

# Catena-X + Smart Connected Supplier Network

Towards Data Space Interoperability

gaia-x



DATA SPACES  
SUPPORT CENTRE

CoE  
DSC

TNO innovation  
for life

# Why

- **SCSN and Catena-X**

- Catena-X and Smart connected supplier network are both initiatives aimed at improving the efficiency and transparency of supply chains. Catena-X is a network of companies that share data in a secure and standardized way, while the Smart connected supplier network focuses on connecting suppliers to manufacturers to facilitate real-time communication and data sharing.
- Connecting these two networks can provide several benefits. For example, it can help to create a more streamlined and efficient supply chain by enabling real-time data sharing between suppliers and manufacturers. This can help to reduce lead times, improve inventory management, and enhance overall supply chain visibility.

- **Centres of Excellence**

- The Dutch National landing place to drive innovation and scale up on business level.
- Overall, connecting the **CoE, DSSC** to the **SCSN & Catena-X** collaboration can help organizations to create a more secure, transparent, and efficient supply chain ecosystem that benefits all stakeholders involved.

- **Data Space Support Centre**

- Alignment within Europe



## Mission statement

"Catena-X and SCSN aim at creating an interoperable data space so that the members of one dataspace can choose to access the data from selected partners in the other without additional technical, organizational or legal burdens."

"This enables the customers of the two data spaces to realize additional business value by unlocking new use-cases, connect to partners outside of their data space or a simplified onboard to the other space."

# What is Data Space Interoperability?

- **Legal Interoperability**
  - Contracts allow exchange with partners from other space
  - Potential need for addendums to data space contracts
- **Organizational Interoperability**
  - Identify the partner and validate his identity
  - Define rules for accepting each other's credentials and Trust Frameworks
- **Semantic Interoperability**
  - Mappings between rules and policies from the two spaces
- **Technical Interoperability**
  - Data Exchange, Data Discovery, Data Models



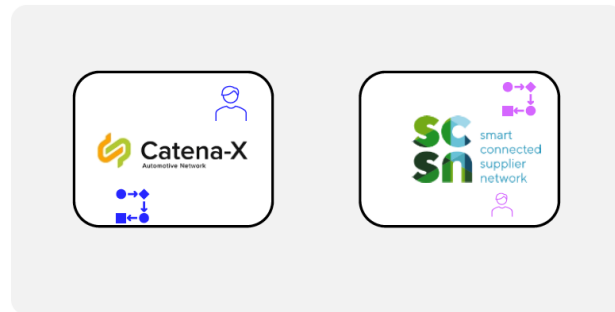
Source: European Interoperability Framework

# Approach

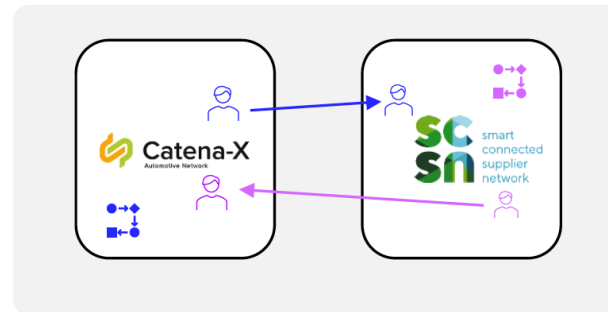


Enable and support cross data space interoperability

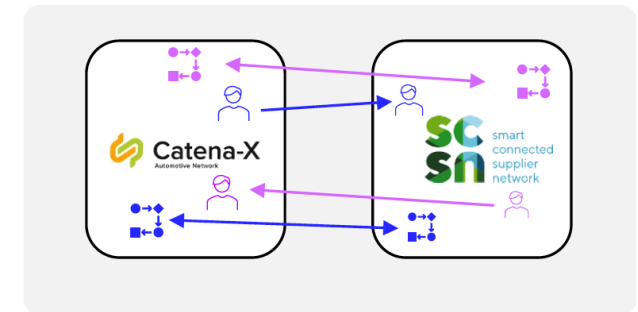
**Today:** SCSN & Catena-X are completely de-coupled data spaces



**Step 1:** Introduce a simplified onboarding for partners in the other data space



**Step 2:** Seamless exchange of data for selected use-case



Providing the trust framework as basis for shared identity

# Step 1: Simplified onboarding

- **Potential benefits**

- Onboarding to space B for companies from space A is easier (less steps, less manual interaction)
- Users can use their login credentials in both space A and space B
- The operating companies have less information to validate and less external tools to call
- More trust: Because the partner is known to be a trustful actor in space A, he is more likely to be trustful in space B
- Bigger market for Data Space Service Providers

- **Prerequisites**

- Common Identity and Access Management Framework
- Common Language/Protocol for Data Spaces Connectors

