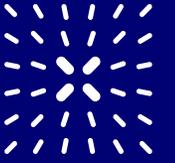


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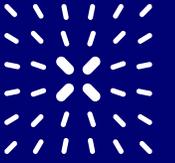
Deep dive from a vision to a tangible data infrastructure reality

—
Here to deliver!

18 November 2021

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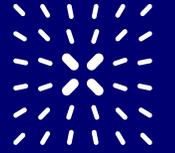
Part 1: Keynotes Gaia-X is Up and Running

—
Session Moderator: Dr. Vassilia Orfanou (CMO, Gaia-X)

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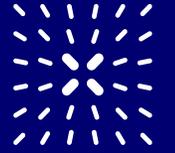




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Food for thoughts: Data Ethics (Impulse)

Britanny Kaiser
(Co-founder #OwnYourData)



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Welcome and Open keynote

Dr. Maximilian Ahrens
(Chairman BoD Gaia-X, CTO, T-Systems)



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Gaia-X Status, Vision and Roadmap

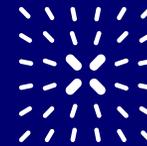
Francesco Bonfiglio
(CEO, Gaia-X)



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Summit Content and Structure

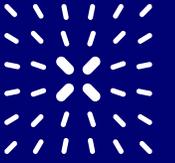
Prof. Dr. Boris Otto
(Fraunhofer and VC Innovation)



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15 min Break (Video Testimonials)



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Part 2: Gaia-X Creates Business Values Insights from our International Hubs and Data Spaces

—
Session Moderator: Dr. Vassilia Orfanou (CMO, Gaia-X)

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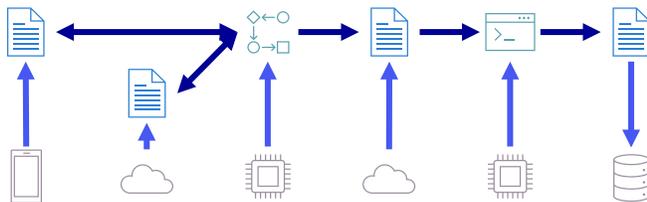
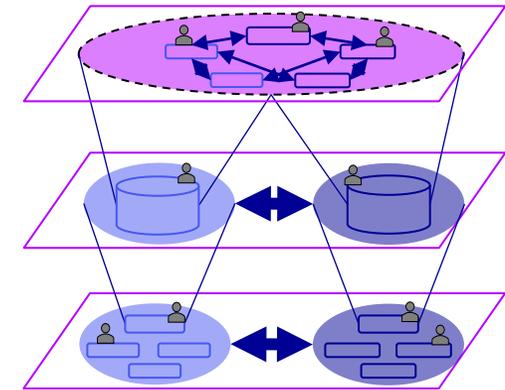
Gaia-X – technical deepdive

From the governance model to implementation

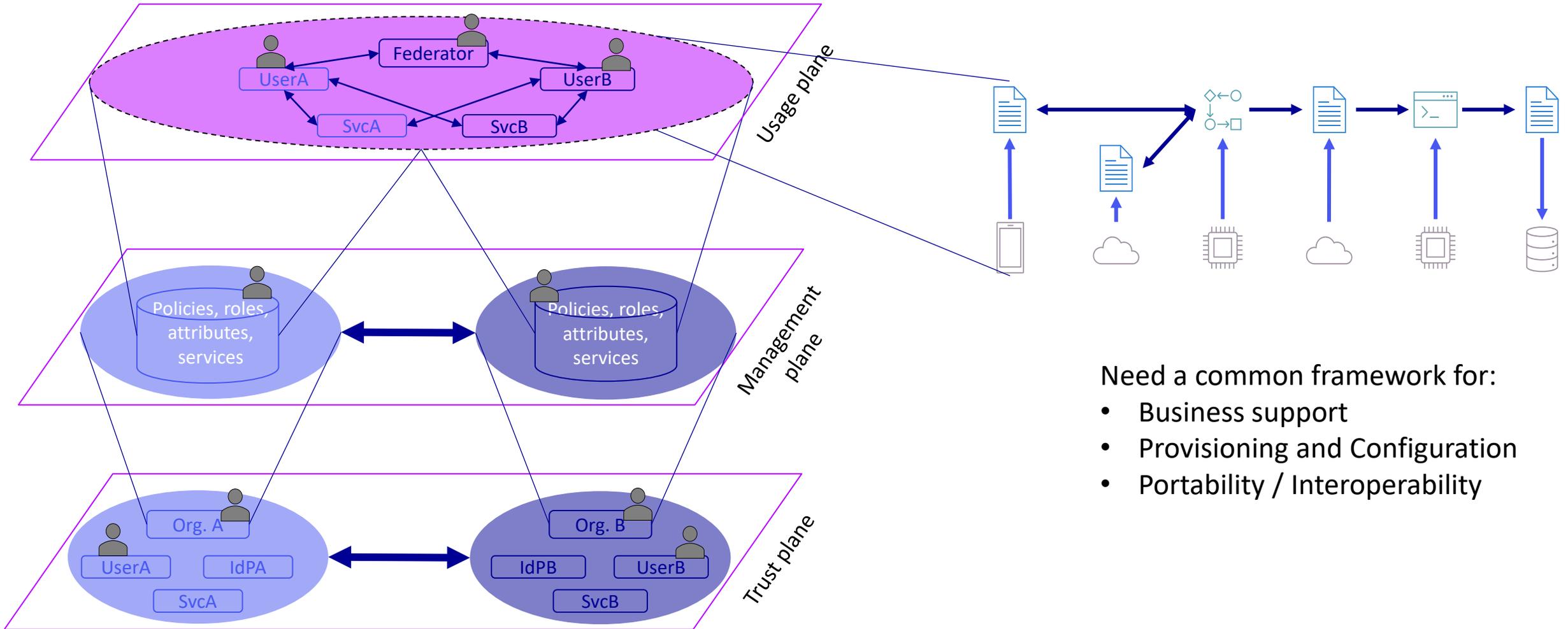
Pierre Gronlier
(CTO, Gaia-X)

Gaia-X goals

- Promote European values and digital sovereignty / control.
- Create bigger and richer dataspaces by connecting interoperable ecosystems
- Create a federation of ecosystems enabling services stacks composition across multiple services providers.

