The Role of GAIA-X for achieving Digital Sovereignty

28.01.2021

Hubert Tardieu GAIA-X Interim CEO

Agenda

01 Introduction GAIA-X

02 Data Space Facilitation for Manufacturing

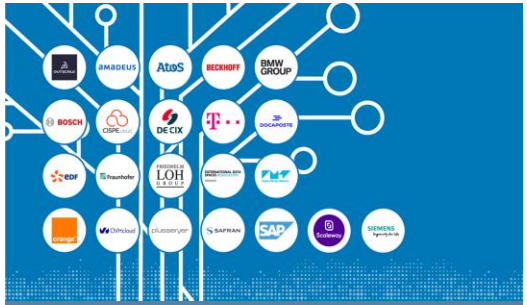
03 Examples of AERONAUTICS and AUTOMOTIVE

04 Outlook – 100 Days ahead

05 Summary

GAIA-X

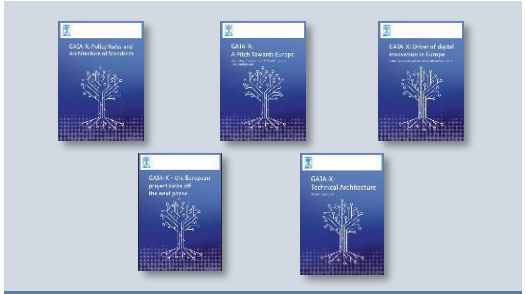
GAIA-X AISBL



GAIA-X AISBL
22 Founding members
Open to all

Multiparty Governance

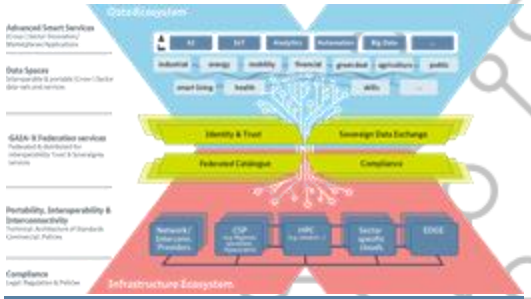
Define



Open, community-based implementation

Policy Rules
Architecture of Standards
Federation Services

Enable



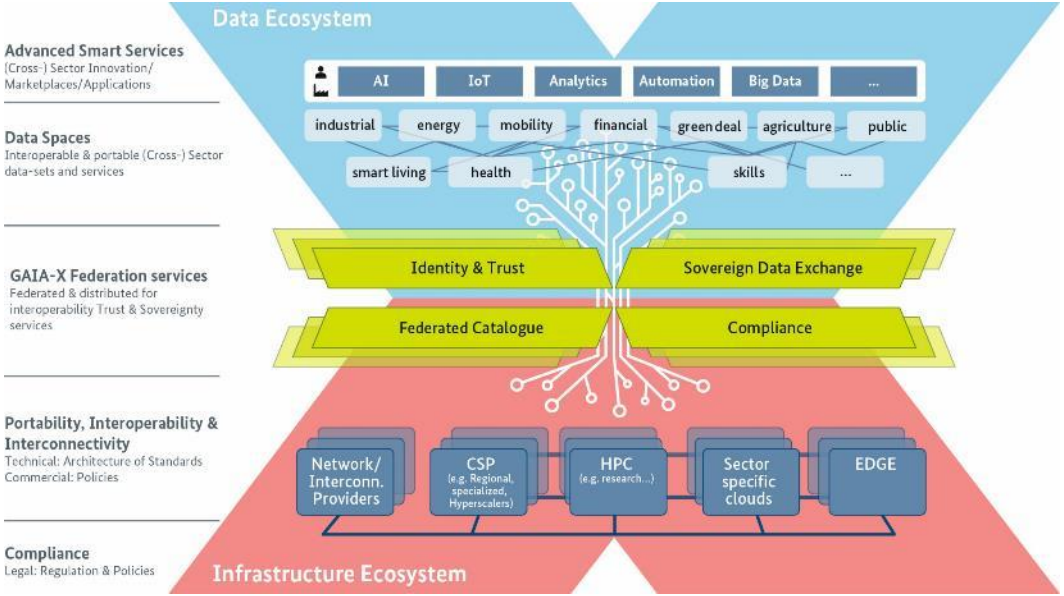
Creation of data spaces and Industry Platforms

Data- and Infrastructure

Open Ecosystems

xyz

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**.