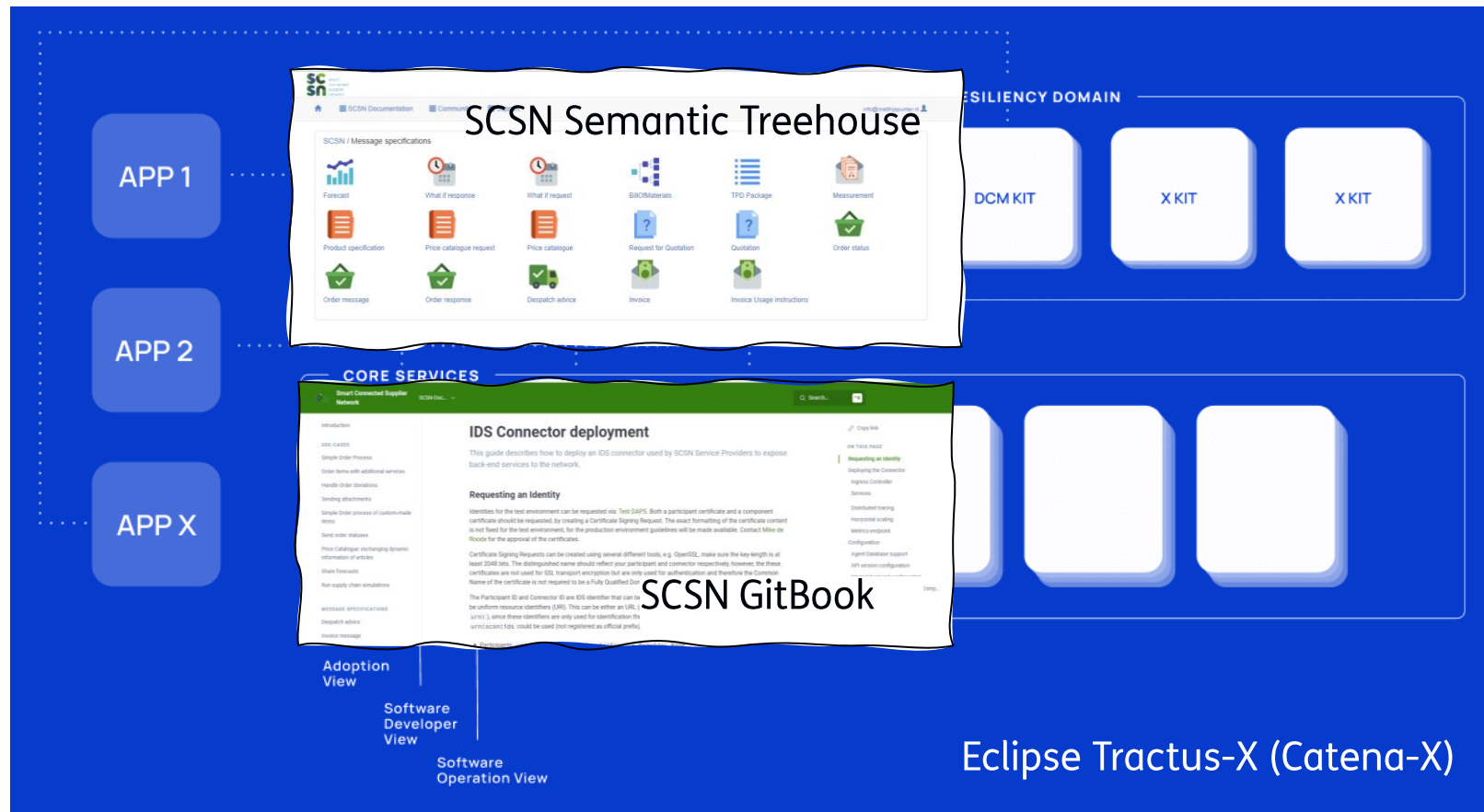
- **Questions to Clarify**

- Which Trust-Anchors? How to distinguish between service providers, company-level, user-level?
- DAPS vs. Gaia-X Digital Clearing House?
- How to achieve interoperability between Connectors? (EDC, IDS, etc.)

## Step 2: Potential use cases

- **Basic use case:** Exchange of Bill-of-materials and Order-data between customers and suppliers
- **Common use cases between Catena-X and SCSN:**
  1. Supply Chain Risk Management
  2. Capacity Management
  3. Manufacturing-as-a-Service
  4. Collaborative Condition Monitoring
  5. Carbon Emission Reduction

# KITs for core services and use cases



## Step 2

Use case specific semantics, API-definitions, etc.

## Step 1

Generic specifications for identity management, connectors, etc. – needed for onboarding

# Results

## Working Agreement & Joint working-model

- Agreement between the SCSN foundation, Catena-X association, Gaia-X AISBL and the Data Spaces Support Center on the sharing of intellectual property (architectures, best-practices, software code, etc.)