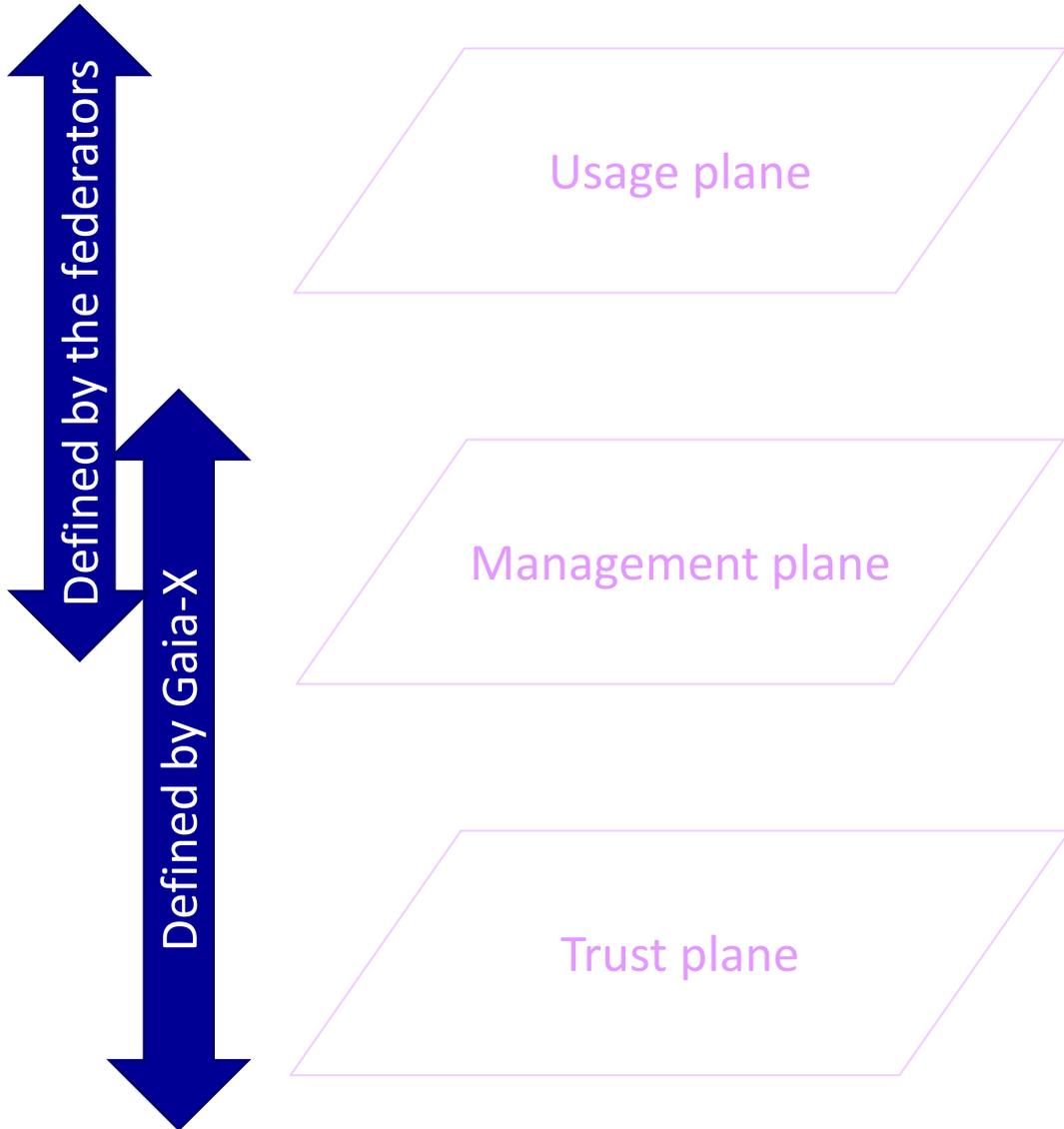


Data-Infrastructure Ecosystem Federation Conceptual model



- Need a common framework for:
- Business support
 - Provisioning and Configuration
 - Portability / Interoperability

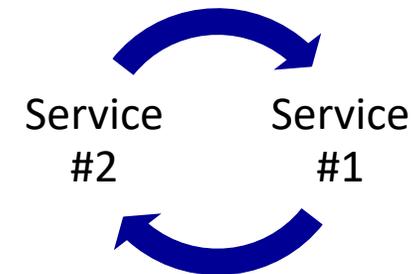
Gaia-X Reference Architecture and Interoperability

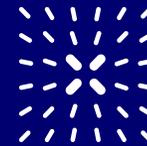


- Services Interoperability
 - GXFS, OceanProtocol, Dawex, ...
 - OIDC / SIOP / ...
 - Catalogue query language, ...
- Shared descriptions and ecosystem choices
 - Descriptions & Vocabularies (Portability, Licenses, T&C, Services, Ownership, Contract, Consent, ...)
 - Ecosystem's governance rules
- Shared Governance and Trust model
 - Trust Anchors definition
 - Voting mechanism
 - Catalogues addresses
 - Remediation and Revocation

Implementation

- Service #1: Gaia-X association issues association membership Verifiable Credentials
 - VC of type `https://schema.org/ProgramMembership`
 - DID with: (rfc7515, rfc7517, rfc5280, ...)
 - `verificationMethod` to verify VC signature (ed25519)
 - `authentication:publicKeyJwk:x5c` for the X.509 RSA DNS certificate of <https://tbd.gaia-x.eu>
- Service #2: bootstrap Gaia-X Compliance service (compliance.gaia-x.eu) to validate VCs (Self-Description) for ongoing lighthouse projects (Catena-X, AgDataHub, ...)
 - Basis for the Gaia-X Compliance & Labels framework
- Test Driven Development approach / EYOF (<https://gitlab.com/gaia-x/>)
- GXFS-DE and GXFS-FR
- Hackathon #2





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First Show on Federated Services and Q&A

Delivering the minimum technical requirements to kickstart Gaia-X

Project leads:

Dr. Anne-Sophie Taillandier (FR)

Andreas Weiss (DE)

Agenda

- 01** Introduction to GXFS
- 02** State of play
- 03** The services explained
- 04** Dissemination strategy
- 05** Next steps for GXFS-DE
- 06** Q&A

01 Introduction to GXFS

- **Vision:** Kickstart Gaia-X at an operational level
- **Mission:** Development of Gaia-X Federation Services based on the Architecture Concept 2020 with Federation Services
- **Actions:** Writing of technical specifications and subsequent development of open-source code (final ownership: Gaia-X Association)
- **Project management:**
 - DE: Procurement handled by eco to coordinate specification work and awarding contractors for writing the initial open-source code
 - Sponsor: German Federal Ministry of Economics and Energy
 - FR: Consortia lead by Institut Means Telecom
 - Sponsor: Directorate General for Enterprise - Ministère de l'Économie, des Finances et de la Relance

02 State of play GXFS

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 a developer repository once the initial code is ready

What is GXFS not?

- A ready to go product
- A set of services operated and monitored by the AISBL

04 Dissemination strategy

To help spread awareness about GXFS functionalities and application areas, we plan a range of dissemination activities in 2022, in close alignment with the Gaia-X association. The goal is to engage a broad variety of stakeholders ranging from technical to non-technical audiences.



03 The GXFS-DE services explained

- Services are structured in 4 Work Packages for the Federation Services and 1 Work Package for the Portal as an integration layer
- Prioritization between services helps launching work for essential functionalities first (Prio 1, then Prio 2 and Prio 3)

Work Package I: Identity & Trust

- Authentication/Authorization (AAU) (Prio 1)
- Organization Credential Manager (OCM) (Prio 1)
- Personal Credential Manager (PCM) (Prio 1)
- Trust Services (TRU) (Prio 1)

Work Package II: Federated Catalogue

- Core Catalogue Functions (Prio 1)
- Self-Description (Prio 1)

Work Package III: Sovereign Data Exchange

- Data Contract Transaction (DCT) (Prio 1)
- Data Exchange Logging (DEL) (Prio 2)

Work Package IV: Compliance

- Onboarding and Accreditation Workflow (OAW) (Prio 2)
- Continuous Automated Monitoring (CAM) (Prio 1)
- Notarization Service (NOT) (Prio 1)

Portal

- Portal (Prio 2)
- Orchestration (Prio 3)
- Compliance Documentation Service (Prio 3)

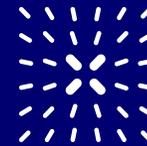
05 Next steps for GXFS-DE

- Priority 1 services will be developed in a first step, followed by Priority 2 and 3.



Gaia-X/GXFS Implementation concepts

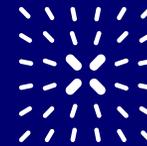
- Catena-X
 - <https://catena-x.net/en/>
- Sample Implementation by Ocean as Demonstrator
 - <https://portal.minimal-gaia-x.eu/>
- Eclipse Data Space Connector
 - <https://projects.eclipse.org/projects/technology.dsconnector>
- GXFS-DE Specification and Background
 - <https://www.gxfs.de/>



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Q&A



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attention!**

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Business Case I: (Catena-X) and Q&A

Oliver Ganser
(CEO Catena-X and BMW)

Catena-X and WHY we chose GAIA-X to make it a tangible product.

