

LUXEMBOURG GAIA-X CONFERENCE

25 MARCH 2021



INTRODUCTION TO GAIA-X CHALLENGES & OPPORTUNITIES

HUBERT TARDIEU
CHAIRMAN OF THE BOARD
GAIA-X AISBL

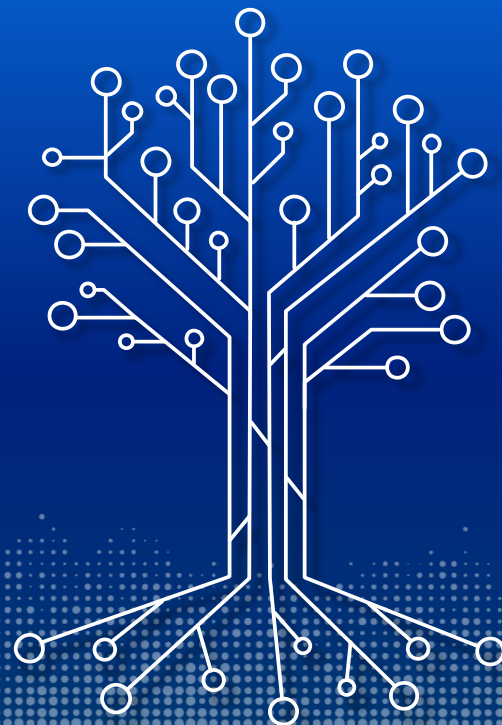


GAIA-X

LUXEMBOURG GAIA-X CONFERENCE

25.03.2021

Hubert Tardieu GAIA-X Chairman of the Board



Agenda

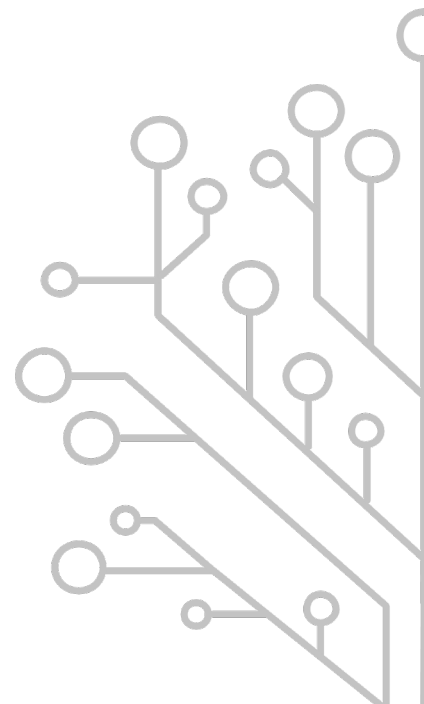
01 Introduction GAIA-X

02 Data Space Facilitation and the role of National Hubs

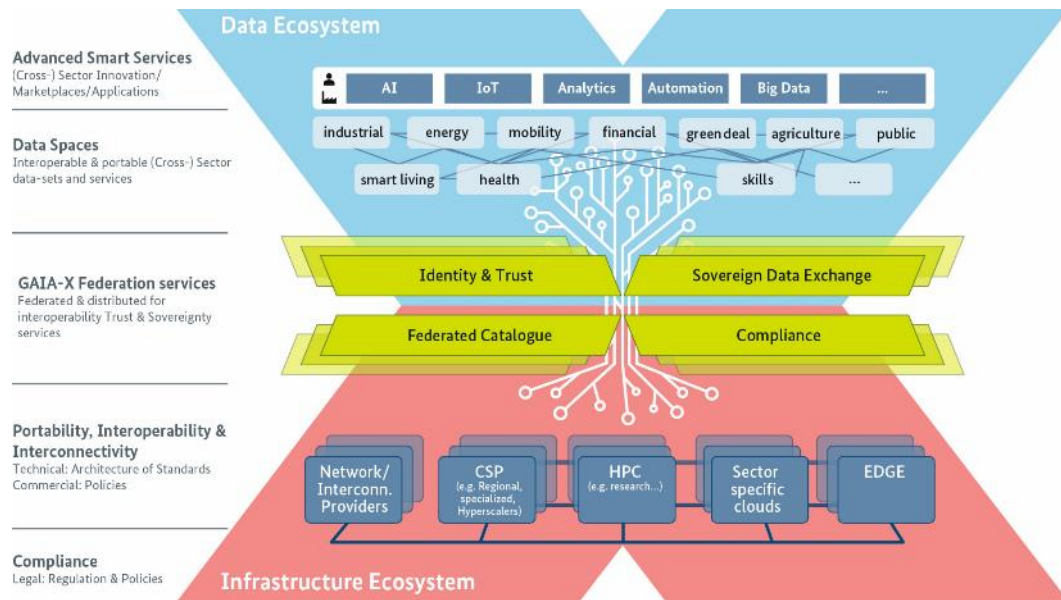
03 The AISBL Status and Organization

04 Outlook – 100 Days ahead

05 Summary



Overview: GAIA-X provides a user-friendly and homogenous ecosystem



Joint Development of a **user friendly** and **homogenous European ecosystem**.

Bringing together **data spaces** and their **specific requirements** with the **provider side**.

The GAIA-X objectives

Objectives



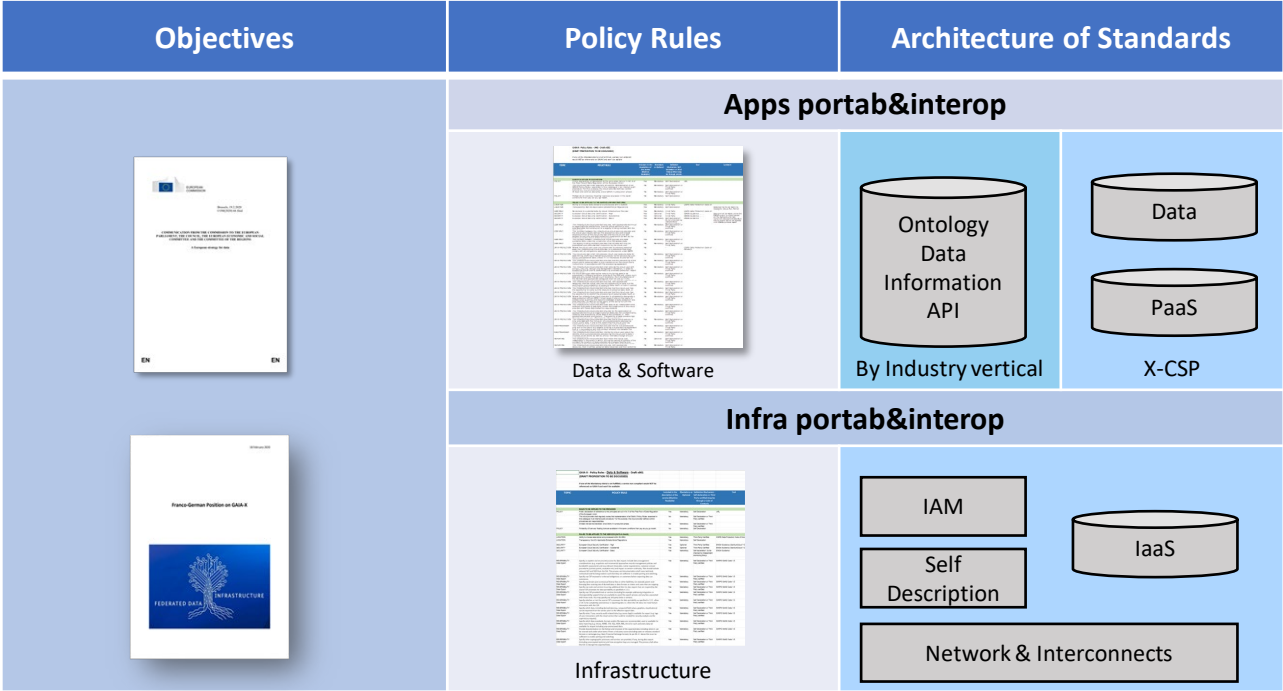
The image shows two document covers. The top cover is white with a blue header and footer, containing text and a small logo. The bottom cover is white with a blue header and footer, featuring a tree logo and the text 'FEDERATED DATA INFRASTRUCTURE'.