GAIA-X

The GAIA-X objectives

Objectives

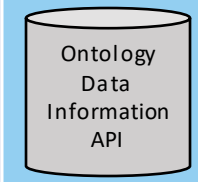
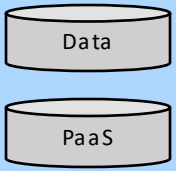
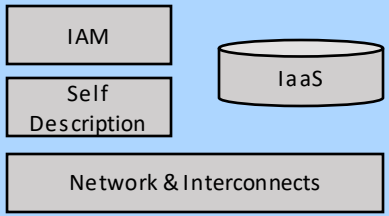
GAIA-X

The GAIA-X objectives

Objectives	Policy Rules
	**Application portability**
	 Data & Software
	Infrastructure portability
	 Infrastructure

GAIA-X

The GAIA-X objectives

Objectives	Policy Rules	Architecture of Standards
 	**Application portability**	
	 Data & Software	 By Industry vertical
		 X-CSP
	Infrastructure portability	
	 Infrastructure	

GAIA-X

The GAIA-X objectives

Objectives	Policy Rules	Architecture of Standards	GAIA-X Federation services
 	**Application portability**  Data & Software	Ontology Data Information API — By Industry vertical; Data, PaaS — X-CSP	Identity & Trust; Federated Catalogue; Data Sovereignty Services; Compliance
	Infrastructure portability  Infrastructure	IAM; Self Description; IaaS; Network & Interconnects	

GAIA-X

GAIA-X AISBL Core Deliverables

1. **Standard**
   - Architecture of Standard
   - Test Criteria

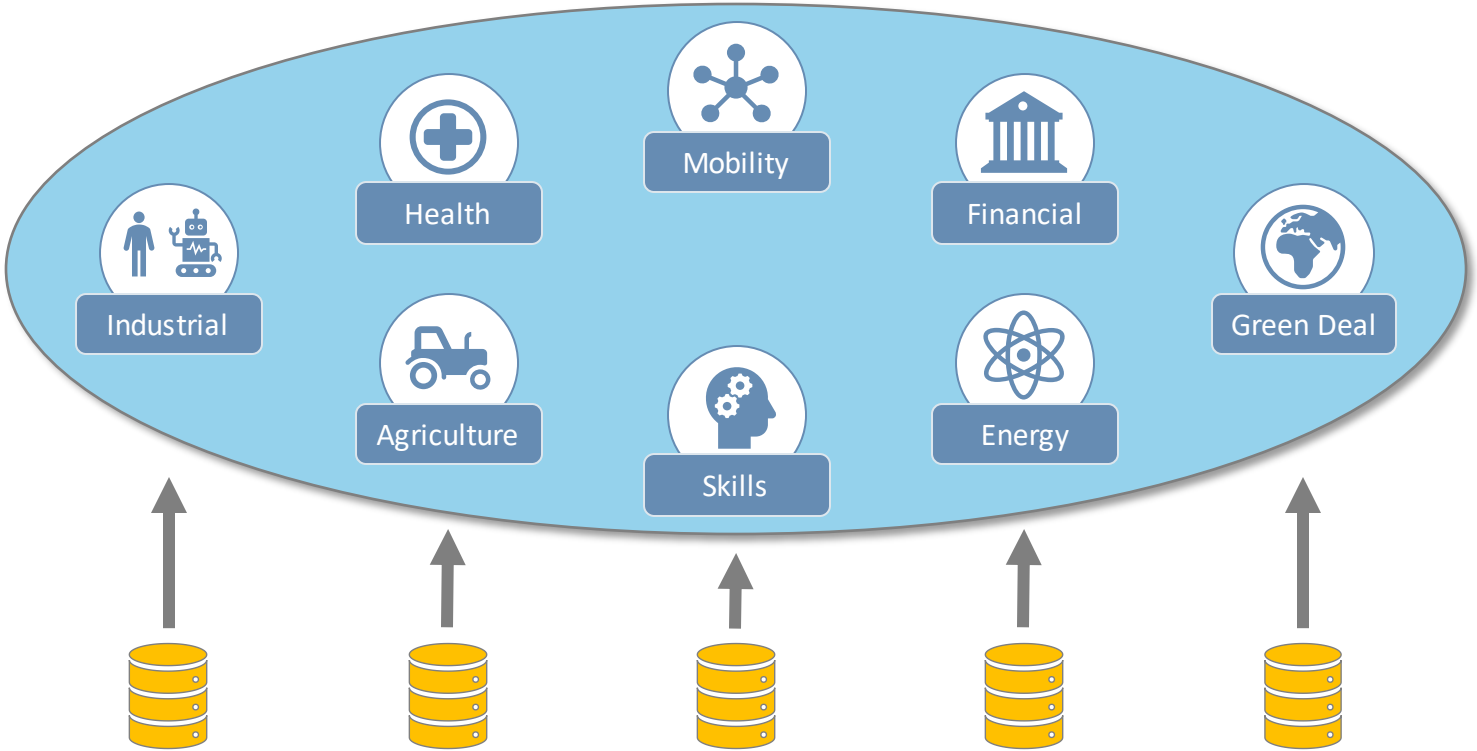
2. **Fundamental Services**
   - Digital Tokens/Certificate
   - Service Catalog