Technical Capability

Catena-X is
Gaia-X Ready.

Business Opportunities

Catena-X generates
multilateral added-value.

Collaboration Potential

Catena-X is a growing network →
exponentially growing value.

Catena-X is a delivery organization.

Who we are and what we do

Lighthouse Application for Gaia-X

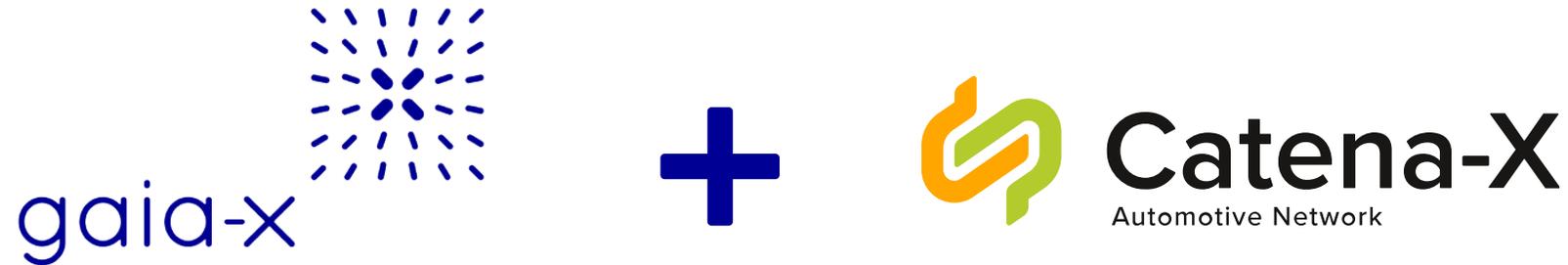
- We build data driven value chains
- We focus on time to value (e.g. onboarding)
- We make applications interoperable
- We guide and support our user groups



**We boost today's
automotive business and
generate new value pools**

Why teaming up with GAIA-X?

Mutual Benefits → Value Orientation



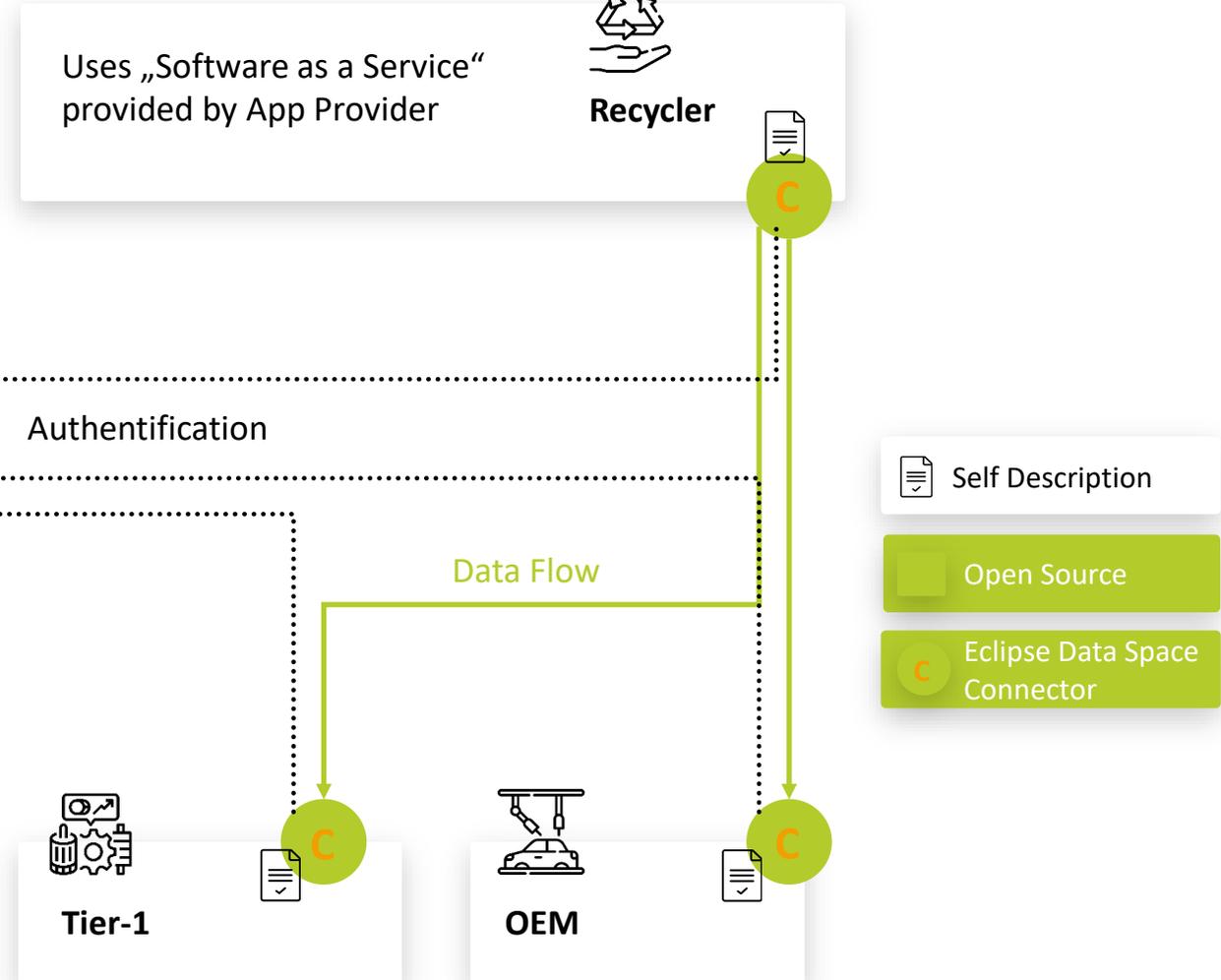
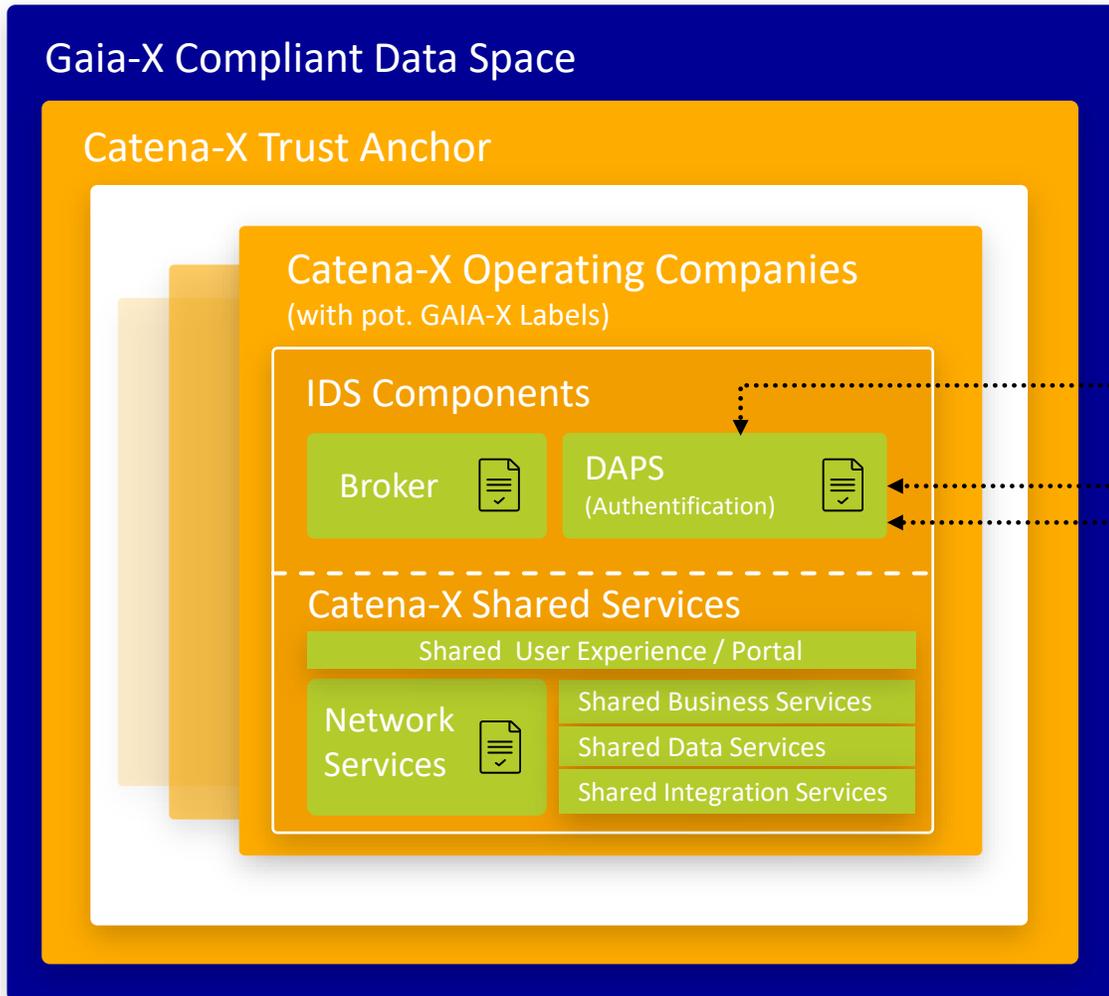
Providing Sovereignty +
Interoperability + Security