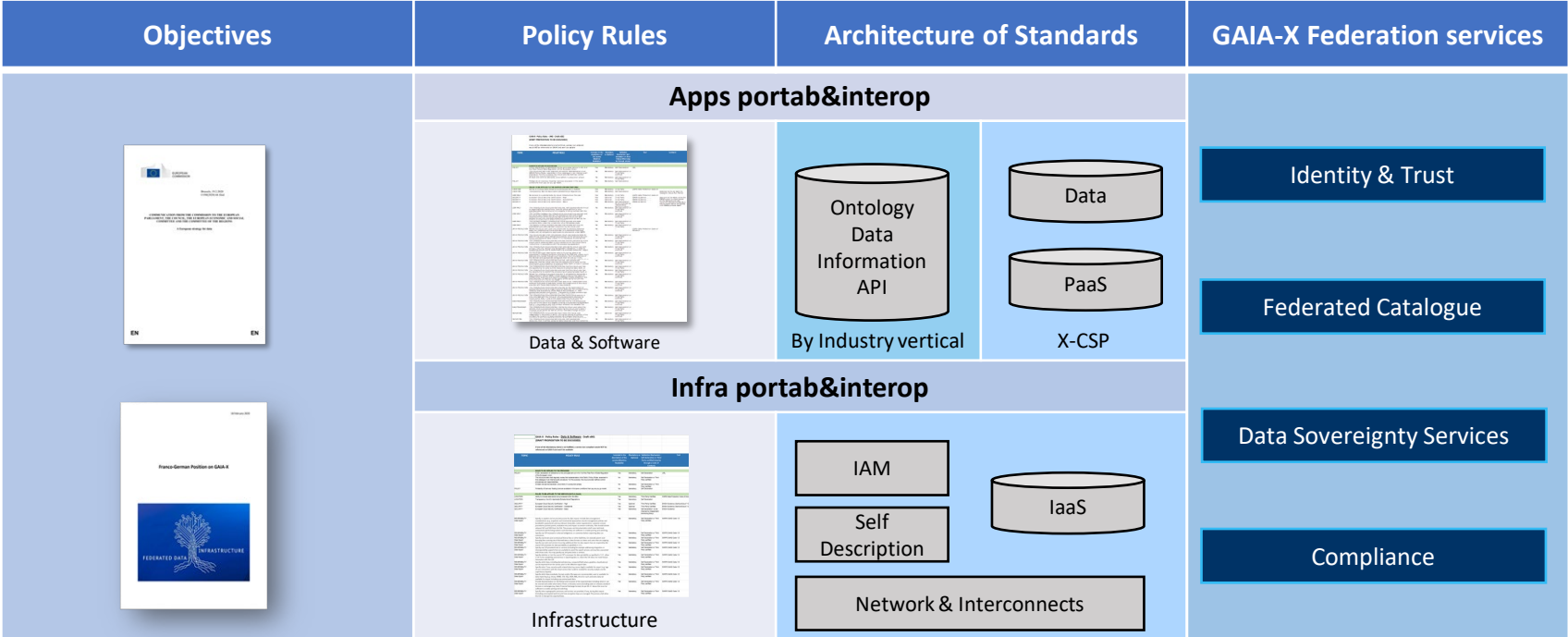
The GAIA-X objectives



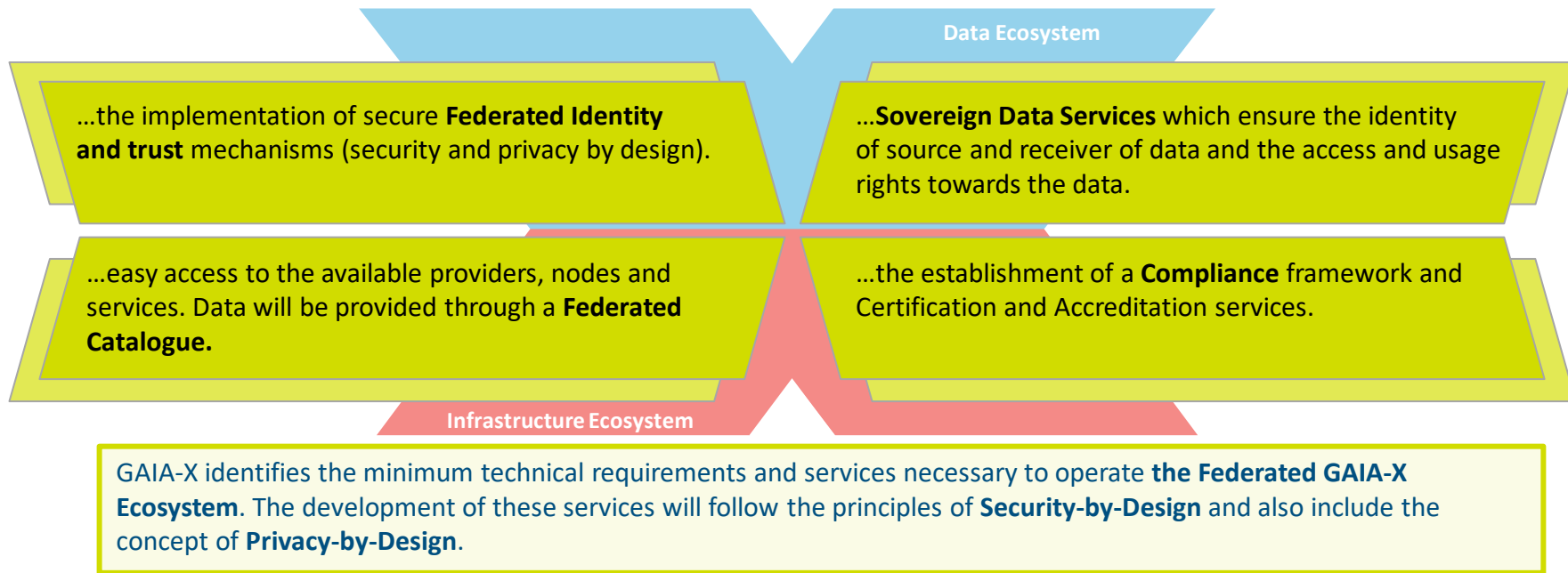
The GAIA-X objectives



The GAIA-X objectives



GAIA-X Federation Services – The Core



GAIA-X AISBL Core Deliverables

1. Standard

- Architecture of Standard
- Test Criteria

2. Fundamental Services

- Digital Tokens/Certificate
- Service Catalog

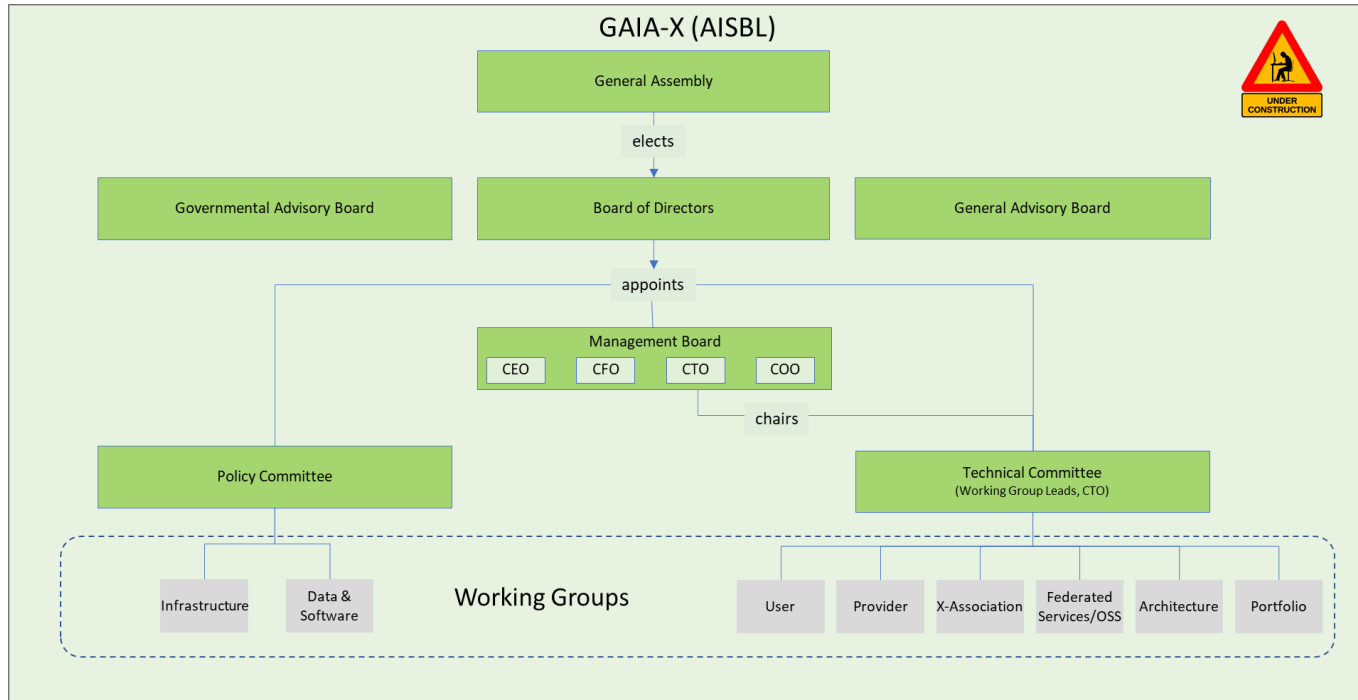
3. Software Communities

- Open Source Federated Services
- Interaction with other Communities

4. Data Spaces Facilitation

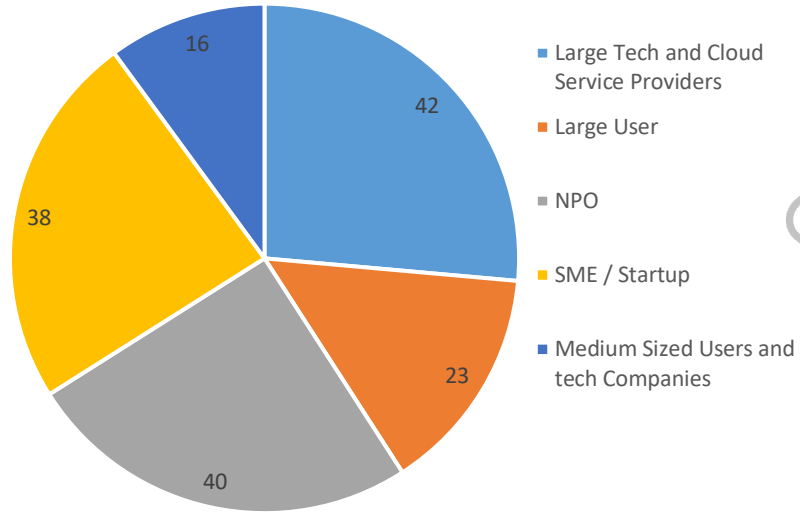


GAIA-X AISBL Organizational Structure



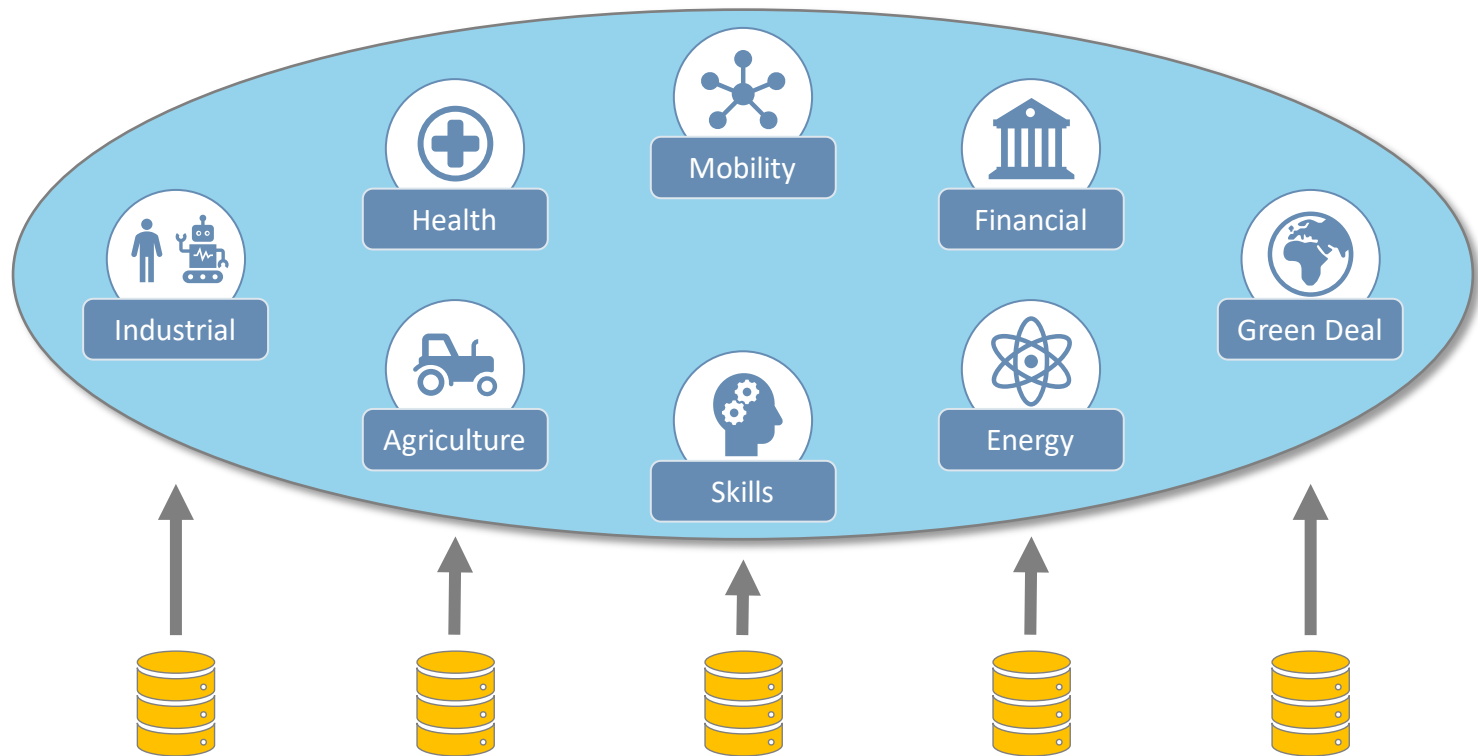
Overview Memberships by Type

Countries by Registration	# of Organizations *
Austria	2
Belgium	13
Finland	3
France	33
Germany	49
Ireland	4
Italy	29
Luxembourg	3
Netherlands	4
Norway	1
P.R. China	1
Portugal	1
Singapore	1
Spain	5
Sweden	2
Switzerland	1
United Kingdom	2
USA	5
Total	159



* Including SME, Large Corporation and Academic Institutions

Data Spaces: Sharing data to advance science, society and economies



Data Spaces

General Design Principles

No physical data integration, leave data where it is
(→ Federated data architecture)

No common schema required
(→ Integration foremost on semantic level through vocabularies)

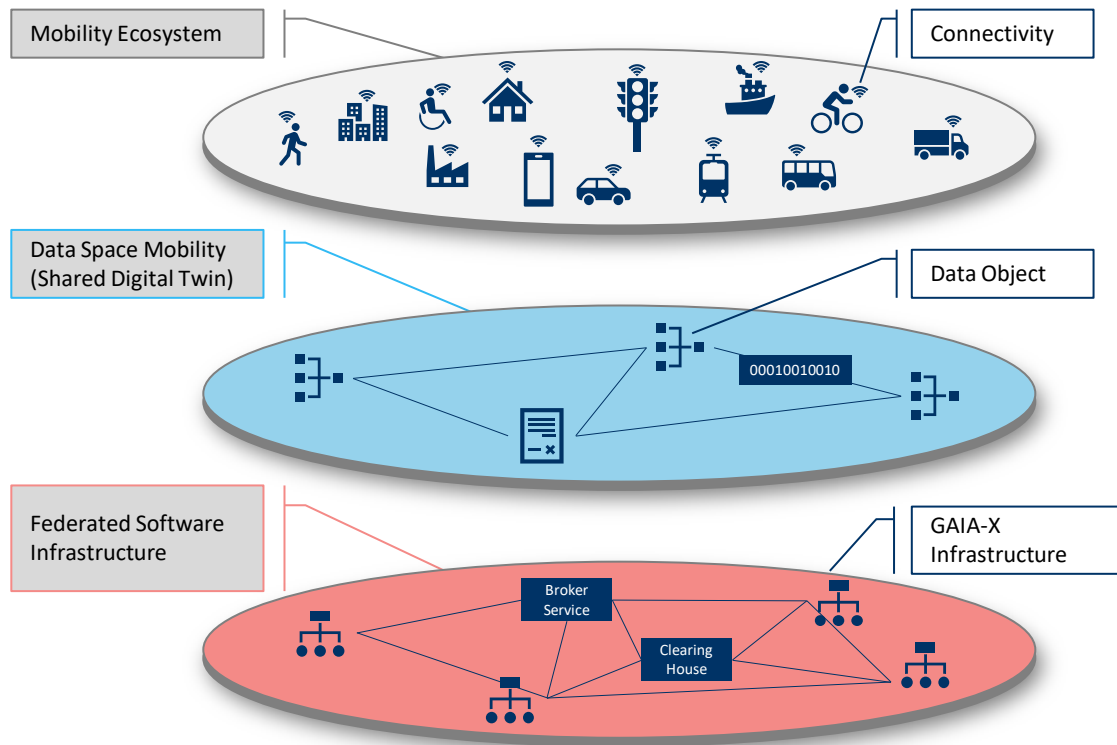
Data networking, data visiting and data co-existence

Nesting and overlaps possible
(→ Ecosystem of data spaces)