3. **Software Communities**
   - Open Source Federated Services
   - Interaction with other Communities

4. **Data Spaces Facilitation**

GAIA-X

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

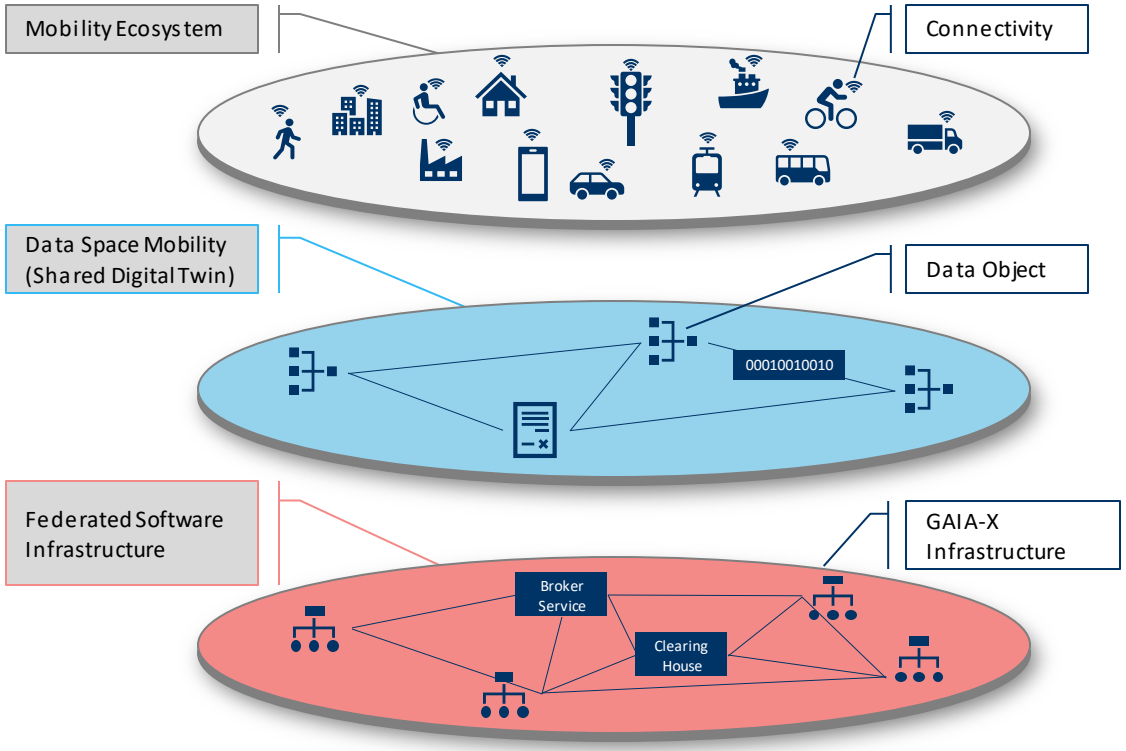


GAIA-X

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 IDS[1] Design Principles	Data sovereignty and traceability
	Trusted participants