Pioneering in industrialization
and value generation with Gaia-X

Mutual Targets and Common Principles

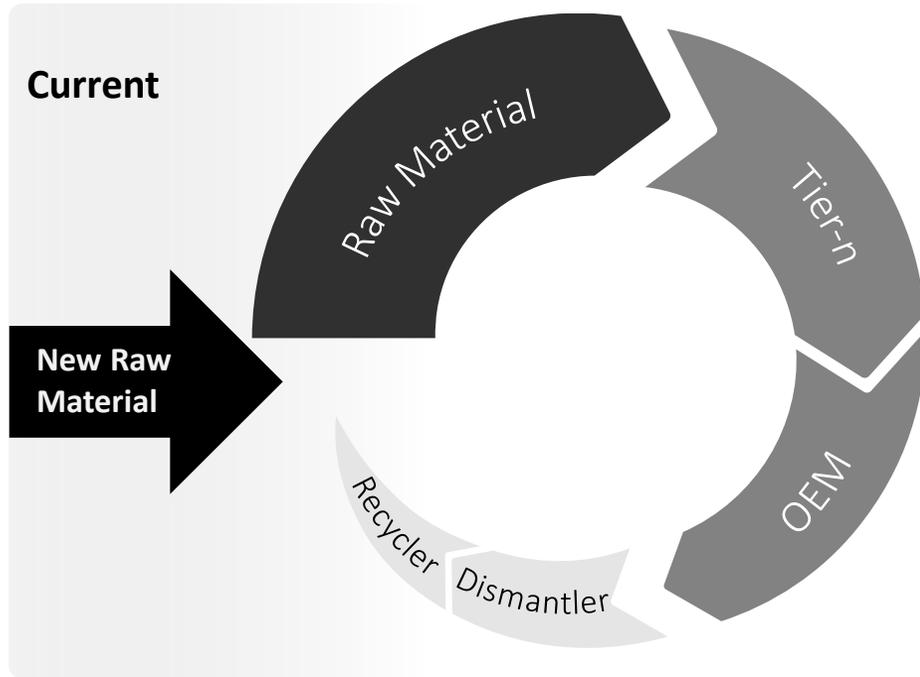
We are GAIA-X Ready

Catena-X Architecture



Multilateral Benefits

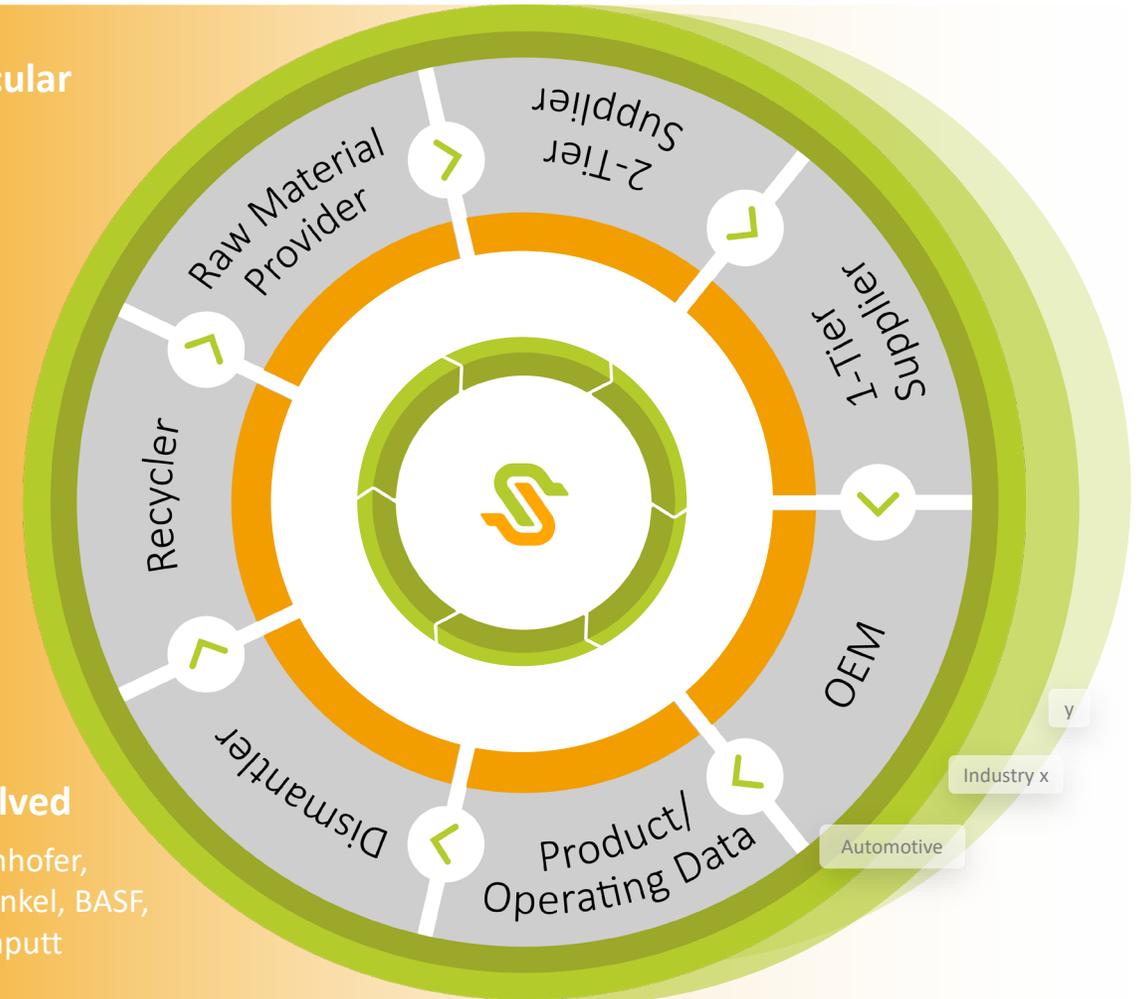
Use Case Circular Economy



Core benefits of the use case

- CO_{2e} reduction along the entire value chain
- Fulfilling new environmental regulations
- New cross-sectoral business opportunities