Additional IDS¹ Design Principles

Data sovereignty and traceability

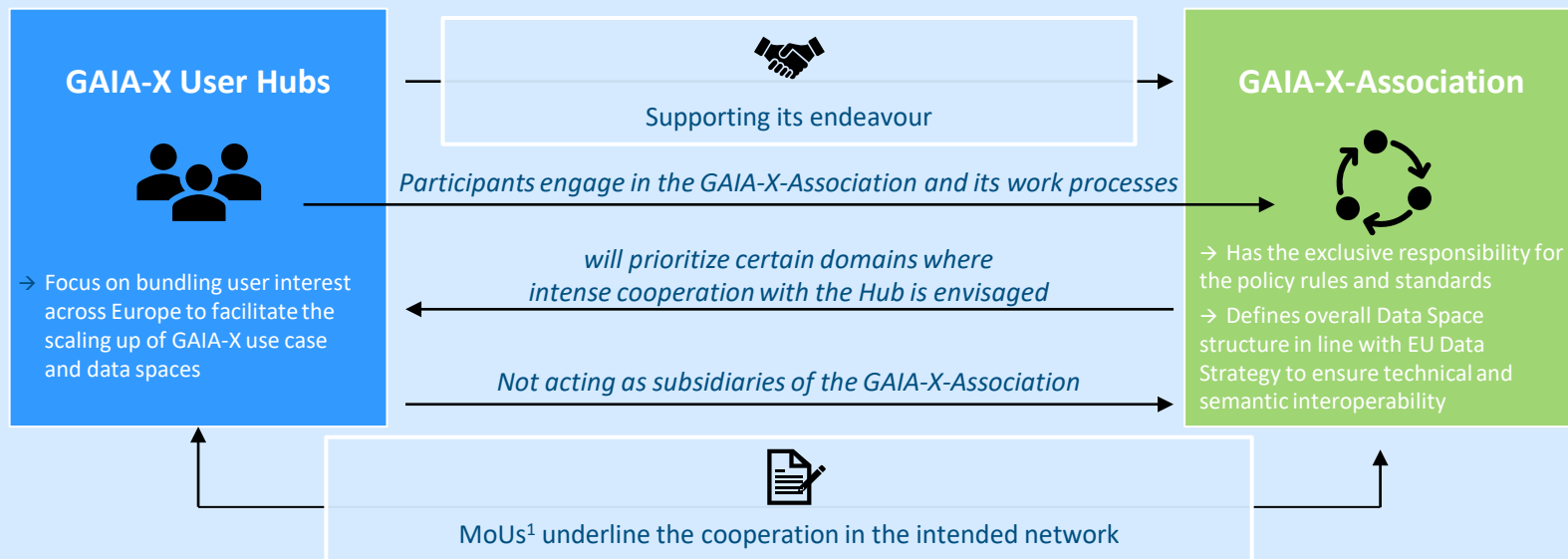
Trusted participants

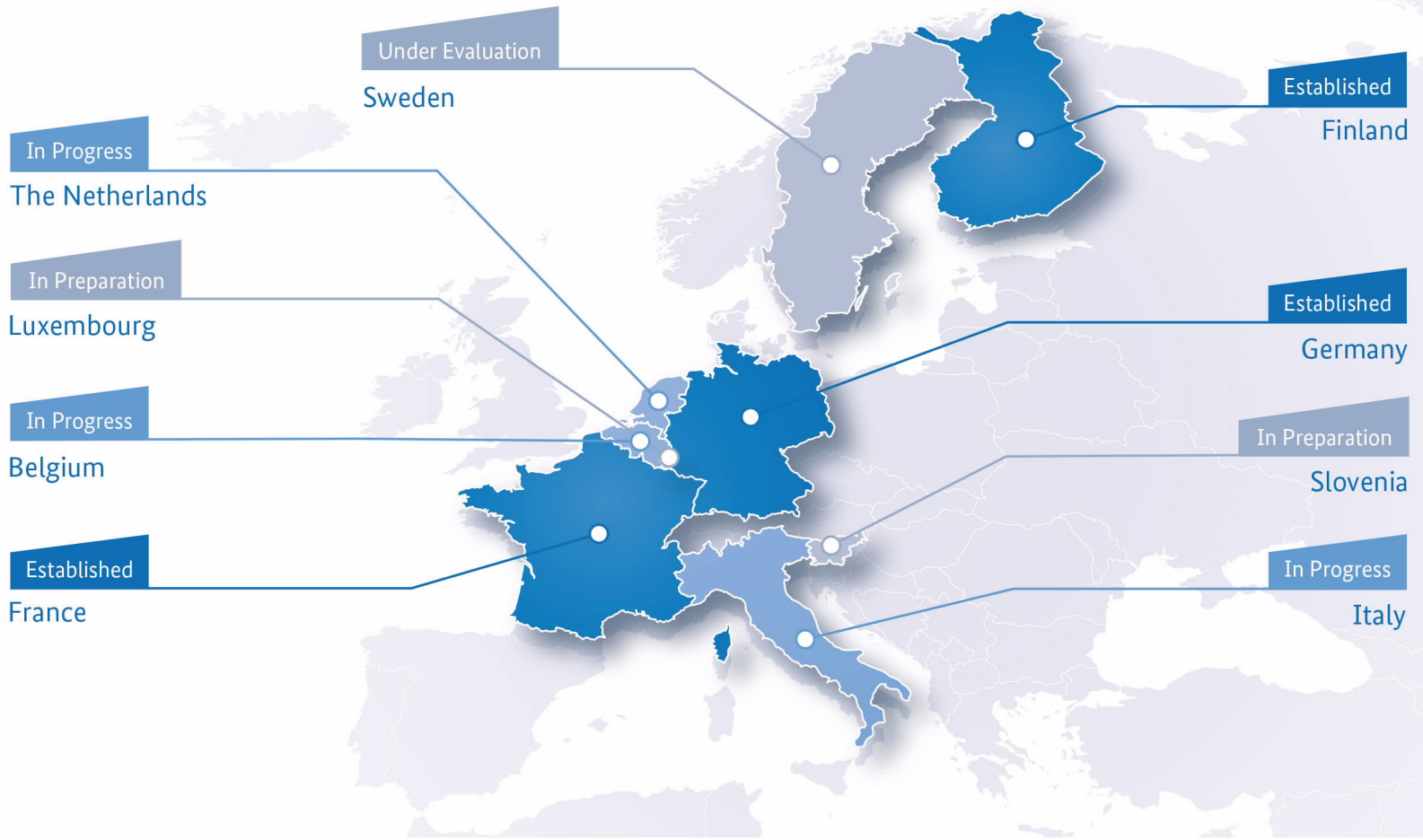


¹IDS – International Data Spaces

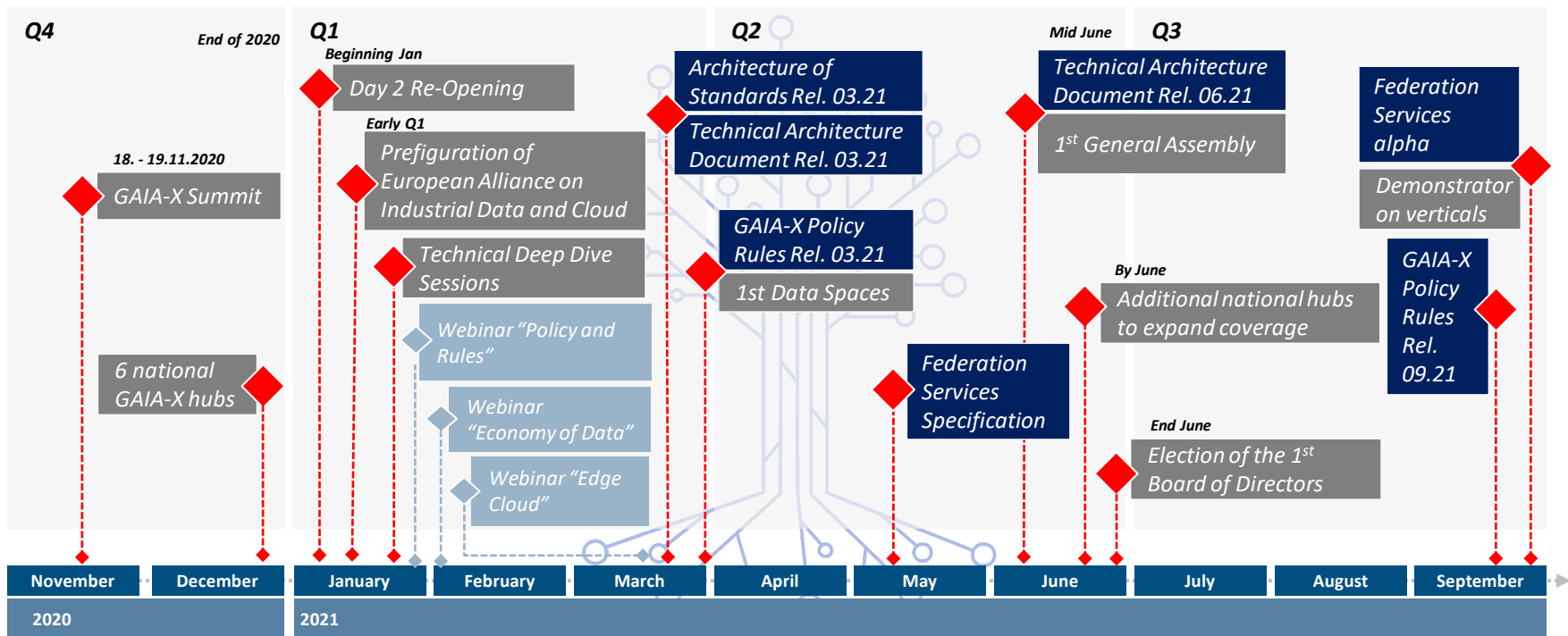
National Hubs

Set up and establish a well-functioning sovereign data infrastructure following GAIA-X policy rules and standards and the required federation services.





Timeline



A European Momentum towards a...



...global “Digital for Business” approach

GAIA-X: A GERMAN APPROACH TO A EUROPEAN PROJECT

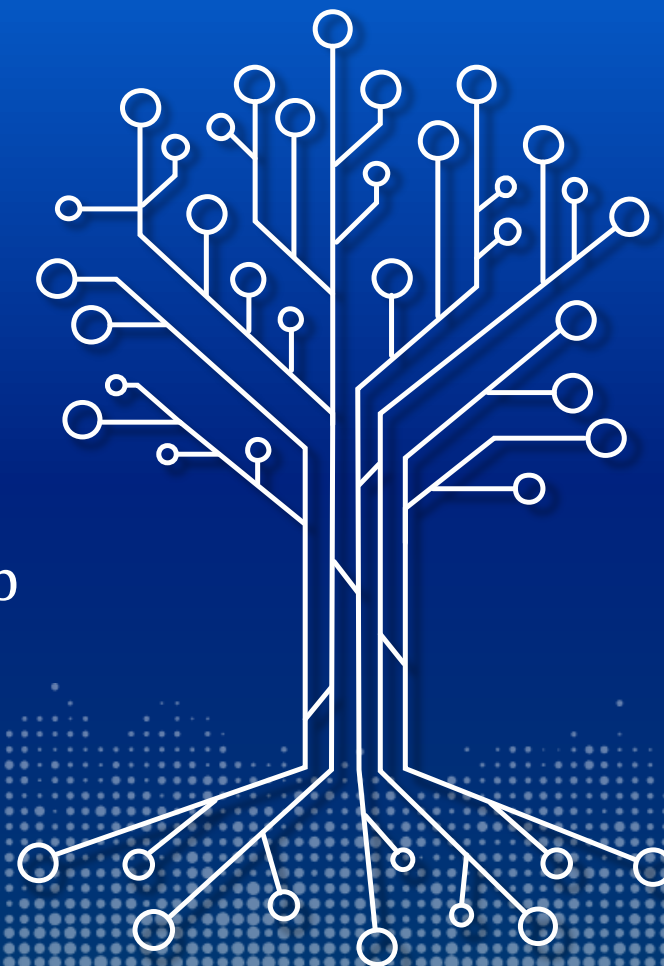
PETER KRAEMER
COORDINATOR
GERMAN GAIA-X HUB



GAIA-X

GAIA-X : a German approach to a European project

Peter Kraemer, Coordinator of the German GAIA-X Hub
March 25, 2021





German Hub

300 + Organisations



74 Use Cases

650 + Members

9 Domains



Activate and represent the user side

Identify suitable use cases – from both a qualitative and a quantitative perspective

Initiate further measures for the development of GAIA-X



Analyse and evaluate the requirements of use cases from different domains

Define and validate cross-domain requirements

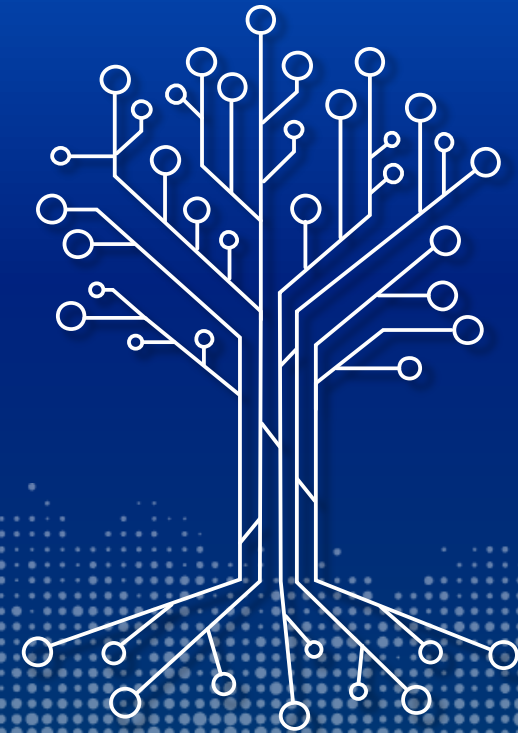
Define and validate domain-specific requirements



