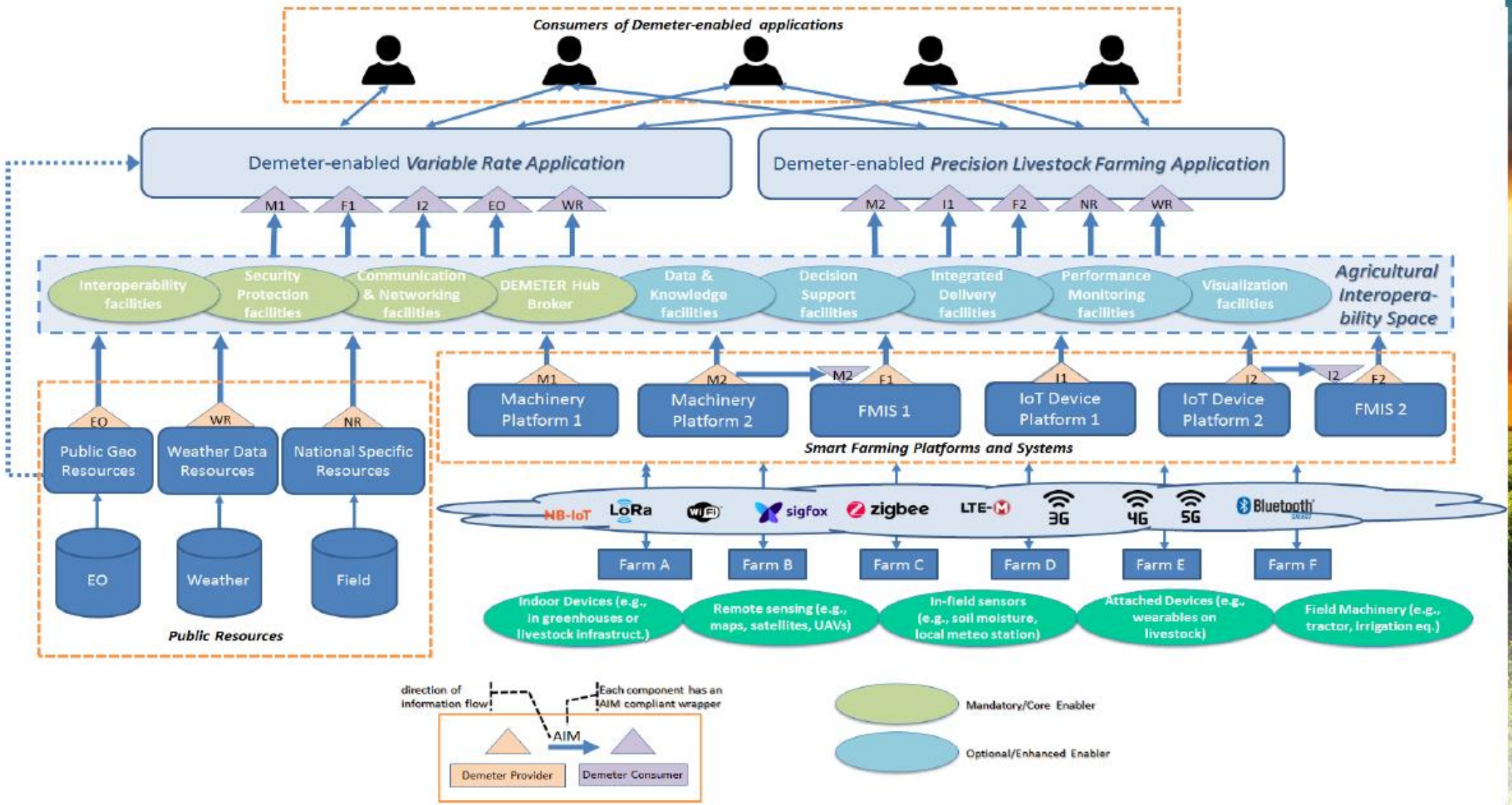


Each Component has an AIM compliant wrapper

DEMETER Provider — AIM — DEMETER Consumer

Direction of Information Flow

Full Reference Architecture High Level View



Status and Next Steps

- Started Sept 2019
- Multi Actor Approach fully underway
- Initial requirements and architecture ready
- Piloting starting (with Covid delays)
- Open Calls in preparation
- Webinar June 18th with ATLAS