Catena-X Circular Economy



Partners involved

T-Systems, Fraunhofer, Siemens SAP, Henkel, BASF, LRP, BMW, ZF, Kaputt

Statement Marius Pohl, LRP Autorecycling GmbH

SME benefitting from the Use Case Circular Economy



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Catena-X

The digital threesome

Workbench
Industry Consortia

28 Partners



Registered
Association

62 Partners



Decentralized
Operating Companies

xx Partners

» Market entry in summer 2022 «

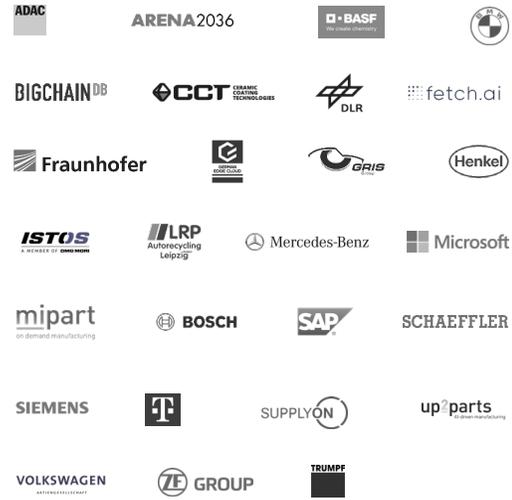
The Growing Network

International and Cross-Sectoral

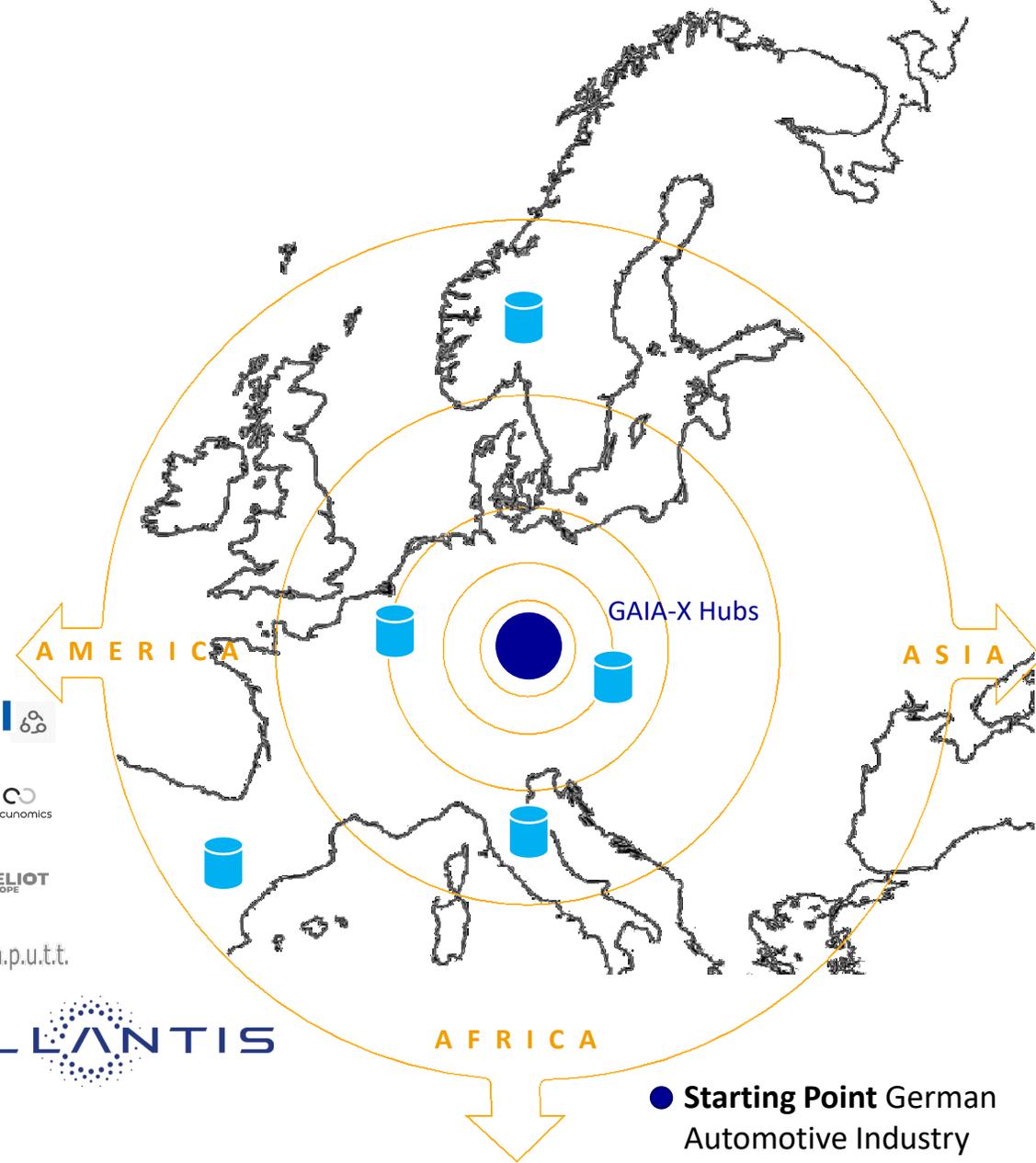
Targets

- Focusing on small and medium enterprises
- Covering the global automotive value chain
- Attracting and involving other industries

Consortia

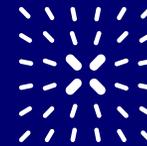


Association





A delivery organization & the beginning
and the future of new interconnected
business opportunities.

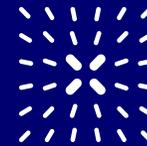


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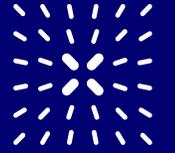
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20 min Break (Video Testimonials)



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The Gaia-X Value for us Providers and Users Speak Up

Business Representatives:

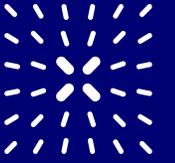
Jeroen Tas (Philips), **Carlo d'Asaro Biondo** (CEO Noovle, Cloud Company of TIM Group), **Raghu Raghuram** (VMware), **Stefano Onofri** (Cubbit)



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Business Case II: SCSN and Q&A

Matthijs Punter
(TNO NL)