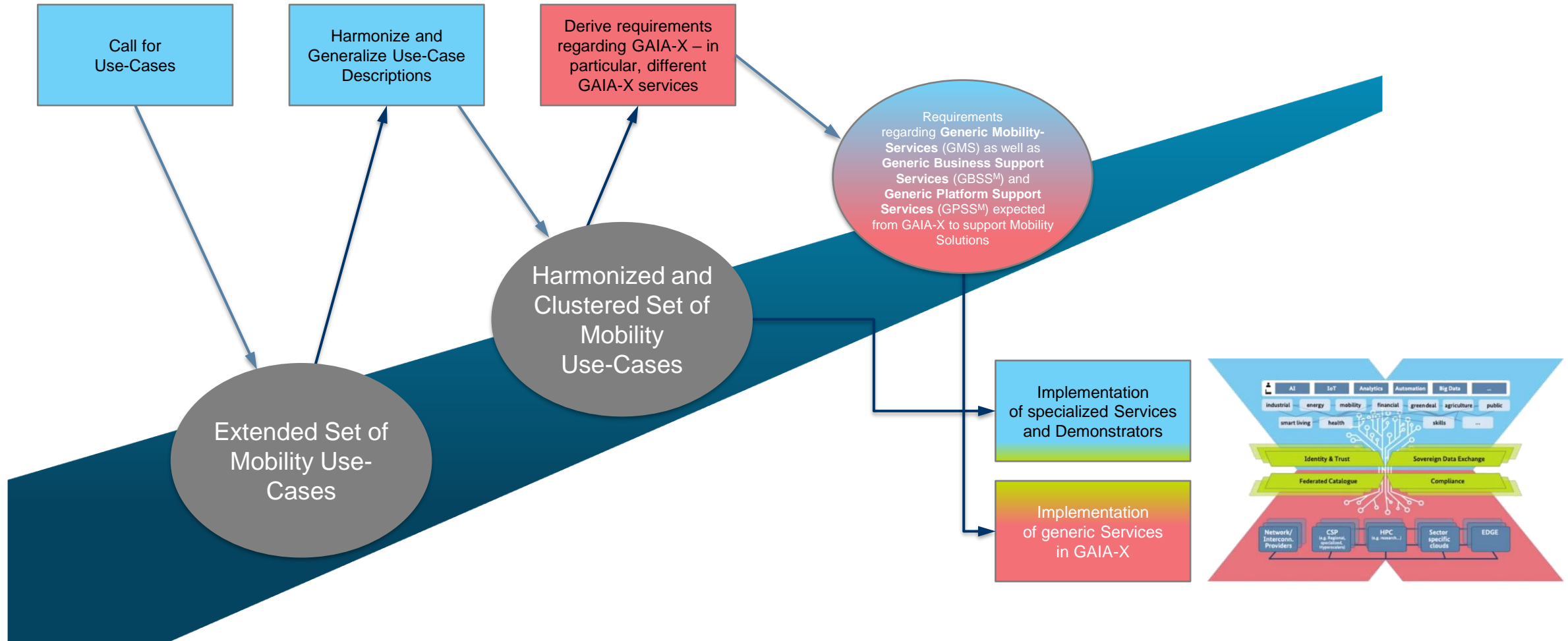
GAIA-X

German GAIA-X Hub

Domain Mobility



GAIA-X DOMAIN MOBILITY



German Data Space Mobility



B2C Use Cases (Examples)

Alternative mobility services / intermodal travel services

Mobility as a service (platforms)

Parking services

AI-supported optimization of everyday mobility

Use Data Task Force data to improve road safety



DEUTSCHE AKADEMIE DER TECHNIKWISSENSCHAFTEN

B2B Use Cases (Examples)

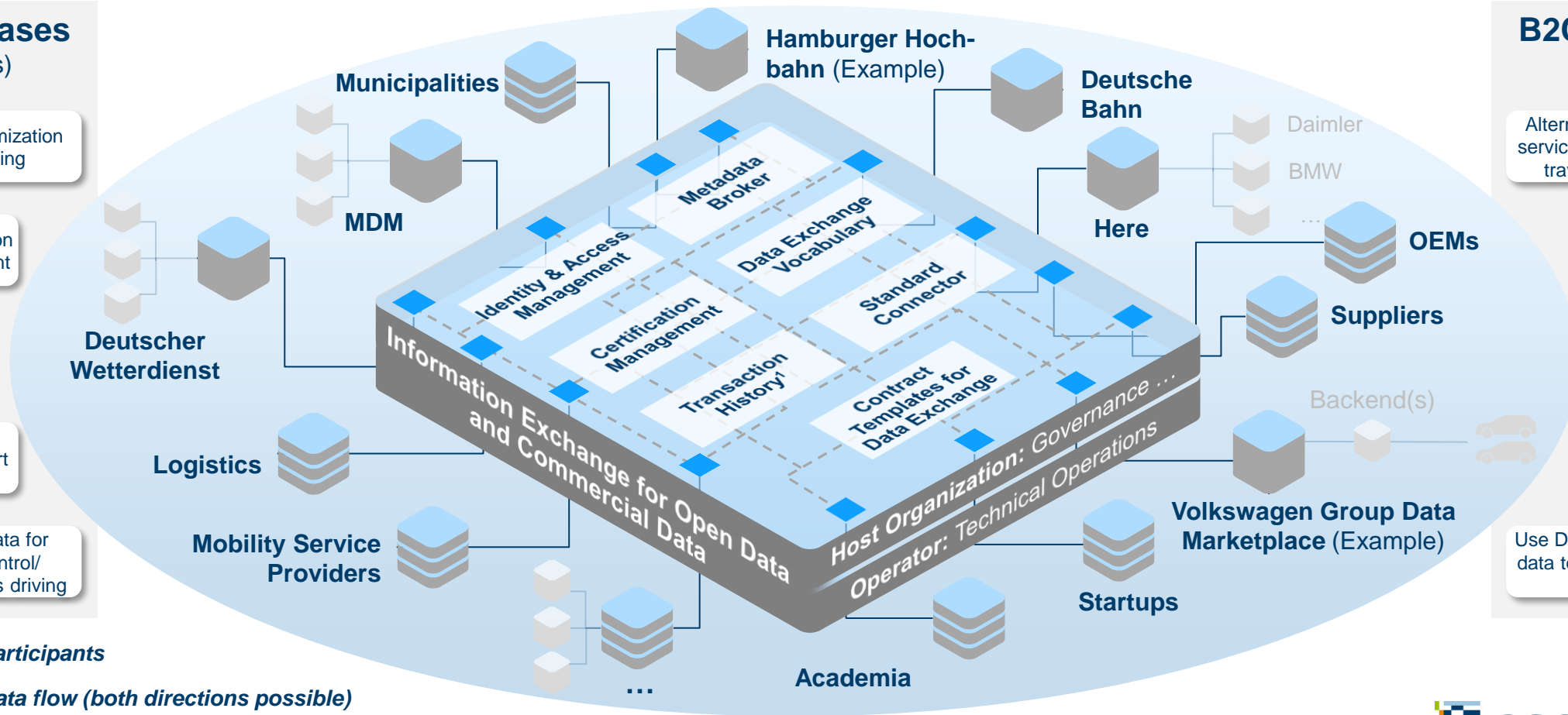
Traffic optimization & steering

Disruption information for fleet management

Asset utilization of public transport

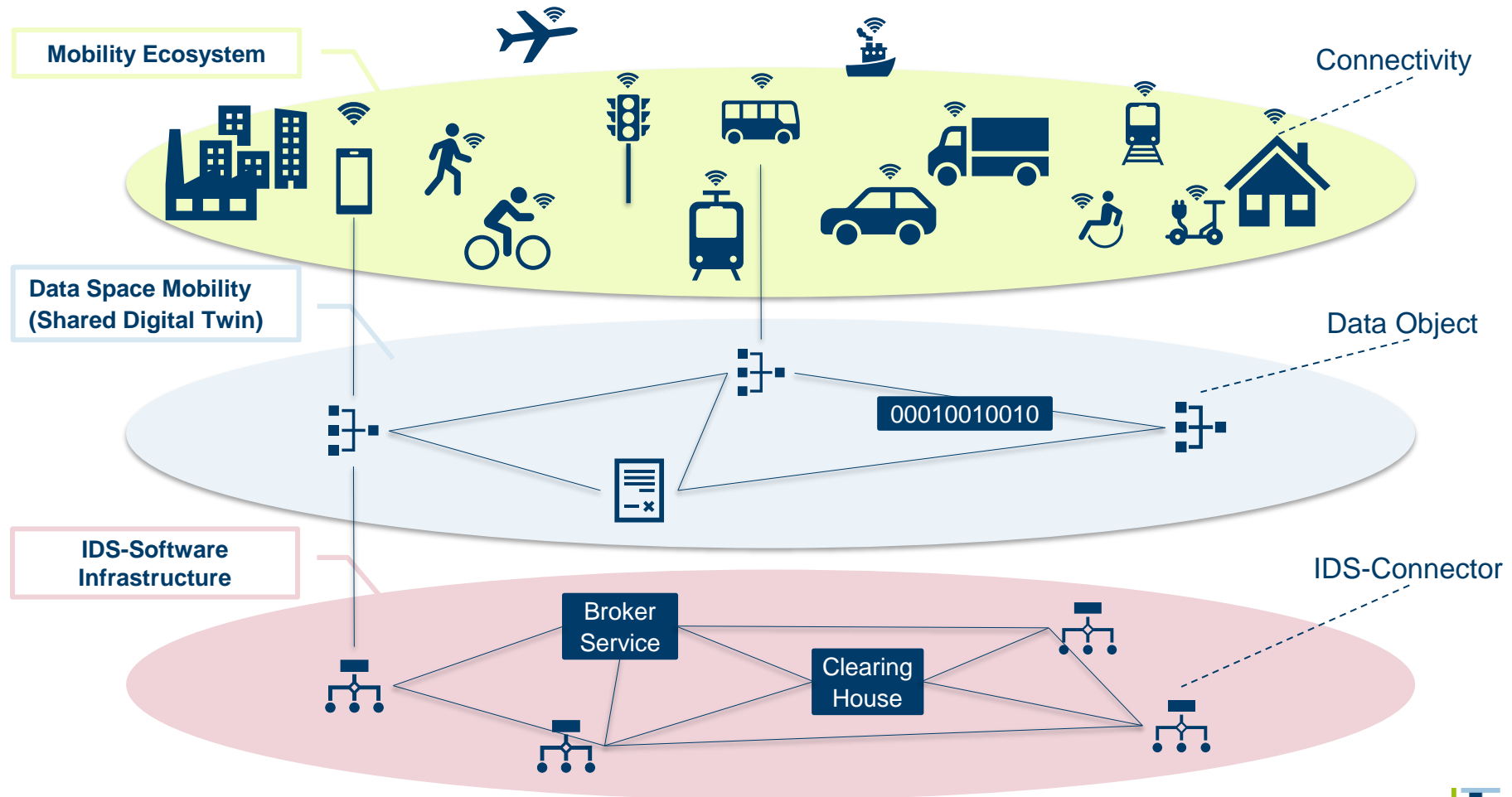
Predictive maintenance for transport infrastructure

Sensor data for traffic control/ autonomous driving



1) incl. Clearing & Settlement

Layer Model DSM



Implementation – Fields of activity



Regulations / Governance

- European, sovereign, independent
- Opt-in / Opt-out, Process & Certification
- Common-Level-Playing Field
- European Legal Space for Data Usage
Commercial Handling processes and streams
- Virtual Networked Data Space Mobility

Input/Provision

- Weather data
- Data from municipalities
- Road infrastructure and traffic data
- Disruptions data
- Mobility service provider data
- ⋮

DSM

Output

- Services and Data for the mobility industry
- European mobility data space
(Enabler for Germany)
- ⋮

Architecture & Technology

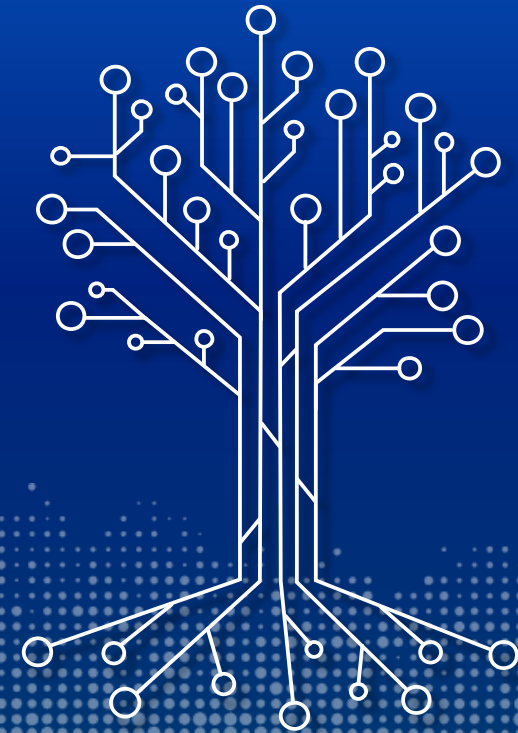
- Map based application platform
- Cooperation/Data exchange Hyperscaler
- BMVI - MDM (Mobilitäts Daten Marktplatz /
Data architecture)
- IDS - Interfaces and data architecture



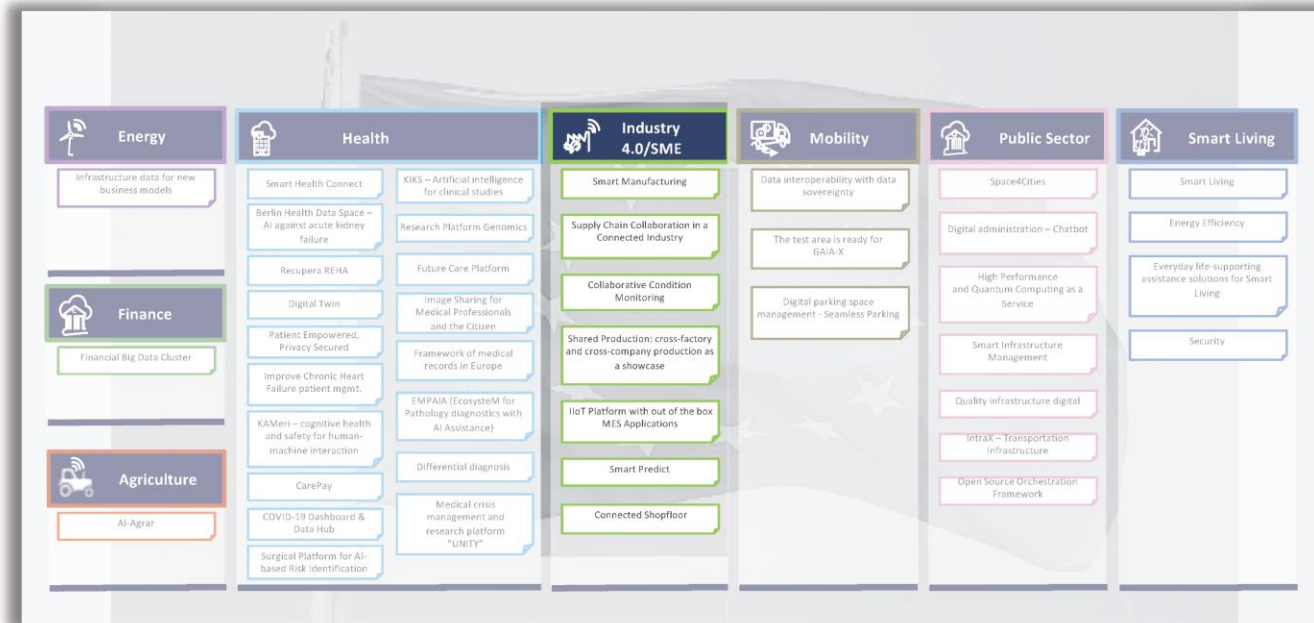
GAIA-X

German GAIA-X Hub

Domain Industry 4.0 / Manufacturing



Data Space Industry 4.0 (Germany) Concept & Early Approach.



