ZVEI: Die Elektroindustrie

Industrie 4.0 and Digital Transformation – where OT meets IT

Dr. Dieter Wegener, Siemens, Chairman of ZVEI Industry 4.0 Council

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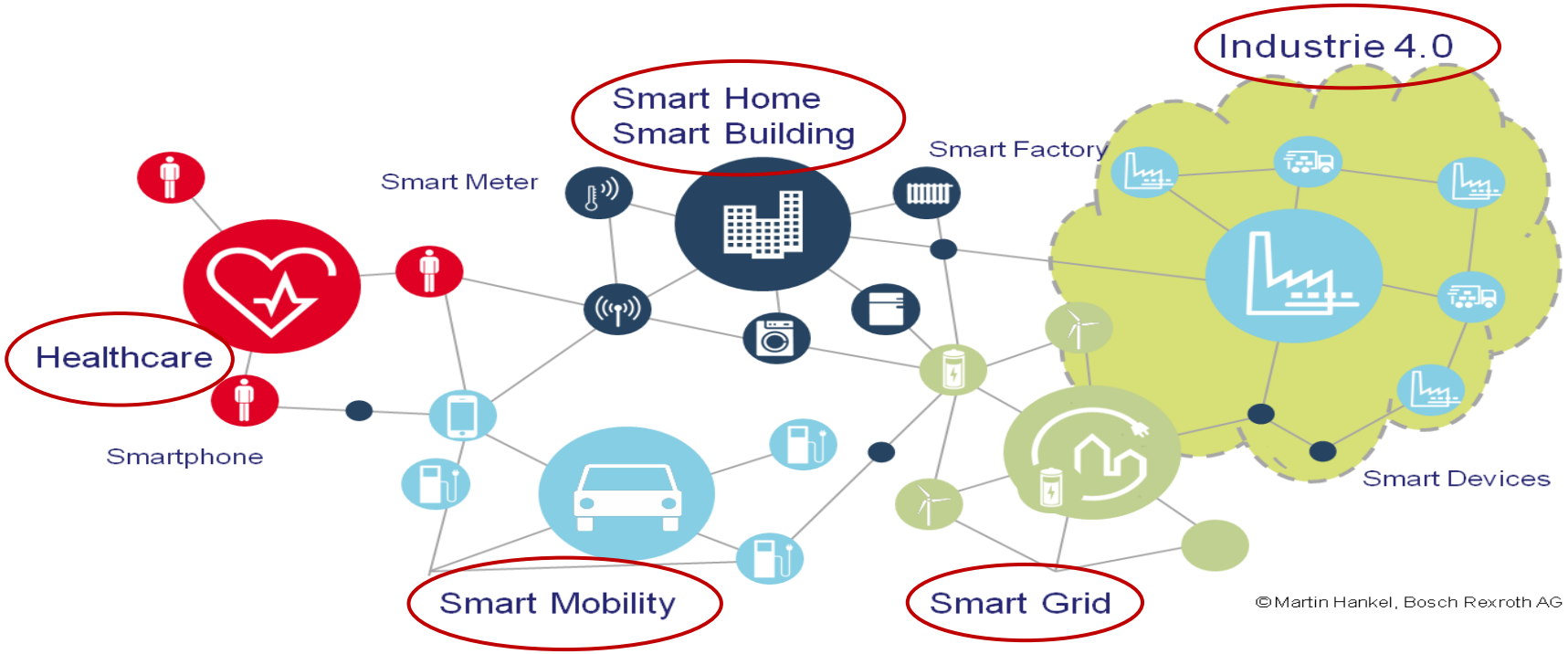
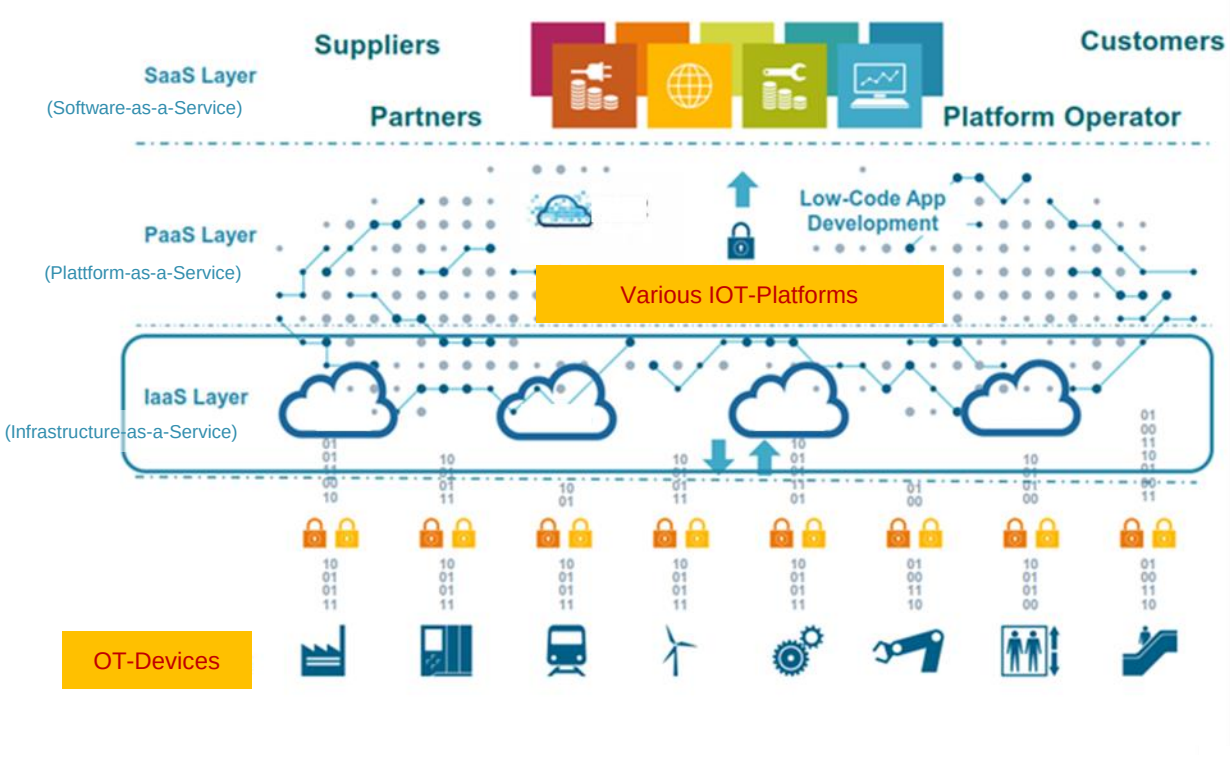
Overview