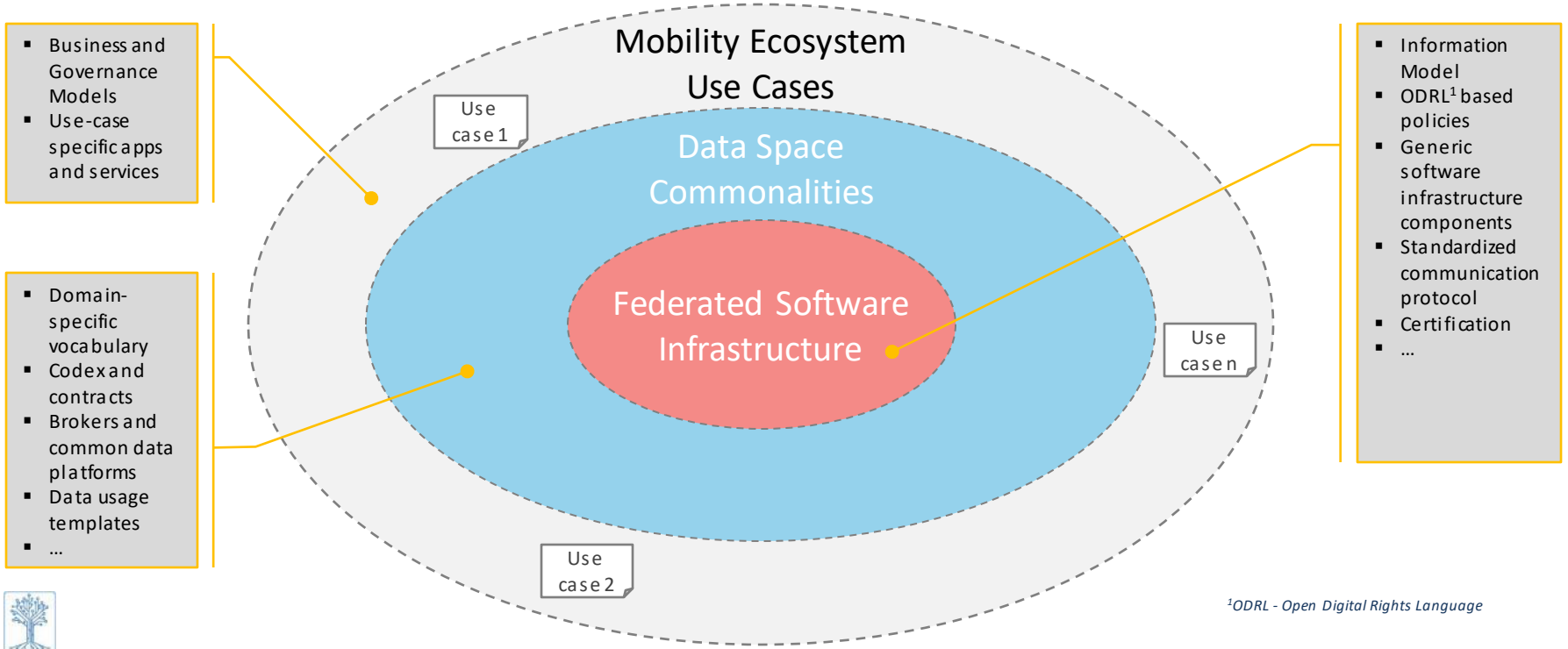
[1] *IDS – International Data Spaces*



Source: acatech, Fraunhofer ISST (2020)

GAIA-X

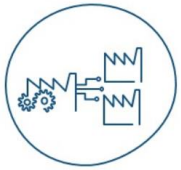
How to Build Data Spaces
The »Onion Model« of Data Spaces Design Cooperation



[1]ODRL - Open Digital Rights Language

GAIA-X

Manufacturing use cases analyzed in the GAIA-X project



Collaborative Condition Monitoring

On our way to Industry 4.0 – How companies can engage in trusted collaboration

Smart Manufacturing

Practical implementation of Industry 4.0? – A tour de force!

Supply Chain Collaboration in a Connected Industry

Harness supply network synergies

Shared Production: Cross-Factory and Cross-Company Production as a Showcase; Smart factory KL Vision 2025 – 'Production Level 4'

IIoT Platform with out of the box MES Applications

Using targeted data analysis to optimise production

Predictive Maintenance (PdM)

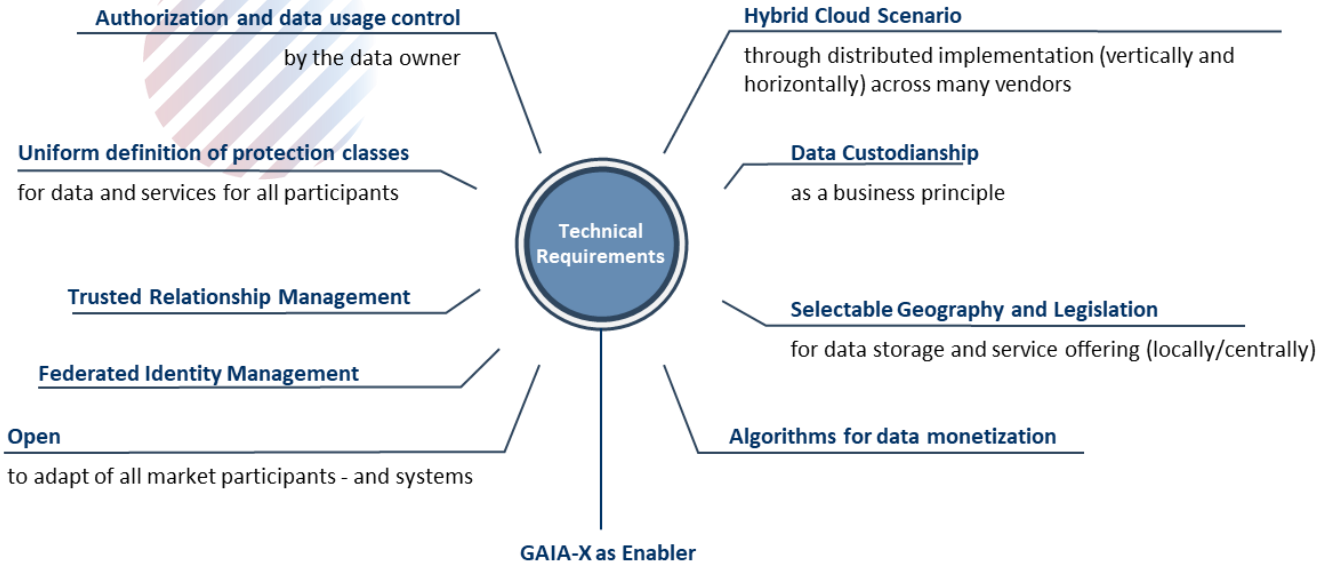
Actoinable machine monitoring „Smart Predict" (PDM) – Predictive maintenance of machinery through the use of Industry 4.0 applications