Multitude of profound use cases have been identified with dedicated GAIA-X relevance.

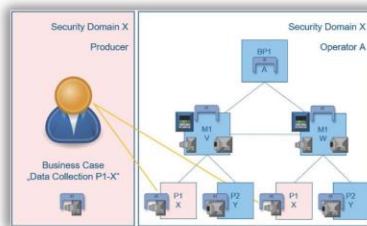
Integrated approach altogether with relevant initiatives, e.g. Plattform Industry 4.0.

Community based development of requirements and solution approaches.

Three exemplary early Use Cases from the Industry/SME sector

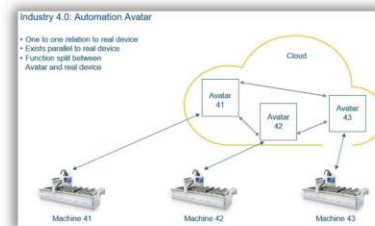
1

Collaborative Condition Monitoring



2

Smart Manufacturing

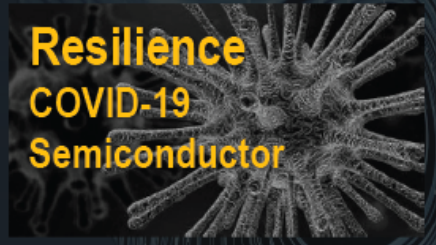
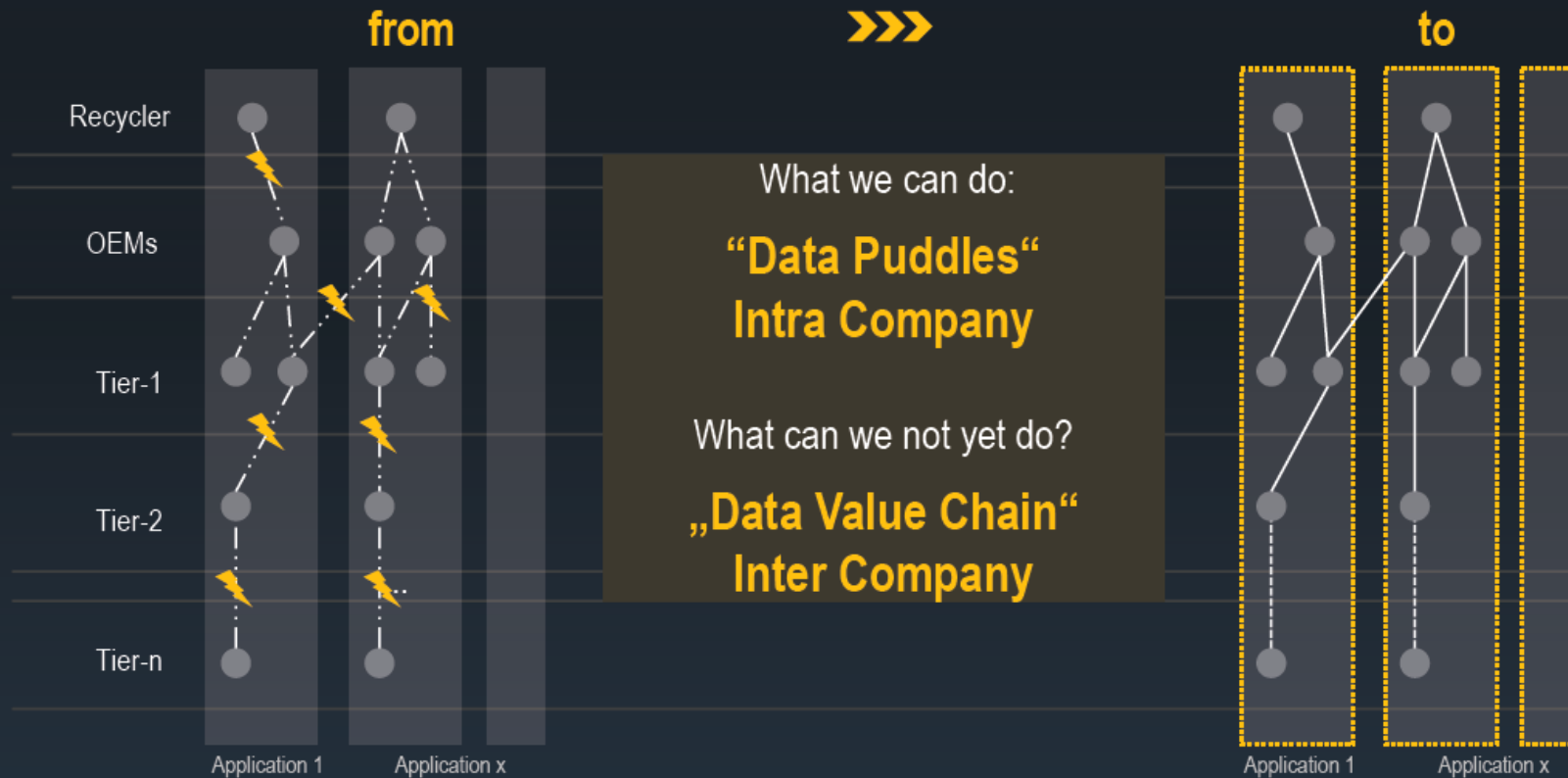


3

Supply Chain Collaborative in a Connected Industry

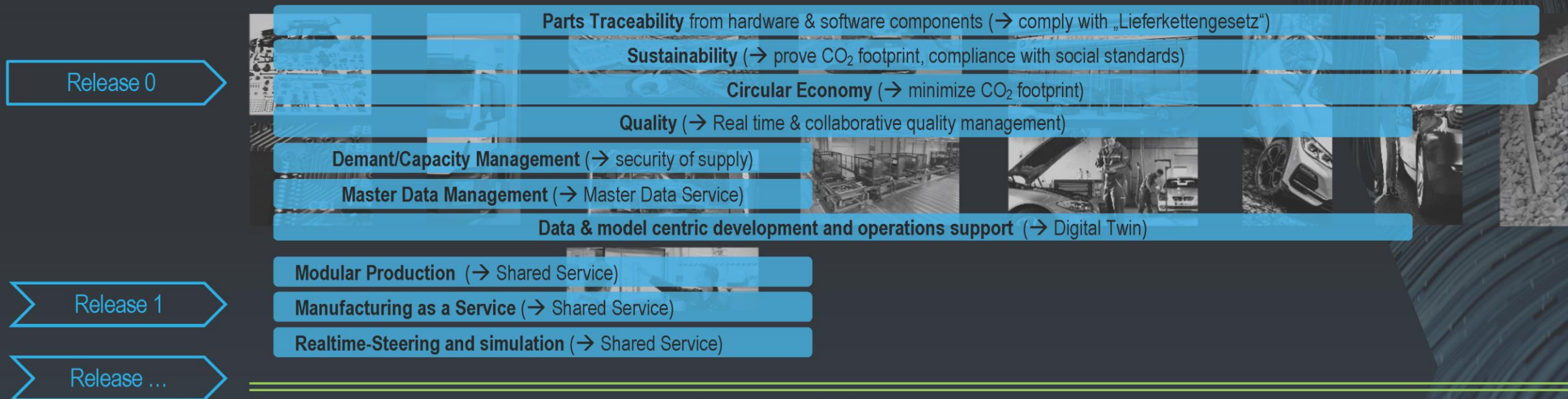


CATENA-X | A COMPREHENSIVE APPROACH FOR THE WHOLE INDUSTRY. ESTABLISH CONSISTENT DATA VALUE CHAINS + CONNECT SMES / PARTNERS.



CATENA-X | INITIAL USE CASES.

TARGET: CREATION & ACCEPTANCE NETWORK + BASIS FOR NETWORK BASED-INNOVATIONS.



GAIA-X FINANCE & INSURANCE WORKING GROUP

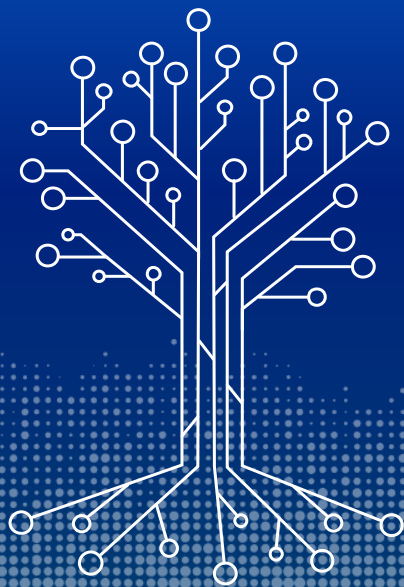
PATRICK LAURENS-FRINGS

GAIA-X FINANCE & INSURANCE DATASPACE COORDINATOR
CIO, CAISSE DES DÉPÔTS ET DES CONCILIATIONS



Gaia X – Finance and Insurance Dataspace

March 2021



Gaia X Finance & Insurance Dataspace introduction

After co constructing during Q4 2020 a roadmap, contributors are entering a more operational phase of constituting working groups with companies and solution providers.

At this stage, it already brings together major French, German and Italian banks and insurance companies and is progressively onboarding other European financial actors.

Overall benefits expected from Gaia X for the financial industry

Easily build, assemble and use trusted and value-creating data-based cloud services

Create new financial products/services and foster new business models that are compliant “by design” with European regulations and values

Gaia X as a European-wide accelerator of innovation, scaling up open innovation and co-construction by providing secured data sharing and artificial intelligence services at scale, in a compliant and secured way

Foster Europe’s competitiveness and financial markets’ stability

Already 7 short-term value-creating topics identified, building on Federation Services and data-sharing

2 pillars to initiate Finance & Insurance data space

#1 “compliance by design” framework to set up in connexion with European and national regulators

#2 Secured innovation platforms to support co-innovation with multi-entity participation (e.g. building on FBDC initiative)

Potentially cross-data space

5 short term topics building on existing solutions, to be enhanced at Gaia X standard level in order to benefit from Gaia X value proposition

#5 Acceleration of open banking usages

#3 “Compliant by design” electronic/intelligent document & content management

#4 Authentication, identity management, consent management and ePrivacy

6 Trusted Fraud, Risk and Compliance data-based cloud services

#7 Trusted financial risk management data-based cloud services

Enhance data protection, “compliance by design” and AI-based capabilities through Gaia X potential

Enhance AI- and data-based capabilities through Gaia X potential

13 additional mid-term value-creating topics identified, also building on Federation Services and data-sharing

11 promising value-creation topics

#8 Stable Supply Chain Finance

With Industry 4.0 data space

#9 Financial cloud services' tokenization platform

= secured data and service brokerage

Potentially cross-data space

#13 Building EPI- and FPML-based services in a directly compliant mode

= New products

#12 Personal Data digital safe

= Data protection

#10 Trusted "Blockchain as a service" platforms

= Data protection and innovation

#16 Improving the data basis for monetary policy decisions

#15 Enhancement of market integrity

#14 Sustainable finance data space

#11 Collaboration applications suites trusted cloud services

= Data protection

Foster Europe's competitiveness and financial markets' stability through AI- and data-based new tools

#19 Explainable, Trustworthy, and Responsible AI in Finance and Insurance

#20 Graph Analytics and Explainable AI in Risk Analysis of Orderbooks

2 high-value long-term topics

#17 Emergence of a European financial market-data platform

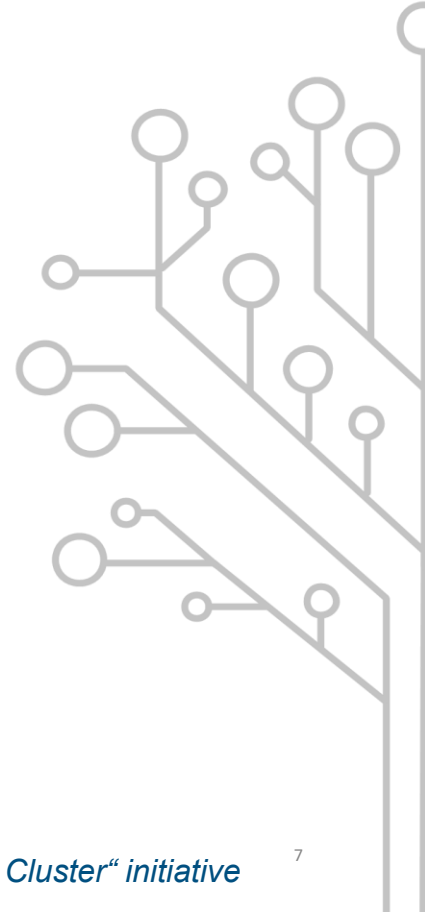
= New products

#18 Trusted "core banking as a service" cloud platforms

= New products

Key next steps to deliver expected value

- Develop a „compliant by design“ framework aligning Gaia X policy rules and financial sector regulations
- Deliver a first data space demonstrator, e.g. building on the FBDC* initiative launched in Germany
- Set up the Finance & Insurance data space governance and plan development and roll-out for the most value-creating topics among the 20 topics identified so far
- Identify topics for which funding by the EC could accelerate development