1. **Digitalization of Economy**
2. **Digital Nameplate to enable „Industrie 4.0“**
3. **„Industrie 4.0“ Use Cases CCM**

„Digitalization of Economy“ is leading to a „Connected World“



„Digital Economy“ based on „IoT-Platforms“ for B2C and B2B



„Digital Value Add“

means

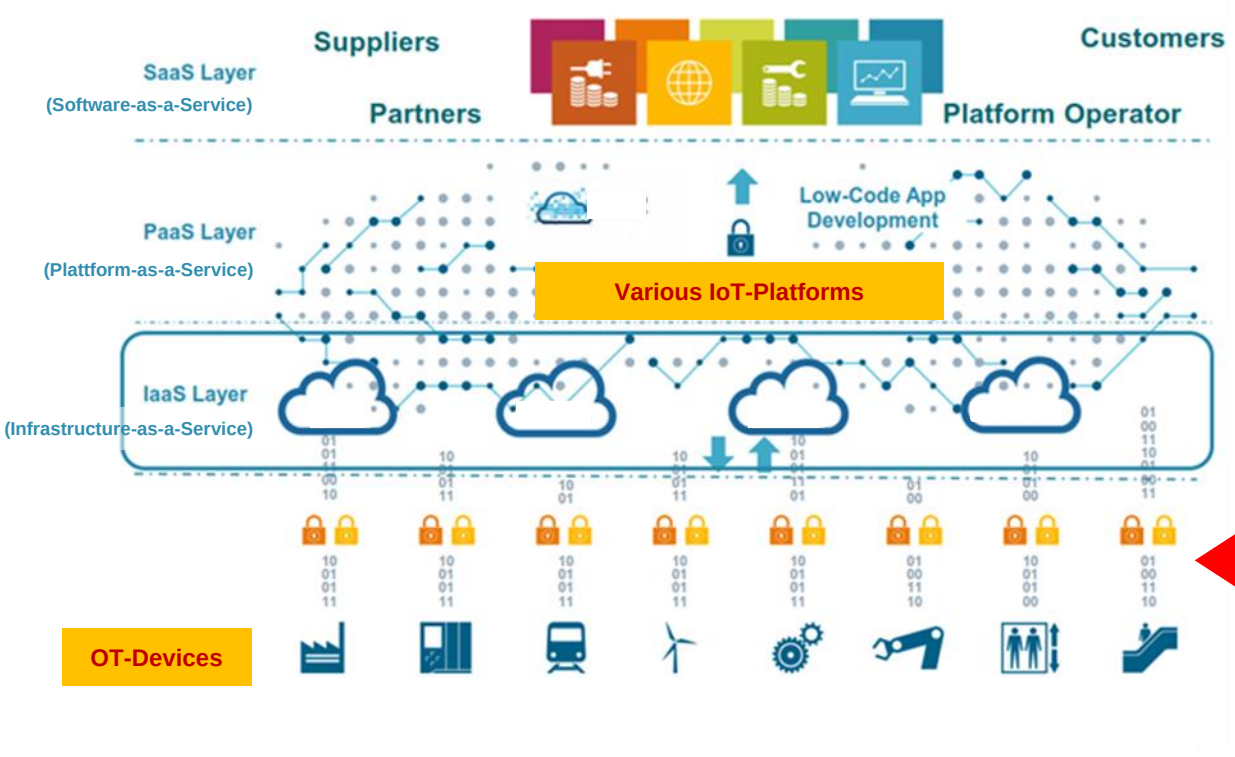
„Big Data“ out of **OT-Devices**

will be analysed with „Apps“ (Algorithms) at SaaS-Layer to **„Smart Data“**

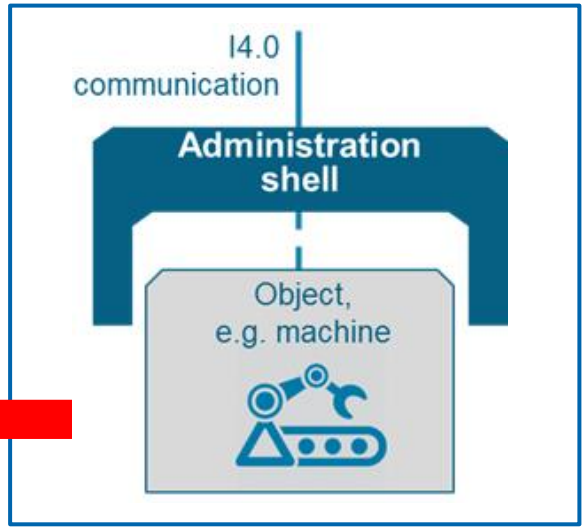
and distributed via INTERNET as **„Smart Services“** to the customers