- www.h2020-demeter.eu
- twitter.com/H2020DEMETER
- facebook.com/H2020Demeter
- linkedin.com/company/h2020-demeter
- Youtube

TSSG

Thank you

Kevin Doolin

DIRECTOR OF INNOVATION, TSSG

KDOOLIN@TSSG.ORG

051 302935

086 152 7691

TSSG_WIT

@TSSG_WIT

kevindoolin

European Union
European Regional Development Fund

ENTERPRISE IRELAND

JUN
10

Data sharing in agriculture. Towards a European agriculture data space.

16.10 Roundtable Discussion

Grigoris Chatzikostas

Biosense Institute, Senior Advisor for EU Initiatives
Deputy Coordinator of SmartAgriHubs project.

Co-organised and supported by:

IoT European Large-Scale Pilots Programme

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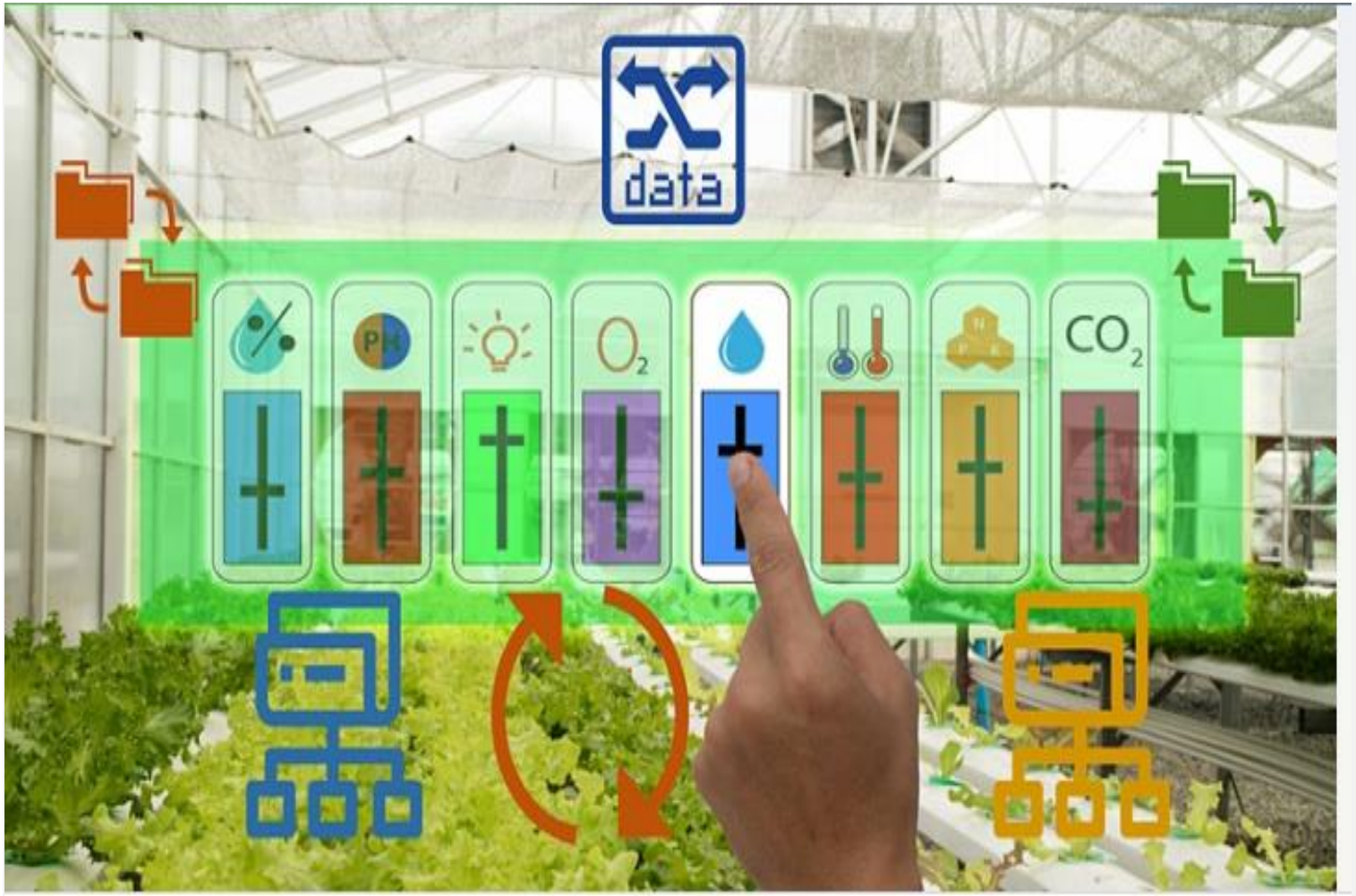