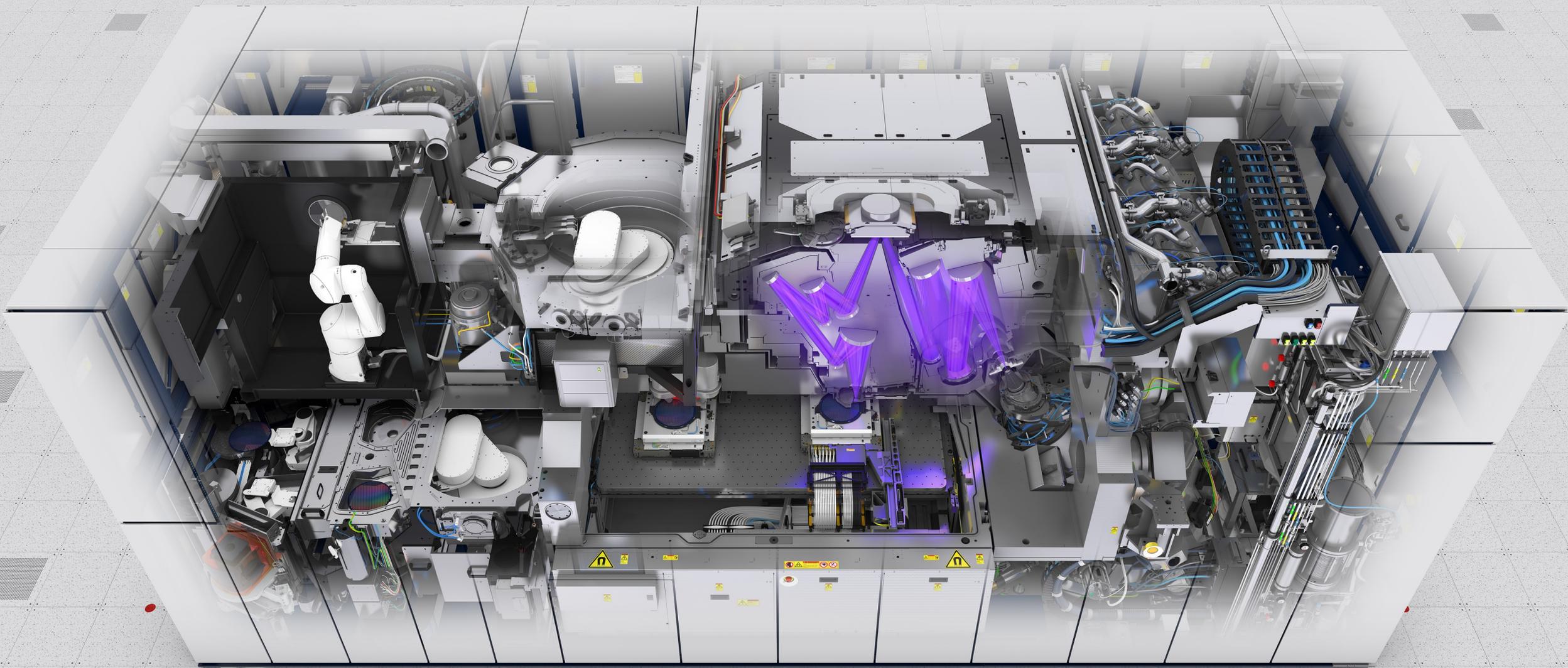
Smart Connected Supplier Network

—
A digitally connected supply chain using Gaia-X

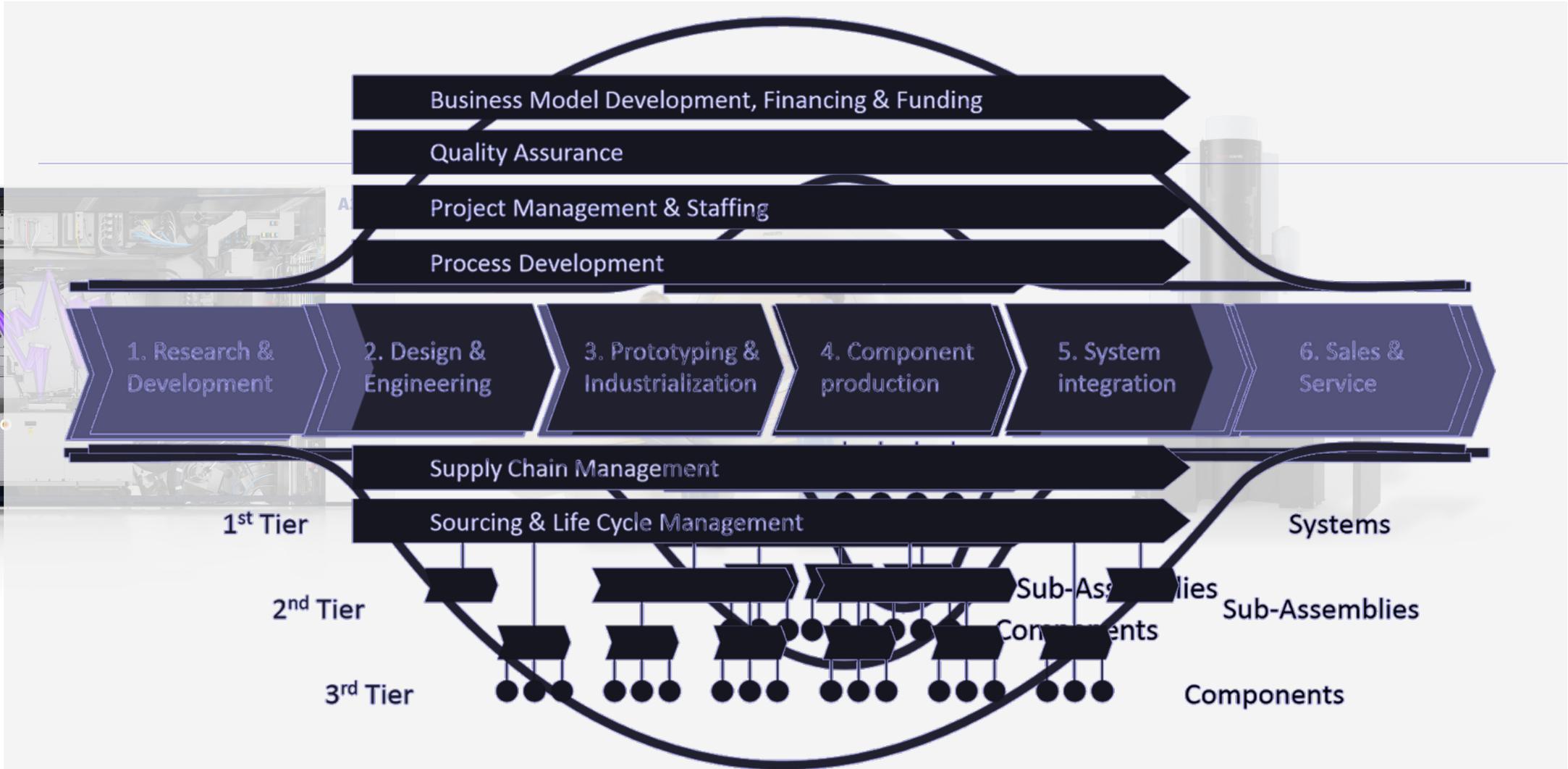
November 18, 2021

Matthijs Punter, TNO



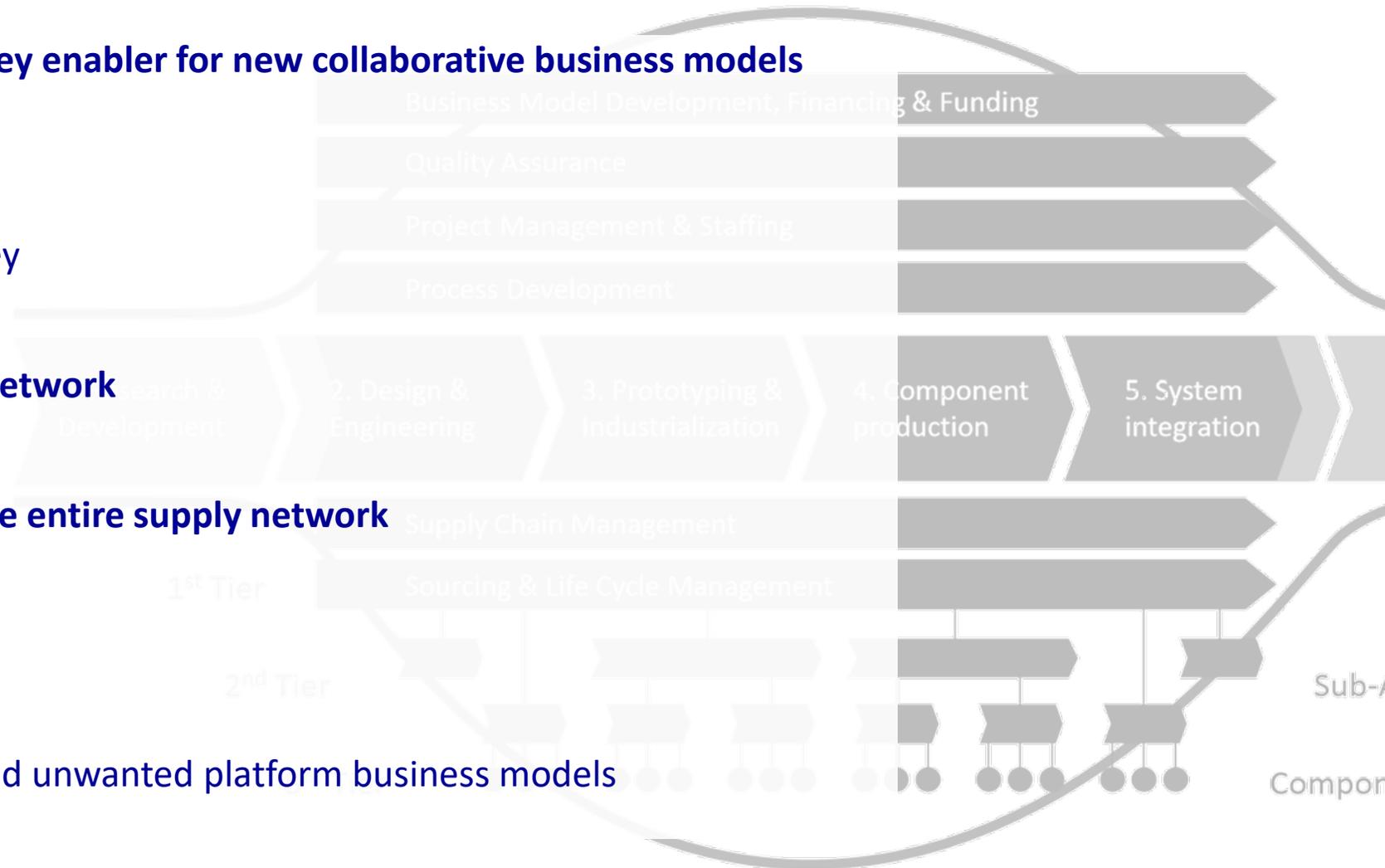


High-complexity, high-mix, low-volume



Why a Smart Connected Supplier Network?

- Digitalization and data sharing is a key enabler for new collaborative business models
- Reduce the administrative burden
- Faster time-to-market, time-to-money
- Increased supply chain resilience
- > 20% efficiency gain in the supply network
- Connect once, communicate with the entire supply network
- OEMs, 1st, 2nd, 3rd tiers, wholesalers
- Large scale
- Data sovereignty to avoid lock-ins and unwanted platform business models



Collaborative Digital Twin of the supply network

TODO: Add picture

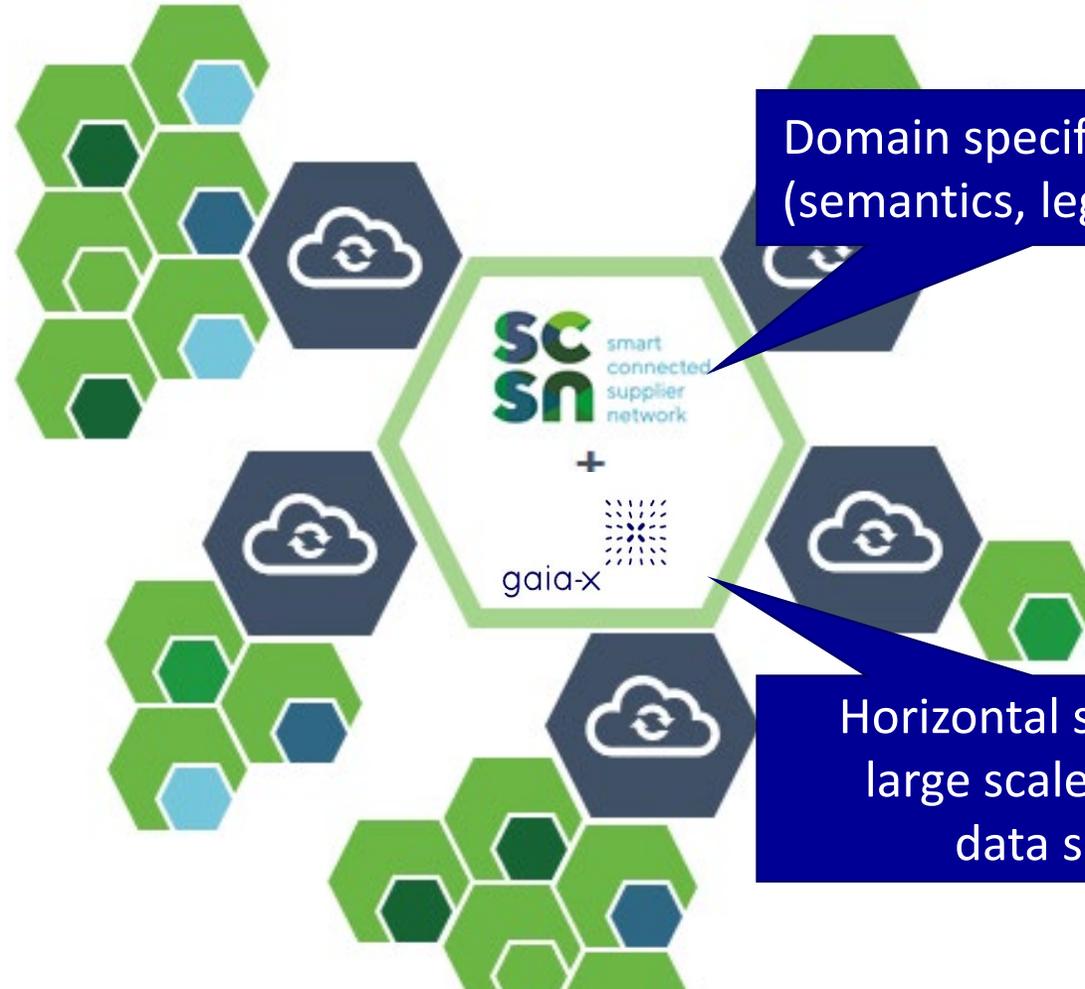
- Picture of the kinds of data which are being exchanged.
- Layers:
 - manufacturing equipment, products (the physical assets)
 - manufacturing companies and services (the organizational view)
 - collaborative supply chain services (digital services view)
 - horizontal (Gaia-X services)
 - domain-specific (focusing on semantics, apps)
- We need to define semantics (link to Industry 4.0, AAS) and use horizontal services for data sharing (→ Gaia-X secure gateways + shared services)

Our business approach

- **Service providers**
- Implementing a secure gateway (IDS)
- Choose the service provider most suitable for your business, with different offerings