Source: Siemens AG

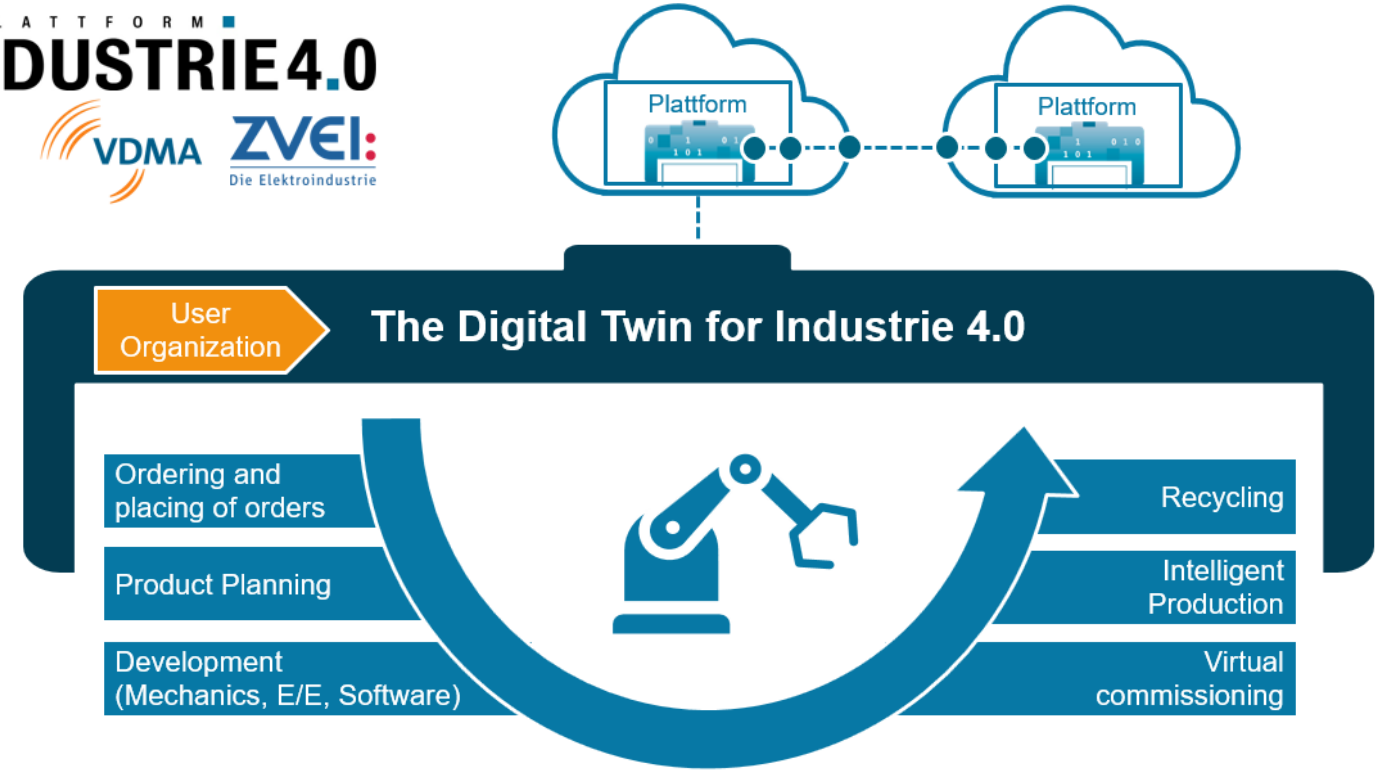
Cross-company Interoperability for OT-Devices enabled by Concept of „I4.0-Component with AAS“



I4.0-Component with AAS (Asset Administration Shell)



Industrial Digital Twin Association
The User Organization for Industrie 4.0



Overview

1 **Digitalization of Economy**

2 **Digital Nameplate to enable „Industrie 4.0“**

3 **„Industrie 4.0“ Use Cases @ CCM**

The Digital Nameplate 4.0
consistent.sustainable.future-proved.connected

Saving time and costs
- Access to product documentation online
- No costs for paper and logistics

One valid standard
- Across companies
- via DIN SPEC 91406

Global Access
- Documents in all languages
- Locale Certificates (CE, CCC, …)