JUN
10

Data sharing in agriculture. Towards a European agriculture data space.

Organised by:

AIOTI
Alliance for Internet of Things Innovation

CREATE-IoT

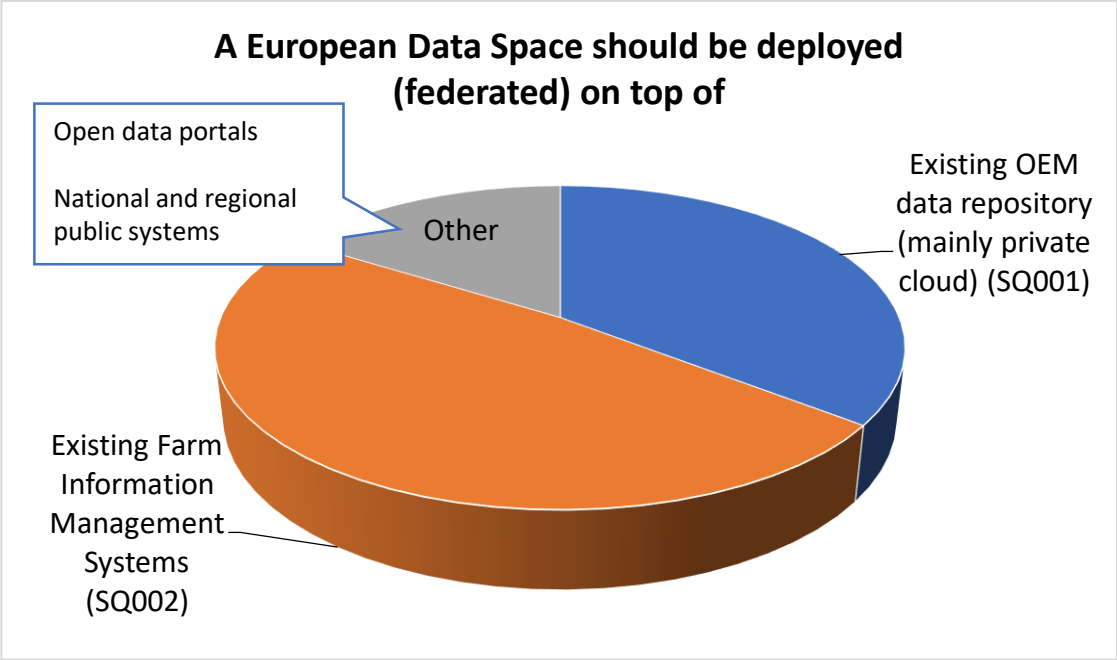
IoT European Large-Scale Pilots Programme