Connected Shopfloor

Digitised manufacturing line for optimisation of quality, sequences and optical inspections

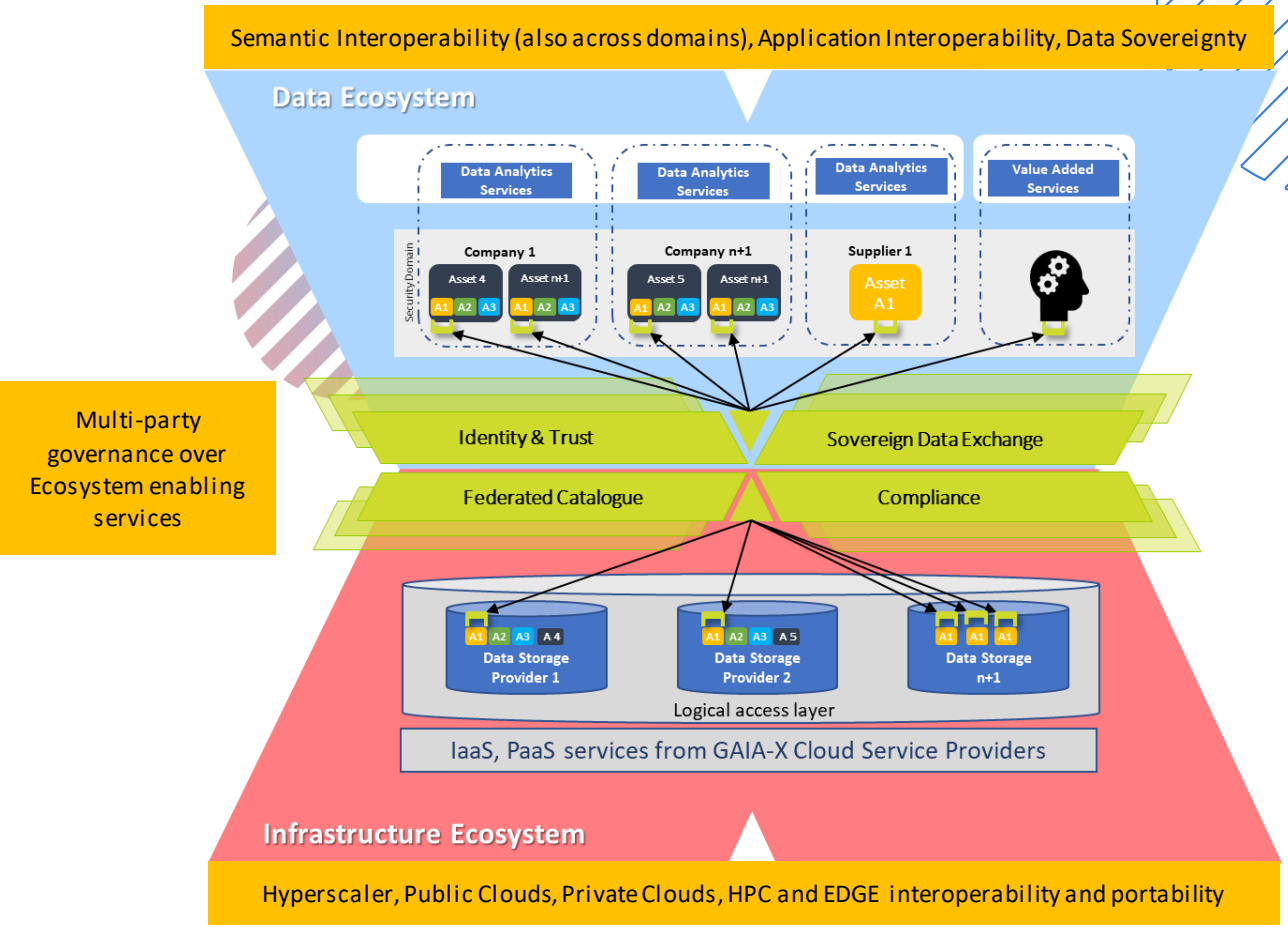
GAIA-X

Common Requirements have been Formulated



GAIA-X

Technical Challenges



GAIA-X

Sovereign Cloud Services highly needed for the European Aerospace Industry

Through-life cycle data collaboration

- From design, integrated operations, to in-service operations and maintenance
- For current and future programs, be they commercial aircraft, military systems, space systems, launchers…

Taking into account Industry specific constraints

- Safety management over 40 years lifecycle
- Comprehensive certification process and regulatory framework
- High Power computing for Simulation & Modeling on Cloud
- Export control / dual use systems