GAIA-X AND ITS SPACE DATASPACE

PASCAL ROGIEST

CHIEF EUROPEAN INSTITUTIONS OFFICER, RHEA GROUP &
MANAGING DIRECTOR, RHEA SYSTEMS LUXEMBOURG

ELODIE VIAU

DIRECTOR OF TELECOMMUNICATIONS
AND INTEGRATED APPLICATIONS, ESA

Pascal ROGIEST,
Managing Director, RHEA System Luxembourg



**GAIA-X and its SPACE dataspace:
key enablers for the future European space applications**

At dawn of new DATA-driven SPACE era



- ❑ High Dependency of everyone daily life on SPACE data
- ❑ Multiplication of new SPACE infrastructures & investments
- ❑ New DIGITALISATION concepts in new SPACE approaches
- ❑ Opportunity for creating beneficial SOCIETAL IMPACT and DIGITAL TRUST through further exploiting SPACE data in EUROPE

Justifying a focus on GAIA-X for SPACE DATA

SPACE dataspace

Mission & Vision

❑ Vision:

allow SPACE DATA to be handled securely, robustly, accurately and efficiently, with assured European sovereignty

❑ Mission:

foster new Data & Cloud related services
for space ground segment (upstream)
and for the use of space data (downstream)

SPACE dataspace

Key Concrete Objectives & Usecases

- ✓ To boost European space business thanks to a federation of European clouds
- ✓ To use the processing power of European clouds
- ✓ To keep European space data in Europe
- ✓ To integrate European space data in other markets and with other data sources,
- ✓ To ensure European digital trust as an enabler for digital adoption
- ✓ To accelerate time to market & competitiveness of future European space programs

Renown set of Members aggregated over 5 months ...



Elodie VIAU,
Director of Telecommunications and Integrated Applications

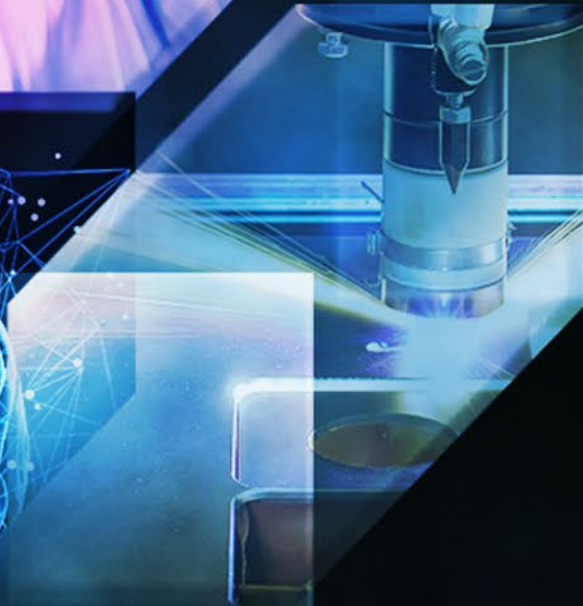


GAIA-X and its SPACE dataspace:
key enablers for ESA
& the future European space applications

LUXEMBOURG GAIA-X REGIONAL HUB

SASHA BAILLIE
CEO
LUXINNOVATION

Luxembourg in Gaia-X Why and how?



Luxinnovation – Our mission as national innovation agency

We empower companies to innovate

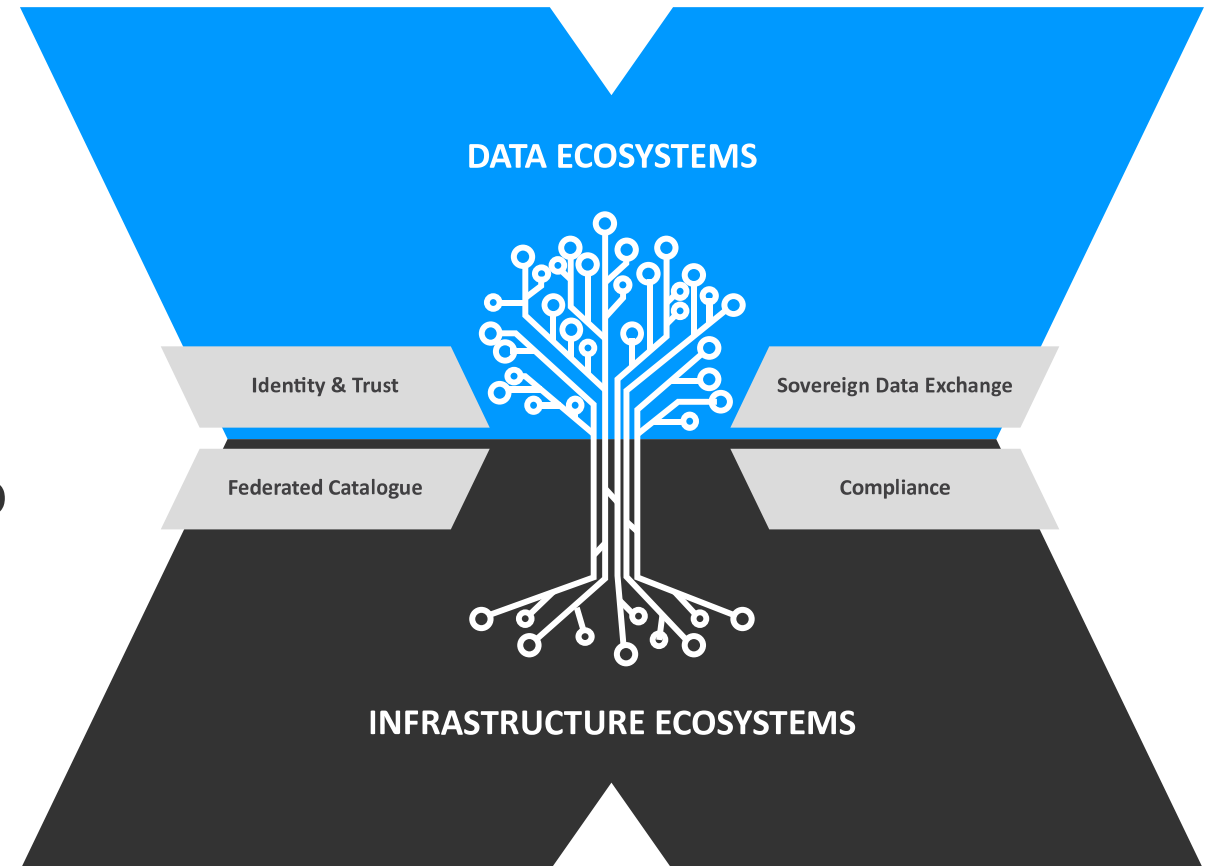
- by facilitating access to funding, knowledge and networks
- by anticipating change and helping companies seize the challenges and opportunities change brings about

GAIA-X mission

- Ensure that **all relevant public, private and research players** from the Luxembourg data ecosystem **become involved** in GAIA-X in a coordinated and efficient manner

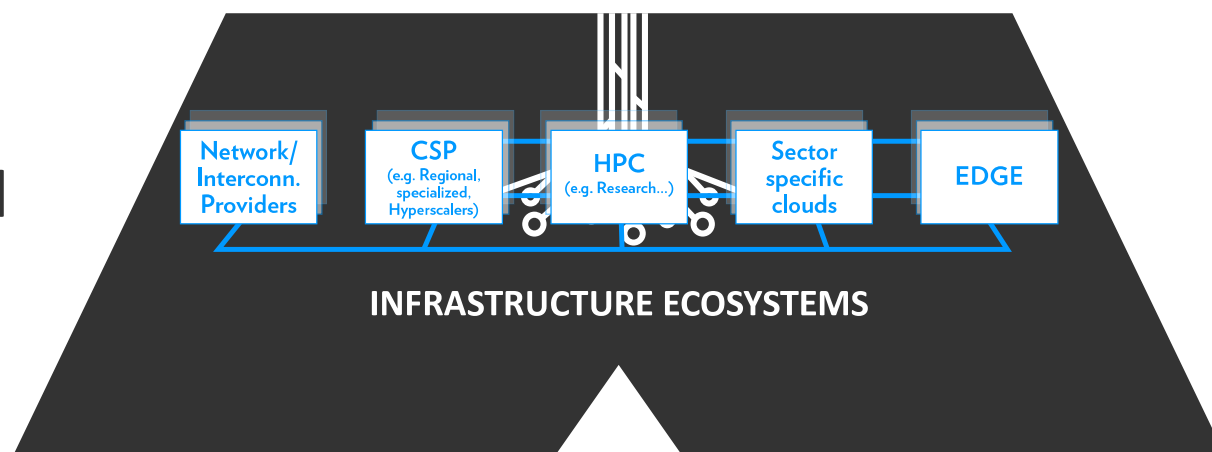
GAIA-X concept

- Create a **European data infrastructure** that is federated, secure and sovereign
- Involve **all relevant stakeholders** (business, research, public sector)
- Jointly **express the requirements** to ensure that data from multiple sectors can be made available, combined and shared in an environment of trust



Infrastructure layer

- Highly relevant for:
 - Cloud service providers
 - Network providers
 - Data infrastructure entities
 - HPCs
- Ensure that your services and infrastructures are inter-connected and interoperable at the European level



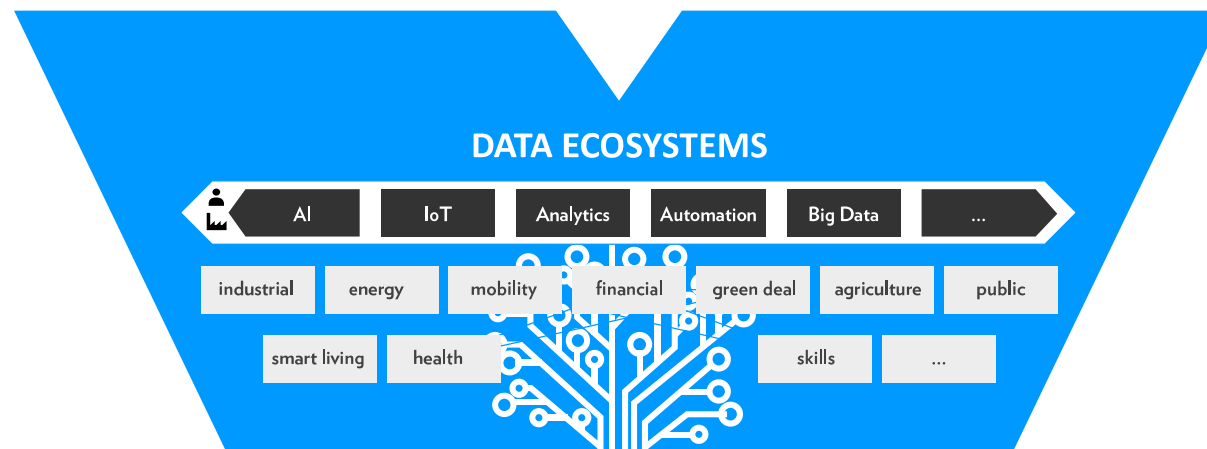
Data ecosystem layer

Highly relevant for:

- Data users and producers in different fields

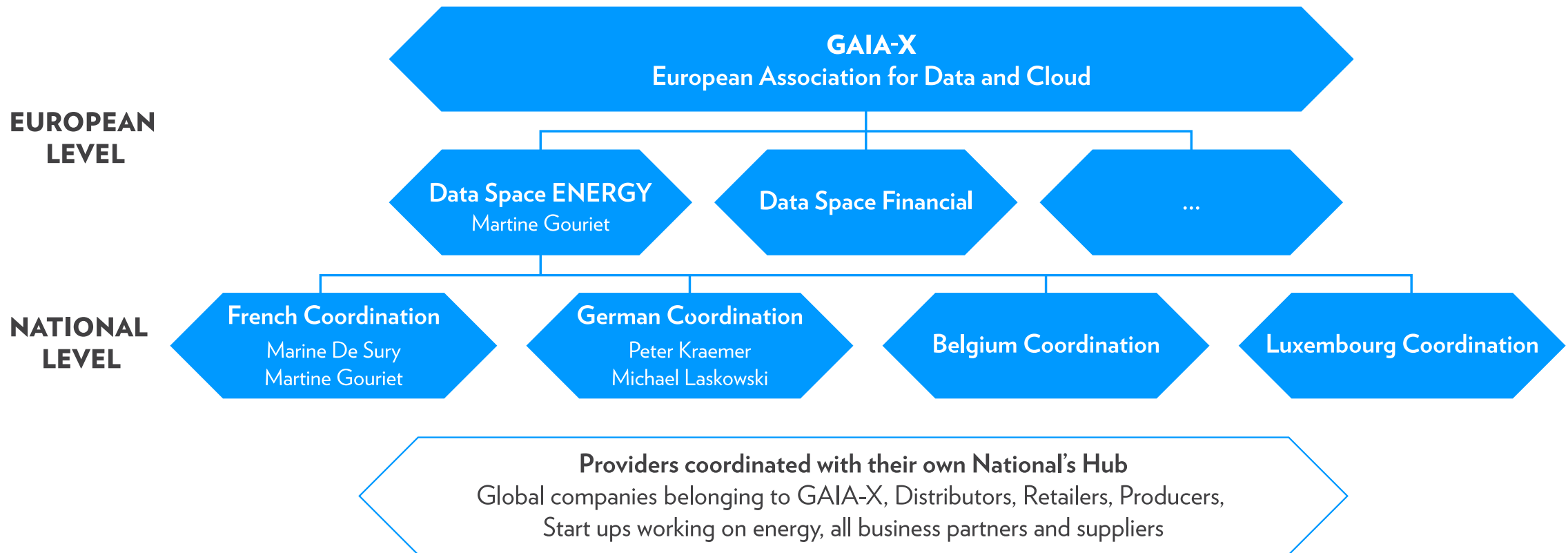
Why participate in domain WGs:

- Identify and prioritise use cases
- Align on common data standards required
- Build consortiums to address opportunities
- Develop demonstrators
- Leverage national and European funds
- etc.