https://european-iot-pilots.eu/data-sharing-in-agriculture-webinar-2020/

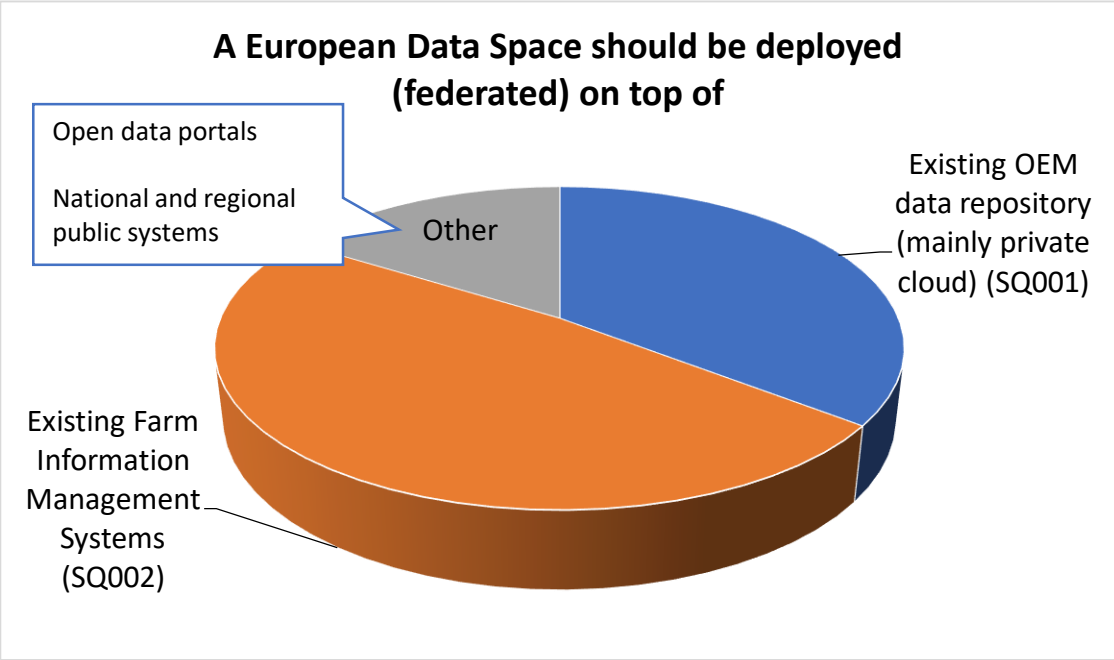
http://www.agridataspace.eu/

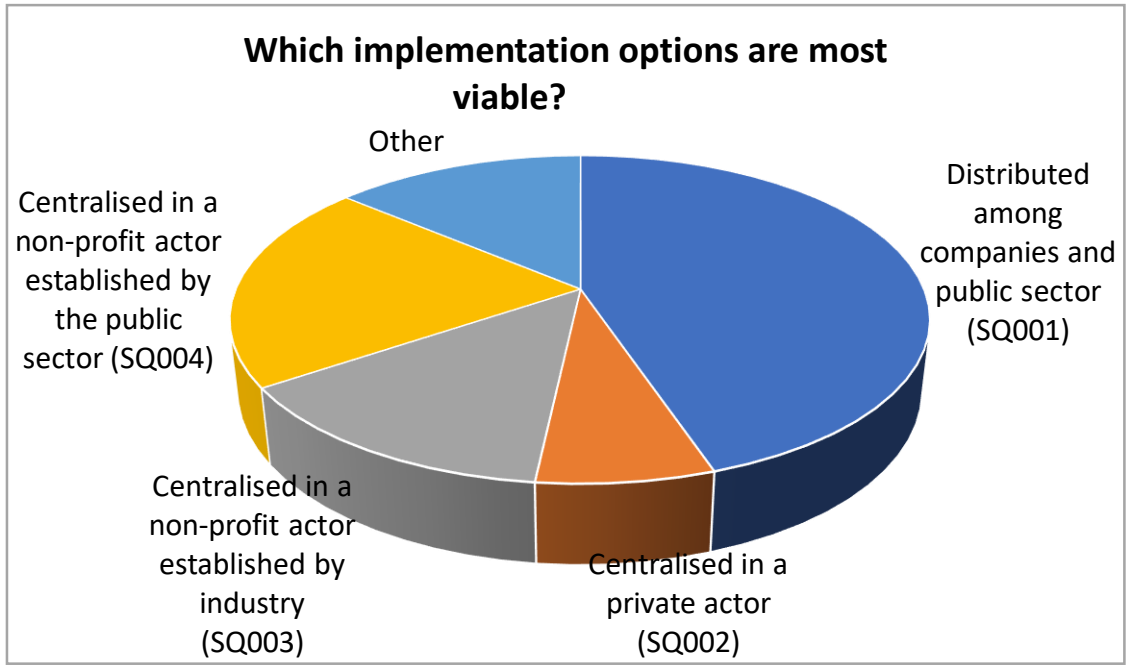
Open until June 17th

Some preliminary results



Some preliminary results





Thank you!