Sensitive competitive environment

- Concurrent cooperation / competition
- Global superpowers

AIRBUS

Preliminary Use Cases Overview for Federated Data Services

Modelling and simulation

Allow to have a virtual world to be able to model and simulate the A/C, the industrial system and services

Co development & Integration

Make all the disciplines (engineering, manufacturing, customer services, supply chain of the partners) working together in a single process and single environment

Digital continuity

Every time you change a data everybody get access to this data and know what is the impact of the modification we have done on the complete tool chain

Product line

Find a way to produce the A/C in order to reuse parts

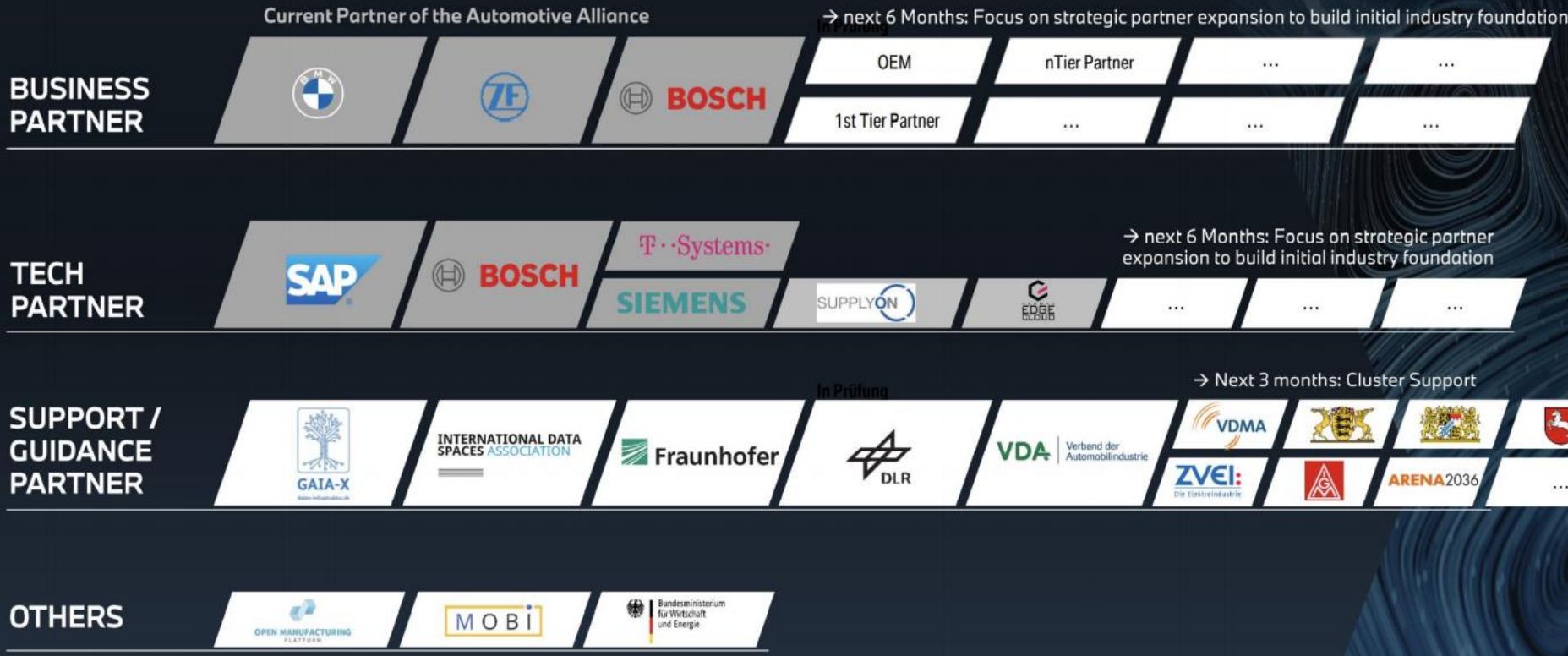
Complex Supply Chain coordination, Quality Optimization, Dynamic In-flow management