Sustainability
- Saving resources
- No paper documentation anymore

Overview

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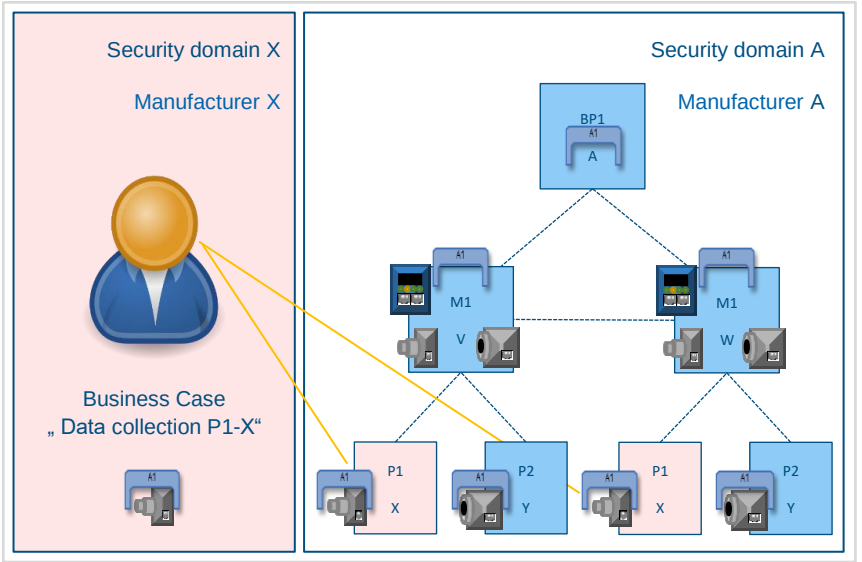
3. **Use Case: CCM with GAIA-X**

Condition Monitoring
Use Case „Collaborative Condition Monitoring“ (CCM)

- The Use Case "Collaborative Condition Monitoring" (short: CCM) deals with the collection and use of operational data to optimize the reliability and lifetime of machines and their components during operation.

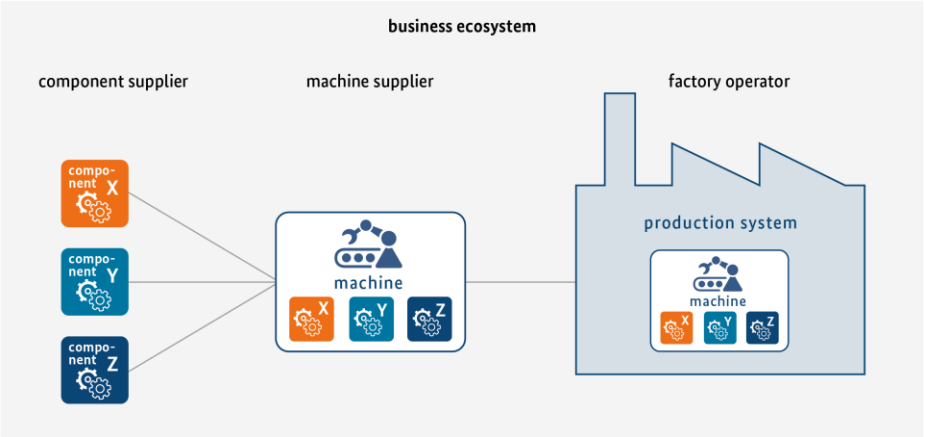
- In the real world, installed machines come from different machine tool manufacturers, equipped with different products from different manufacturers
  - ➢ Challenge for manufacturer X to access the data of his delivered product X