- Alle service providers are interconnected

- **Manufacturing companies**
- One-time integration
- Connect with everyone in the network

- **Smart Connected Supplier Network foundation**
- Manages agreements



Domain specific agreements (semantics, legal, processes)

Horizontal standard for large scale sovereign data sharing

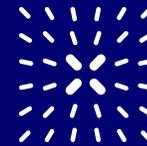
TODO: Add some logos and numbers of service providers + manufacturing companies

Our call-to-action for the Gaia-X community

- Introduce smart manufacturing services on a European scale, connect to other use cases and initiatives
- Develop the market for horizontal data sharing solutions, according to Gaia-X specifications
- Focus on business adoption (we will do that through the Brainport Industries Campus digital innovation hub for manufacturing, NL Gaia-X Hub)



TODO: Update/layout



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Business Cases III: Overview of mature dataspace in Europe and Q&A

Dominique Epardeau
(DSBC)

Agenda

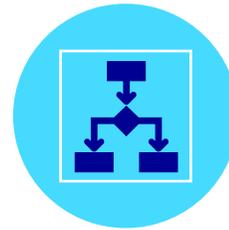
-
- 01** Purpose of this session: how can we create business value with dataspace
 - 02** Illustration 1 : presentation of some mature DSBC dataspace
 - 03** Q&A : how do these dataspace create business value

Illustration 2: presentation of Industrie 4.0 EuProGigant
dataspace
Q&A with Prof Weigold: how does this dataspace create business value
 - 06** Quizz: how do you expect to create value with your dataspace ?