In-Service Operations

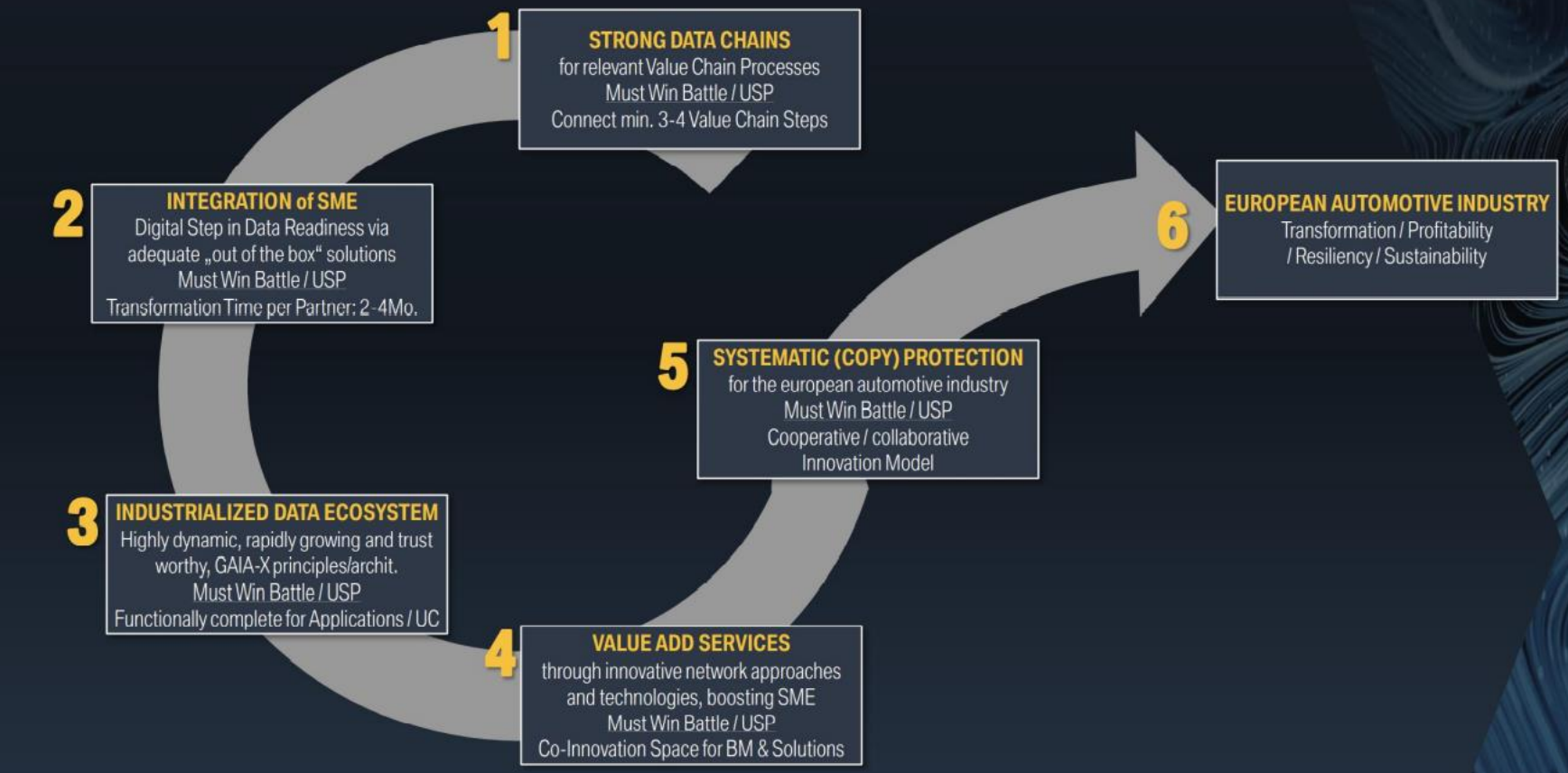
Optimized Operations, Predictive Maintenance, Safety Management, Design Feedback Loop

AIRBUS

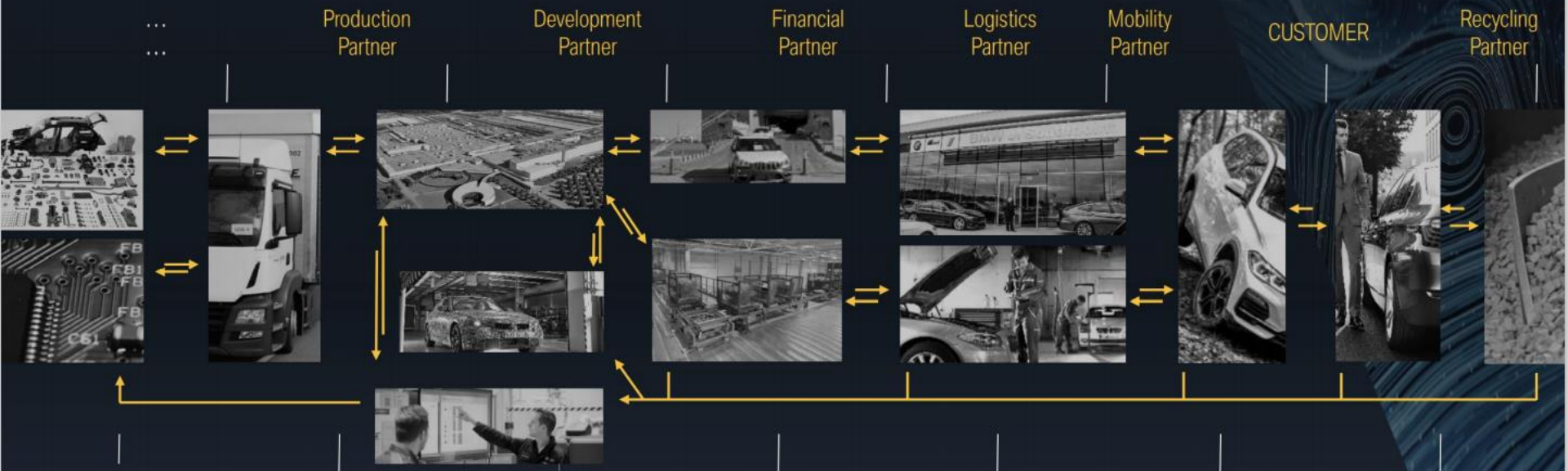
WHO ARE WE?