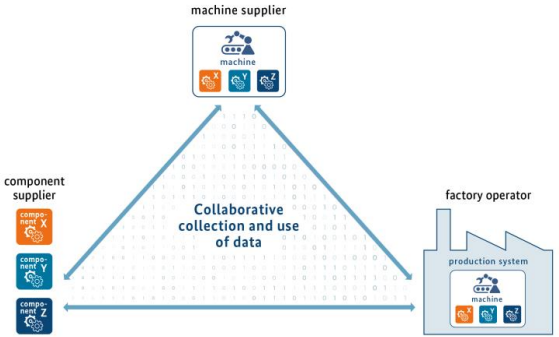
- CCM supplements the classic version with the aspect of multilateral cooperation
  - ➢ Share data across companies and competitors
  - ➢ Classification of data, including non-brand- and product-differentiating data



Collaborative Condition Monitoring 3-fractal

- As an exemplary, simplified process of an operational ecosystem, a three-stage value chain with different actors is considered
- The smallest possible fractal of a multilateral structure is a tripartite structure, shown here as (1) component supplier, (2) machine supplier, and (3) factory operator
- **Hypothesis**:
  - With CCM, an economic advantage can be gained within the digital ecosystem ("digital business model") by increasing the reliability and lifetime of components and machines.
  - Collaboration of all participants in the value chain.
  - Access to data depending on permissions



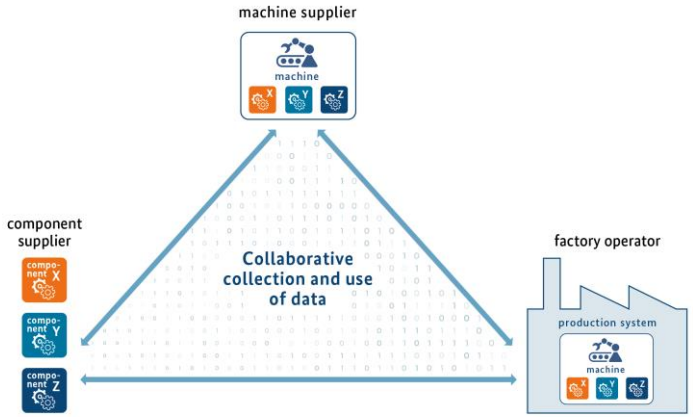


Source: Plattform Industrie 4.0

Collaborative Condition Monitoring Perceptibility in other industries

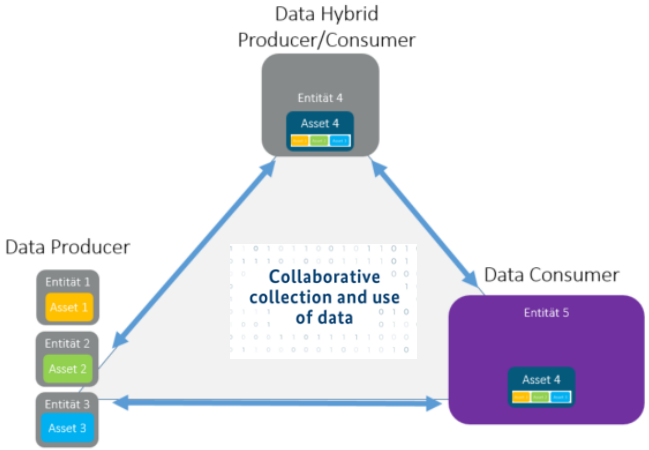
Example: Production (physical assets)

- The smallest possible fractal of a multilateral structure is a tripartite structure, shown here as component supplier, machine supplier and factory operator