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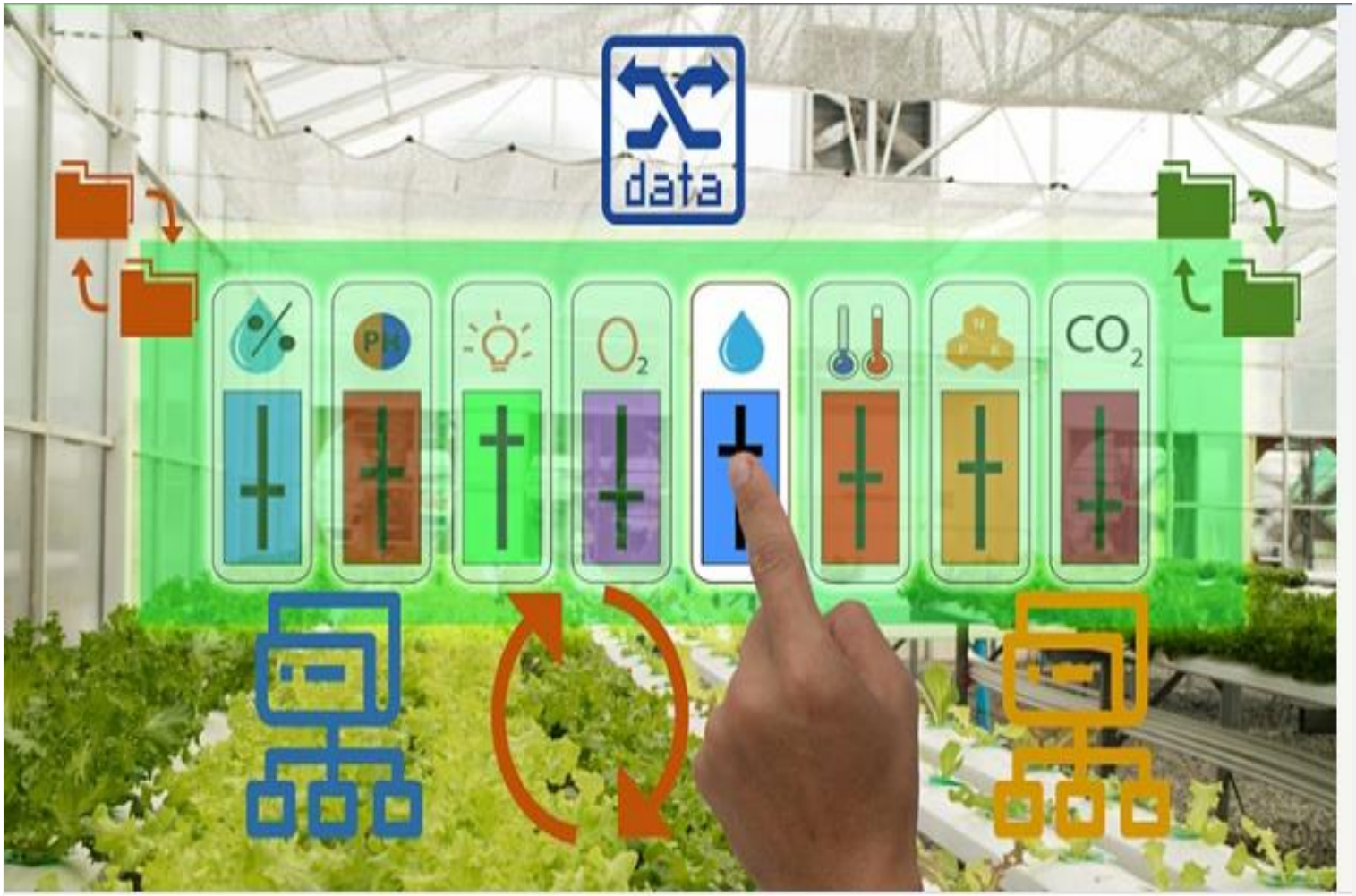

JUN
10

Data sharing in agriculture.
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