Energy Data Space

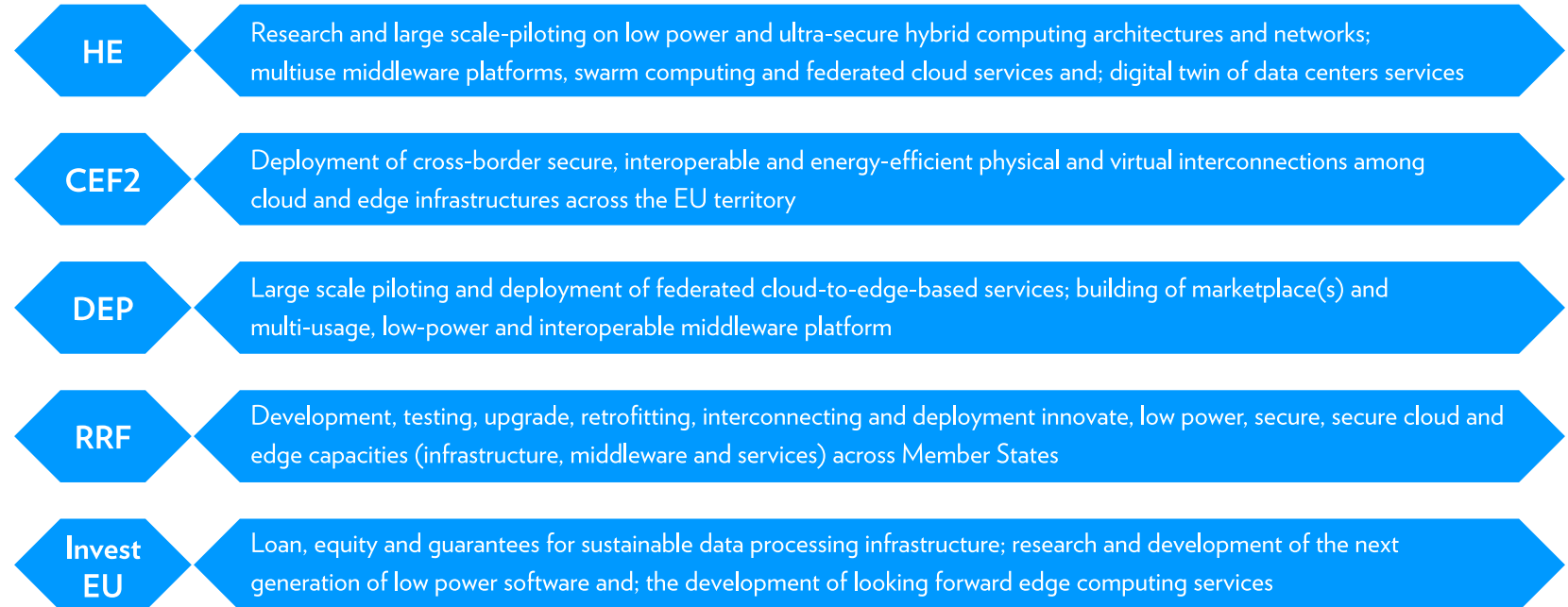
Proposed governance (in progress)



European funding

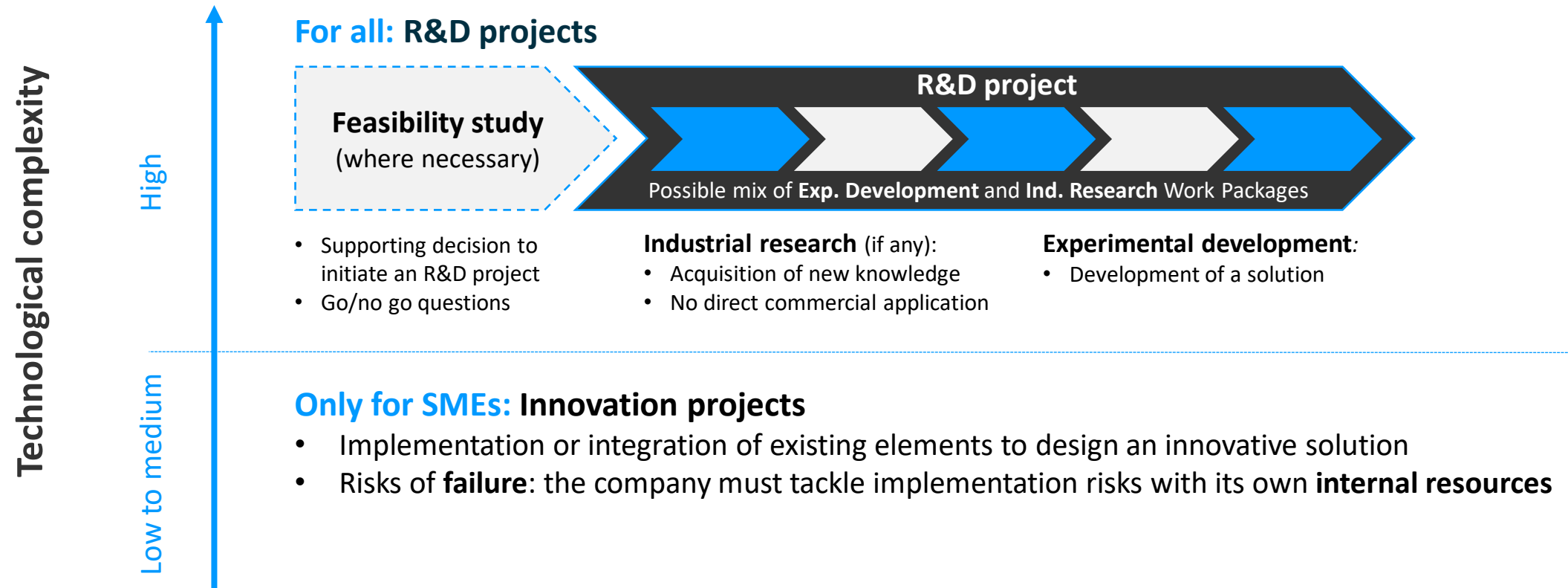
EU Commission programmes relevant to projects emerging from GAIA-X

- RDI activities
- Infrastructure investments
- Digital technologies



National R&D and innovation funding

Luxinnovation helps companies prepare high-quality funding applications



National funding

IPCEI-CIS – Ministry of the Economy)

- Potential Luxembourg participation in the **IPCEI on Next Generation Cloud Infrastructure and Services**
- Member States can support industry (no State aid rules ceiling)
- Criteria:
 - Major contributions to European **growth, employment and competitiveness**
 - **Ambitious RDI targets** exceeding current state of the art technologies
 - **Co-financing** from beneficiaries including private companies
 - **Market or systemic failures** must be demonstrated
- **Call for ideas and project proposals** to be launched by the Ministry of the Economy

GAIA-X and funding opportunities

Separate yet related

- **GAIA-X** gathers requirements to define the future characteristics (compliance, identity and trust, data exchange, etc.) and architecture of the European Cloud
- **Horizon Europe, EC Connecting Europe Facility (CEF2), Digital Europe Programme (DEP)** : RDI, cloud infrastructure, digital technologies
- **Important Project of Common European Interest on Cloud Infrastructure and Services (IPCEI-CIS)** facilitates EU Member States directly supporting their industry to achieve the data strategy goal of a European Federated Cloud and marketplace (no state-aid rules ceiling)
- **National R&D and Innovation funding schemes**

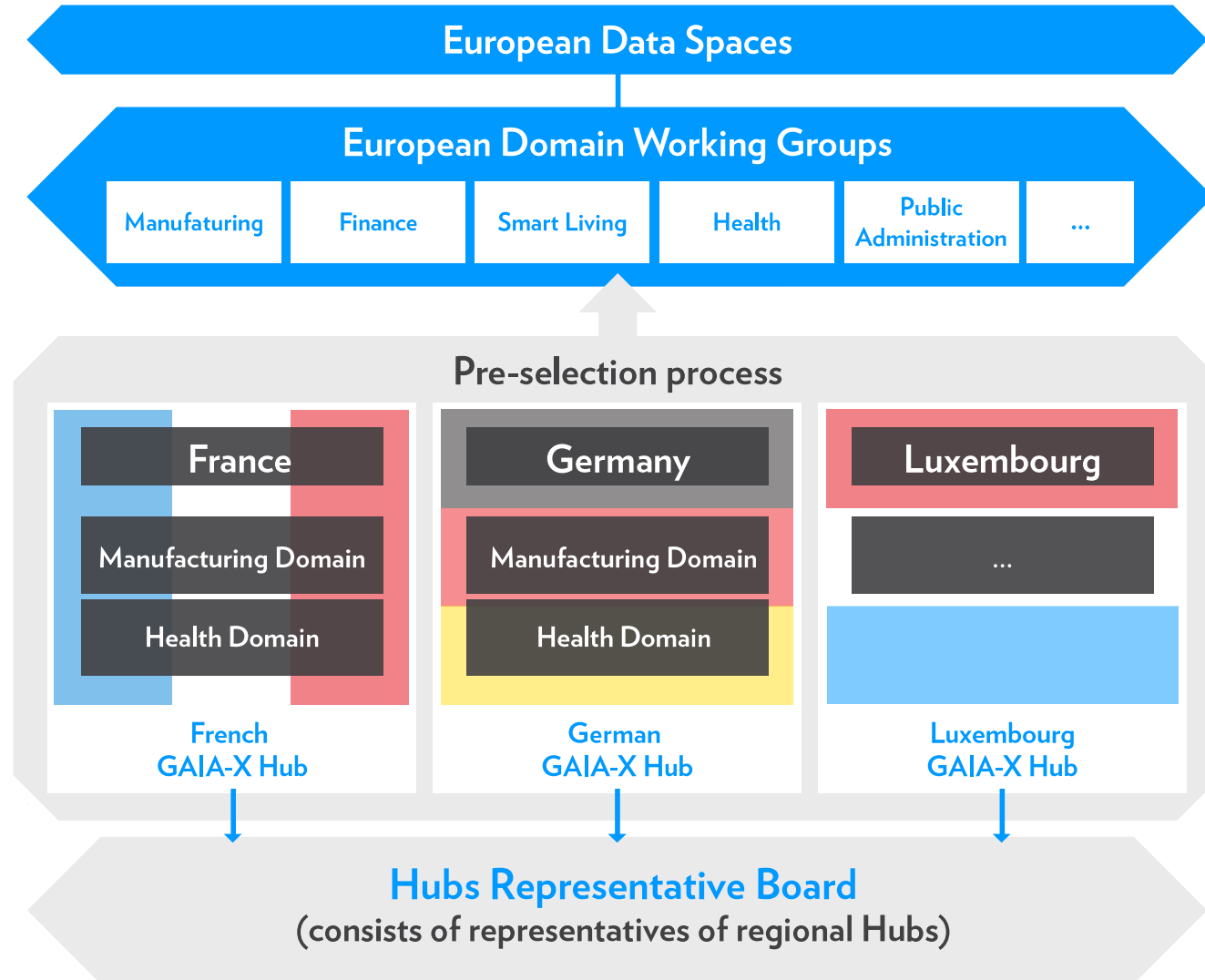
Luxinnovation helps companies access the relevant funding schemes

GAIA-X

Luxembourg regional hub



EU CONTEXT: GAIA-X Hubs help channel information to the right places



GAIA-X Regional Hub for Luxembourg

Key factors to determine which players

- ▣ Represent the requirements of network and interconnection providers, cloud solution providers, High performance computing, ...
- ▣ Need to be involved in developing the mechanisms to connect services across domains and Europe to enable a user-friendly infrastructure ecosystem