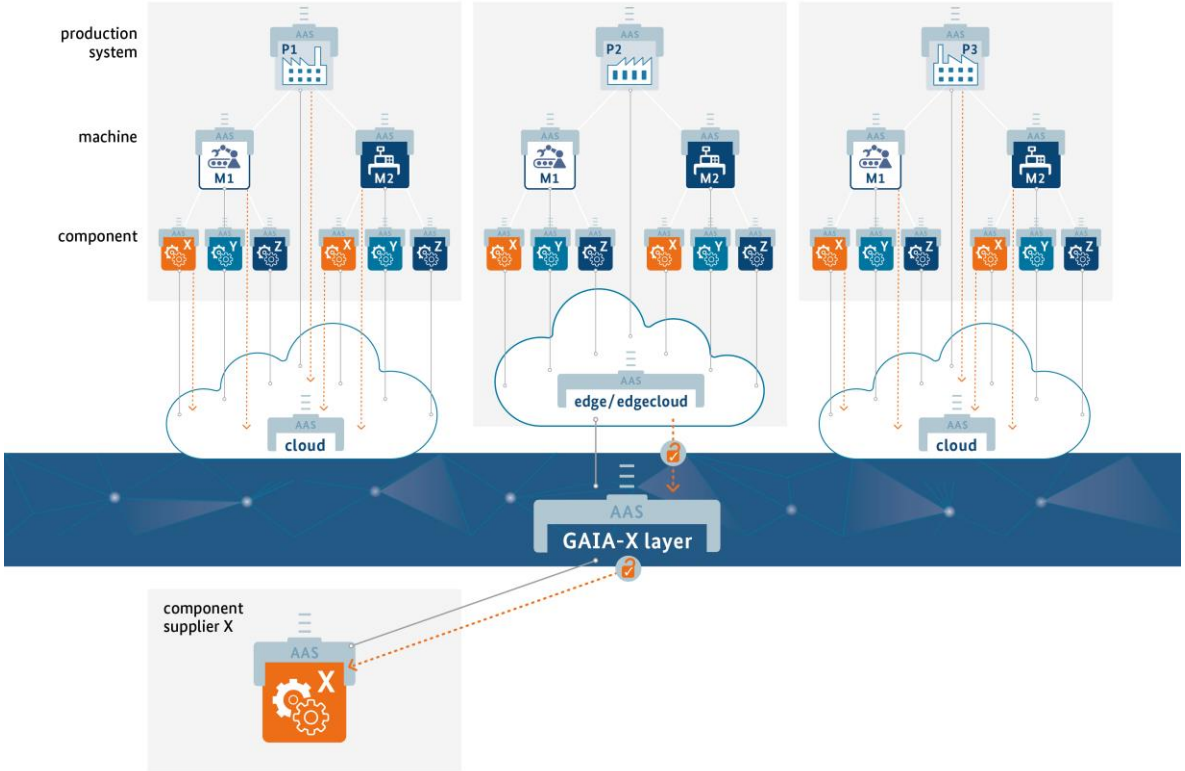
Example: Virtual Assets

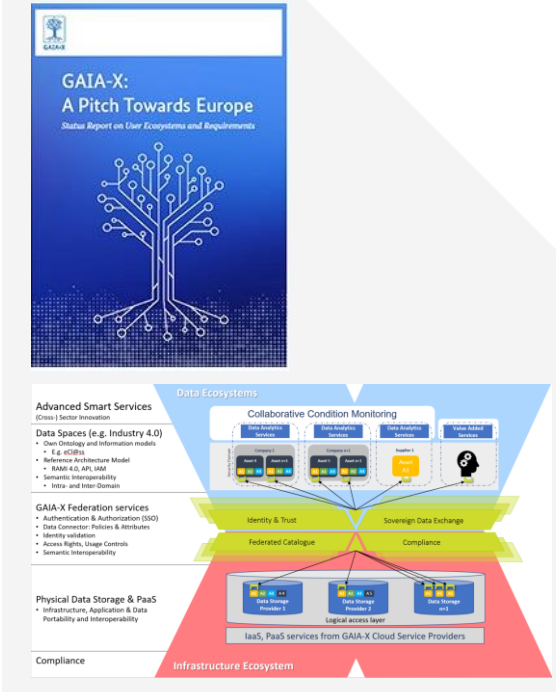
- The smallest possible fractal of a multilateral structure is a tripartite structure, shown here as Data Producer Data Hybrid (Producer/Consumer), Data Consumer



Source: Plattform Industrie 4.0

Collaborative Condition Monitoring
Solution module - neutral platform (e.g. GAIA-X)





Source: Plattform Industrie 4.0

Thank you for your attention