WHAT DO WE WANT TO ACHIEVE?



DATA DRIVEN VALUE CHAIN → ONE ID → ONE VALUE CHAIN → ONE INDUSTRY.



DATA EXCHANGE | **ANALYTICS** | **INDUSTRY ASSETS** | **BUSINESS PROCESSES**

INITIAL USE CASES TO START WITH.

CREATING VALUE

#Resiliency | #Sustainability | #Profitability | #Legendary Moments

Traceability of Parts & SW-Building Block

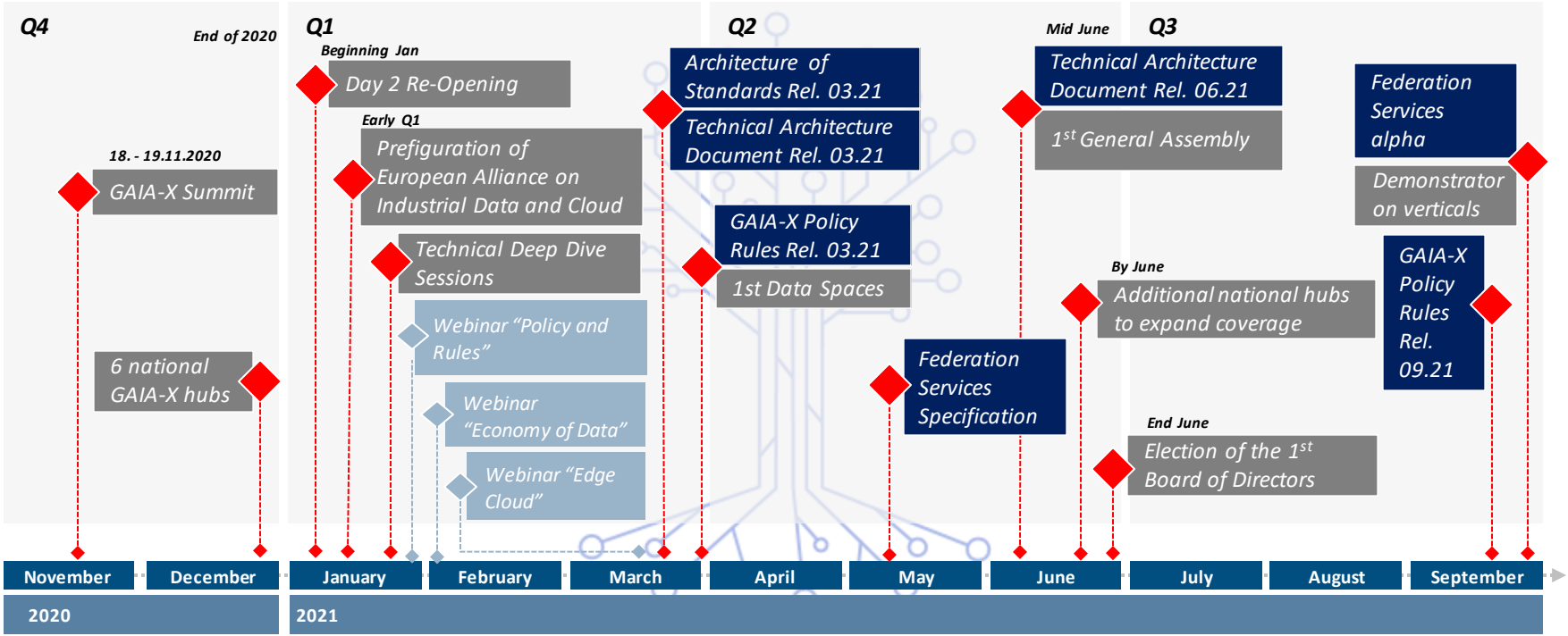
CO_2 Footprint / Social Standards / Certificates / Circular Economy

Preventive / Reactive Quality

Demand & Capacity Mgt.

Supplier Master Data

Timeline of GAIA-X



A European Momentum towards a…

…global “Digital for Business” approach