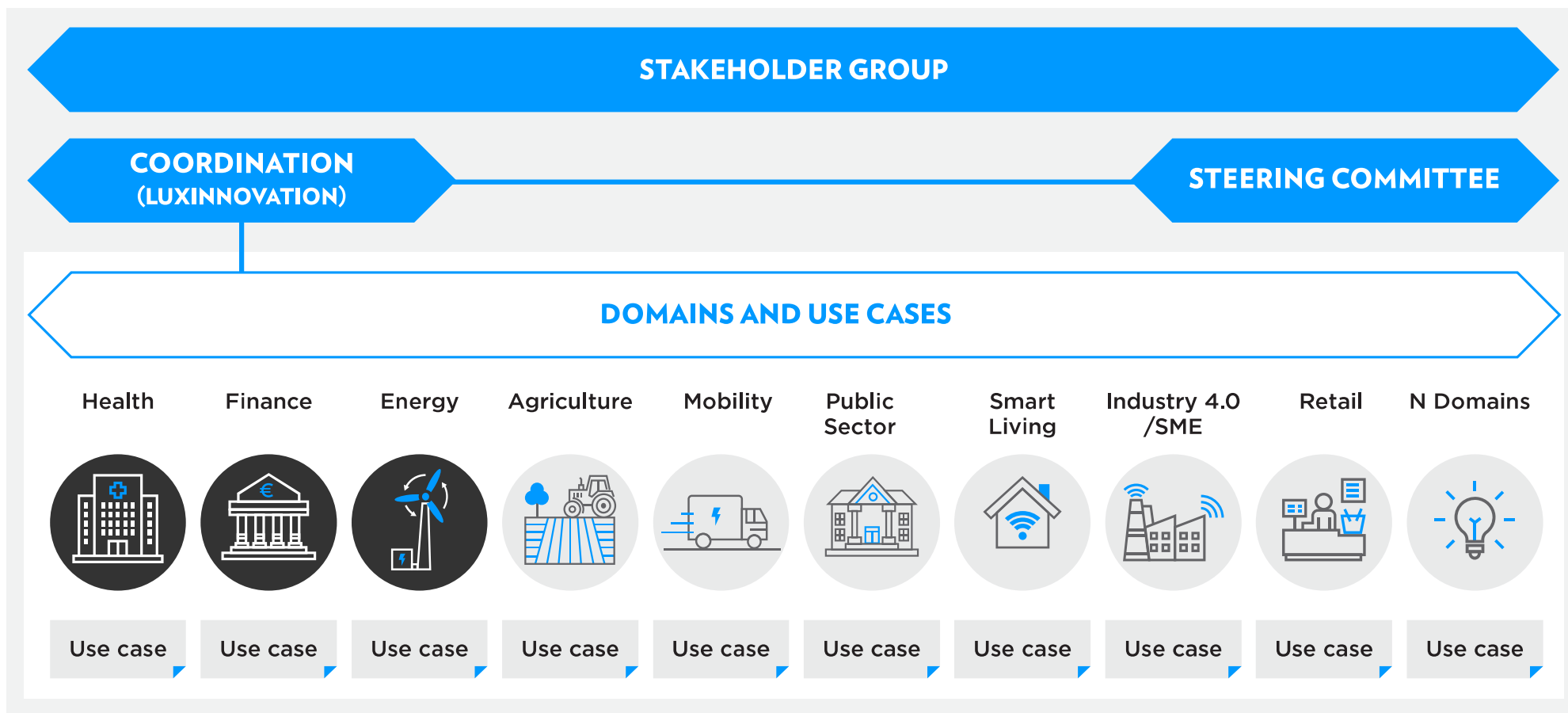
- ▣ Represent the user and demand perspective
- ▣ Engaged in domain specific use cases (Energy, Health, Industry 4.0, Finance...)
- ▣ Have domain-specific and cross-domain requirements

- ▣ Provide access to funding
- ▣ Set up and run national data infrastructure initiatives
- ▣ Provide scientific knowledge
- ▣ Set the regulatory framework

- ▣ Ensure information sharing and coordination
- ▣ Have full overview of ecosystem

Luxembourg GAIA-X regional hub

Governance



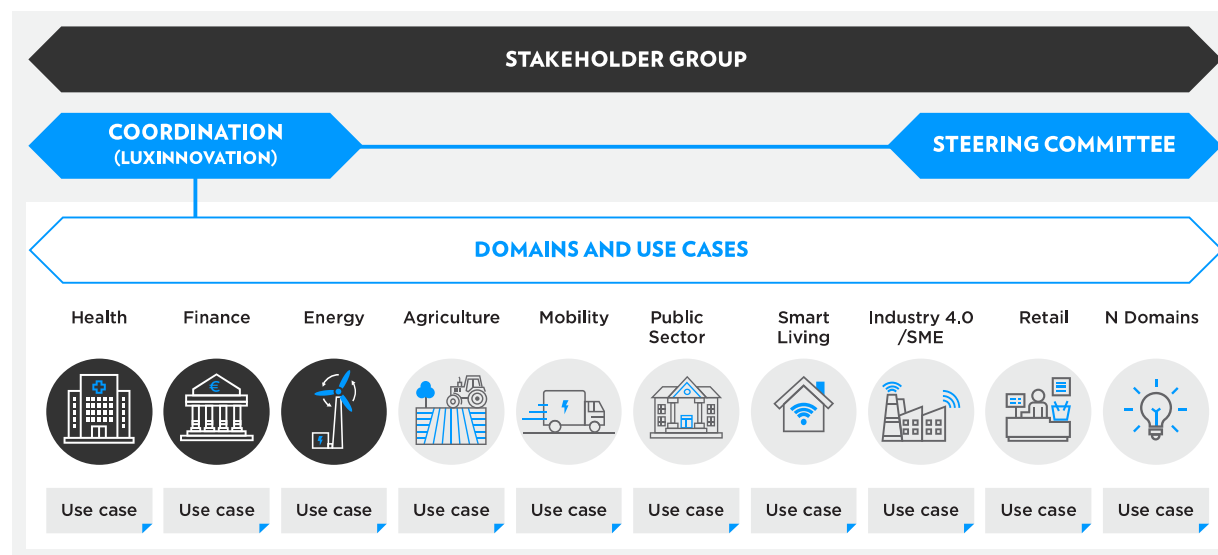
Luxembourg GAIA-X regional hub

Stakeholder Group

Representatives of:

- Associations (ICT Luxembourg, CCEL, FEDIL, etc.) interested in GAIA-X
- Government (MECO, MESR, SMC, MinDig, MinFin, ...) that support the GAIA-X hub by providing funds, defining research priorities, providing political support, setting the regulatory framework and/or becoming a key user of Gaia-X

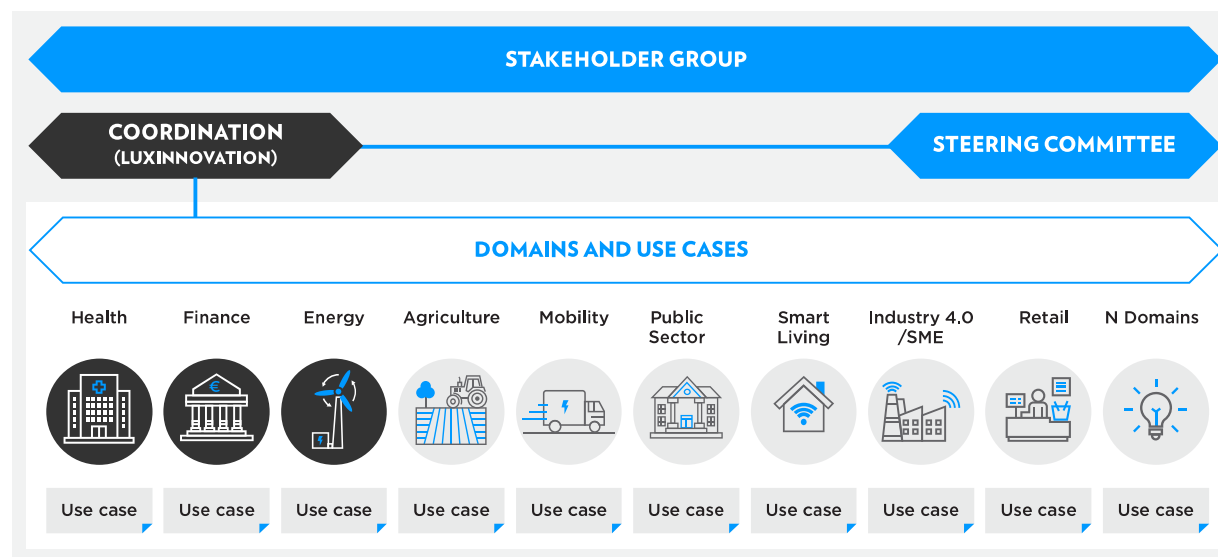
Need to remain informed of ongoing work



Luxembourg GAIA-X regional hub

Coordination by Luxinnovation

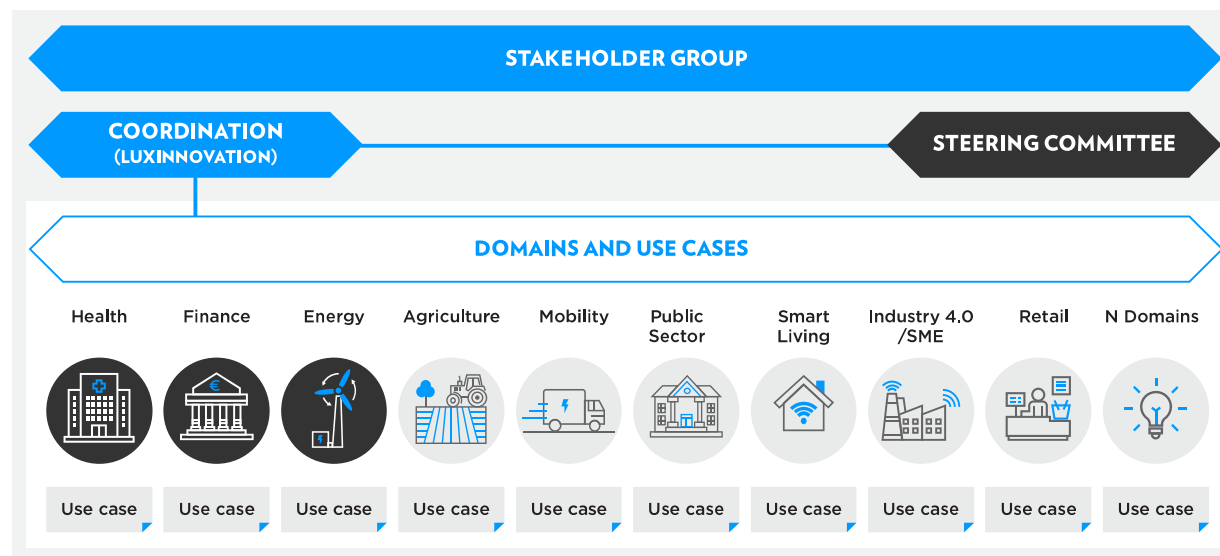
- Coordinated by a dedicated special advisor for digitalisation and data economy from Luxinnovation who:
 - assists a smooth operation and management within the Hub
 - is a central contact point for all parties involved in GAIA-X
- Supported by resources from the private sector and the Ministry of the Economy



Luxembourg GAIA-X regional hub

Steering Committee

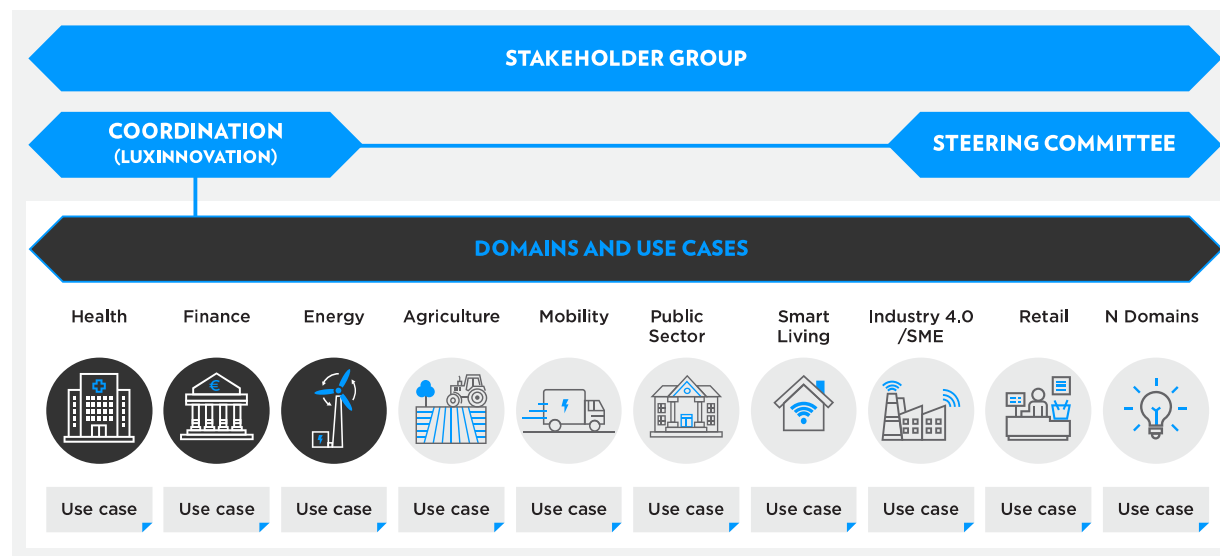
- Gives guidance to the coordinator
- High-level representatives of organisations with an operational role:
 - Luxinnovation (1)
 - Ministry of the Economy (1)
 - private sector (3)
 - RTOs (3)
- Private sector and research members are domain representatives



Luxembourg GAIA-X regional hub

Domains and use cases

- Each domain has a representative
- Example:
 - If Luxembourg is interested in becoming engaged in the domain Health with the use case Clinnova, the representative could be from LIH



Luxembourg Gaia-X Hub

Gaia-X Coordinator (as from 19 April 2021)

- Peter Sodermans, Special Advisor, Luxinnovation
- peter.sodermans@luxinnovation.lu

Steering Committee

- Luxinnovation: Sasha Baillie, CEO
- Ministry of the Economy: Mario Grotz, Director General
- Private sector: Yves Reding (CCEL) Georges Santer (FEDIL), Jean Hilger (ICT Luxembourg)
- Research: TBC

Thank you!

■ **Sasha BAILLIE**

CEO

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**THANK YOU FOR
YOUR ATTENTION**

MEDIA PARTNER