Illustration with some DSBC use cases



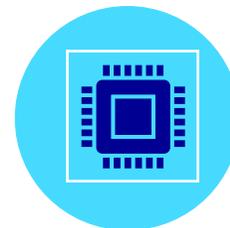
DSBC stands for Dataspace Business committee and gathers working group organized by vertical domain (health, energy, agriculture, circular economy, mobility, space, aerospace, smart cities, education, finance, geolocalization...) and technical (finance, governance, compliance and architecture)



Share best practices in terms of data exchange, promote common data format standards, learn from others experiences, be inspired and cross-fertilize use cases in order to support the overall expansion of the dataspace.



Position papers of each of these dataspace describe the main goals, challenges and use cases foreseen to develop each of them. Please note that Education and Space Position papers are available now !



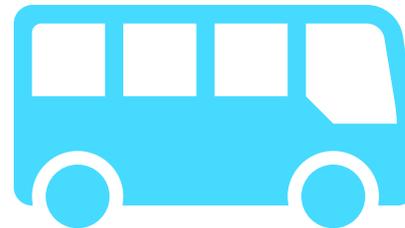
First challenge: obtaining a good level of data interoperability/quality which will for example faster and ease the creation of efficient and relevant decision making dashboard in each of their respective area.



We will **illustrate how some of these dataspace are creating value** thanks to the use of better data exchange : energy, health, agriculture, mobility, education, industry

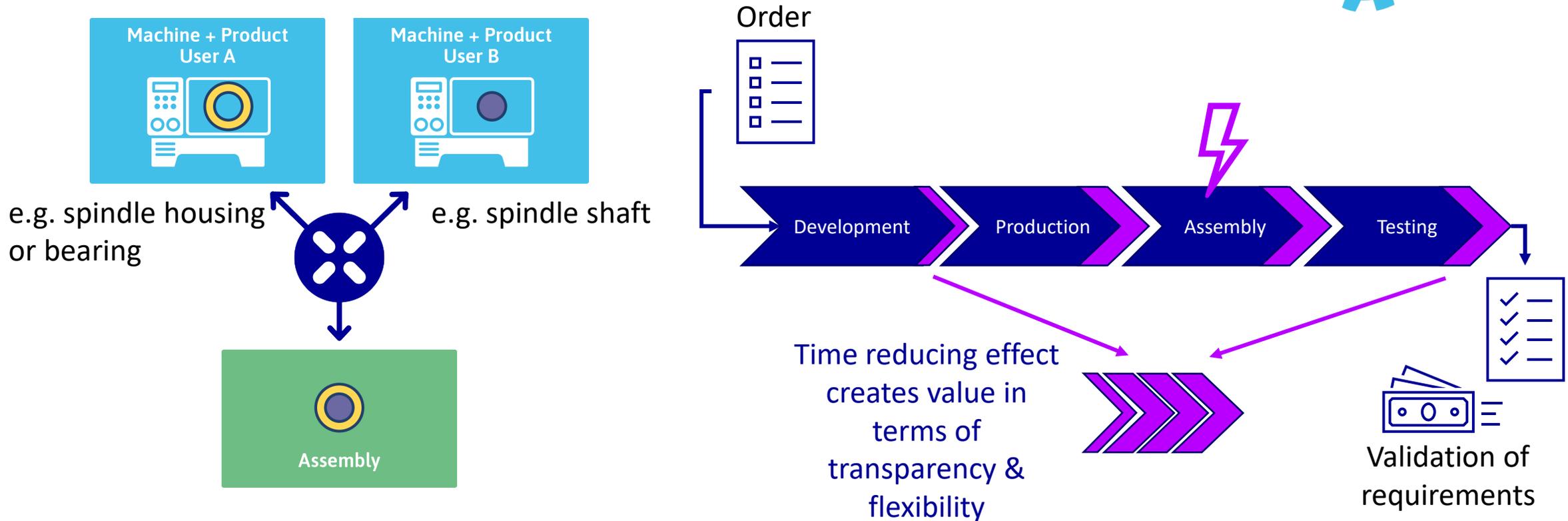
DSBC Concrete illustration of value creation use cases

- **Health:** ability to collect standardized data from several EU countries and reach critical mass at EU level to analyse credible patterns. Rare disease/rare cancer registries, imaging & genomics – *find the patient like me*: >4.500 rare diseases; <6% are treatable; 30M patients in Europe
- **Energy:** Omega-X, a lighthouse project of the energy dataspace, aims to develop use cases on renewables, local energy communities, flexibility and electromobility.
- **Agriculture:** Combining soil and crop information to perform smart precision application can save up to 80% on pesticides. On average, allowing to do more than €3 Billion savings on pesticides costs.
- **Mobility:** improve customer experience by providing seamless travel ticket managing multimodal trips with local content, real time update in case of disruption and reaccommodation process. Real time notification of delayed trains can save 27 million working hours. This amounts to €749 million in labour costs
- **Education:** personalized teaching, training and employment strategies, better assessment of what really works, evidence-based data-driven decisions. Target 13 millions students in 2026.
- **Industrie 4.0:** EuProGigant stands for “European Production Gigant for calamity avoiding self-orchestration of value chain and learning ecosystems”. This project is carried out by an Austrian-German project consortium led by the TU Wien and TU Darmstadt, the goal of building a **multi-location, digitally networked production ecosystem: 4 years, 9 locations, 7 use cases**. Vertical and Horizontal use of data and applications to simulate production environment that helps to optimize the use of manufacturing machines at a lower cost.



Industrie 4.0 dataspace

EuProGigant: Value creation through ideal part matching



- Sustainable value proposition improved for each

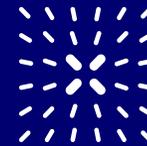
Value creation schemes examples

Based on these examples, we can identify several ways to create value with data (cf Open Dei Design Principles for Data Space, April 2021)

1. For individual actors from an internal perspective : improve internal processes within a vertical or transversal domain thanks to a better/easier data quality/standardization/availability
2. For individual actors from an external perspective : propose enhanced or more relevant product and services to customers thanks to the combination of data that were previously not captured due heterogenous data formats or locked by another player.
3. Selling data to other players
4. Creating and maintaining a data space which will be financed by fees from members when critical mass is reached
5. Contribution to EU strategy for a common interest: carbon neutrality, re shoring of production facilities to better control shortage due to crisis thanks mutualized stronger data management.

Schemes	1	2	3	4	5
Health	X	X			X
Energy	X	X			X
Agriculture	X	X			X
Education	X	X		X	X
Mobility		X	X	X	X
Industry	X				X

And for you, which of these schemes is better reflecting the business model of your dataspace:
Quizz -> choose answer 1, 2, 3 , 4 or 5?



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See you tomorrow!

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