## Joint Business Case & Legal framework

- Detailed elaboration of the business case for service providers and manufacturing companies
- Identification of a business operating model
- Proposal for an extension of the Terms and Conditions for Catena-X and SCSN

## Review architectures and technologies

- GAP-Analysis
- Action plan with necessary adaptations for used technology components

## Adapt and Align Technologies

- Provisioning of a joint test-bed for service providers
- Creation of generic KITs
- Contribution to OSS-code

## Joint use cases

- Joint KITs for use case specific specifications

## Demonstrator

- Presentable demonstrator in which the developed and adapted components are combined for an E2E demonstrator, including the exchange of test-data via business applications

# Spotlight: Connector Interoperability

- SCSN uses the TNO Security Gateway, which is undergoing IDS Certification
- Catena-X built a connector using the Eclipse Data Space Connector framework
- Data Spaces Protocol development to provide connector interoperability
- Role of the IDSCpV2 protocol to be considered
- Role of DataApp-standardization to be considered



# Spotlight: Identity & Trust

- Role of the DAPS vs. Gaia-X Digital Clearing House
- Identification of participants (organizations, persons, machines, ...)
- Role of self-sovereign identity management
- Trust anchors in the ecosystem
- How-to-onboard the ecosystem

Gaia-X Trust Framework - 22.10  
Release

Editorial Information

Gaia-X Trust Framework

Technical Prelude

Trust Anchors

Participant

Service & Subclasses

Resource & Subclasses

Changelog

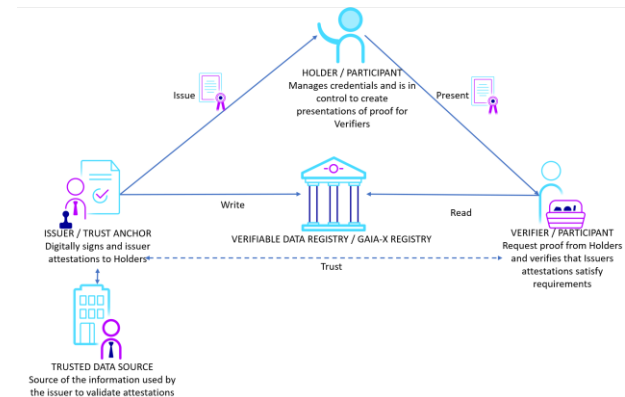
## 2. Gaia-X Trust Framework

The Gaia-X Trust Framework is the set of rules that define the minimum baseline to be part of the **Gaia-X Ecosystem**. Those rules provide a common governance and the basic level of interoperability across individual ecosystems while letting the users in full control of their choices.

The Gaia-X Trust Framework operationalizes the requirements as defined by Gaia-X, e.g. in the Policy Rules and Labelling Document, or the Architecture Document - where the latter especially allows for federated and interoperable Gaia-X ecosystems.

The Trust Framework foresees verifiable credentials and linked data representations as cornerstone of its future operations. Trusted information shall be retrieved in machine readable manners, and where such manners are missing, Gaia-X will define processes to translate trusted information in a machine readable format. This is a prerequisite of federating trusted statements within the Gaia-X Ecosystem and developing mechanisms to re-assess validity of claims within the Trust Framework.

The set of computable rules known as compliance process is automated and versioned. It means that this document will also be versioned. This version of the Gaia-X Trust Framework document replaces previous versions of this document.

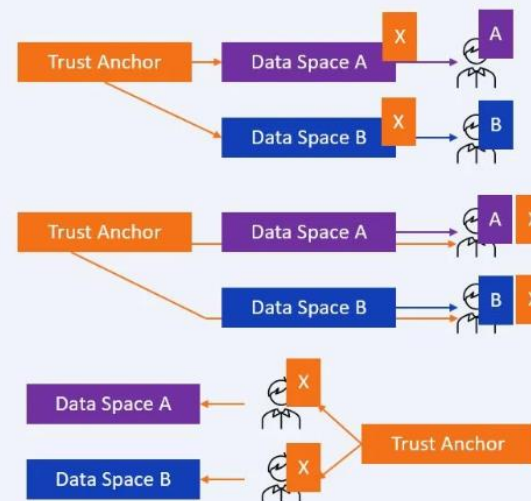


# Spotlight: Top level Trust Anchor

- Trust anchors can be organised in three different ways:
  - Issuing a guarantee of trust as a trust anchor to the data space itself.
  - A trust anchor allows data spaces to pass on the trust to end users through a kind of digital badge.
  - The trust anchor gives this digital passport or certificate directly to end users, without certifying the data space.

SCSN/Catena-X

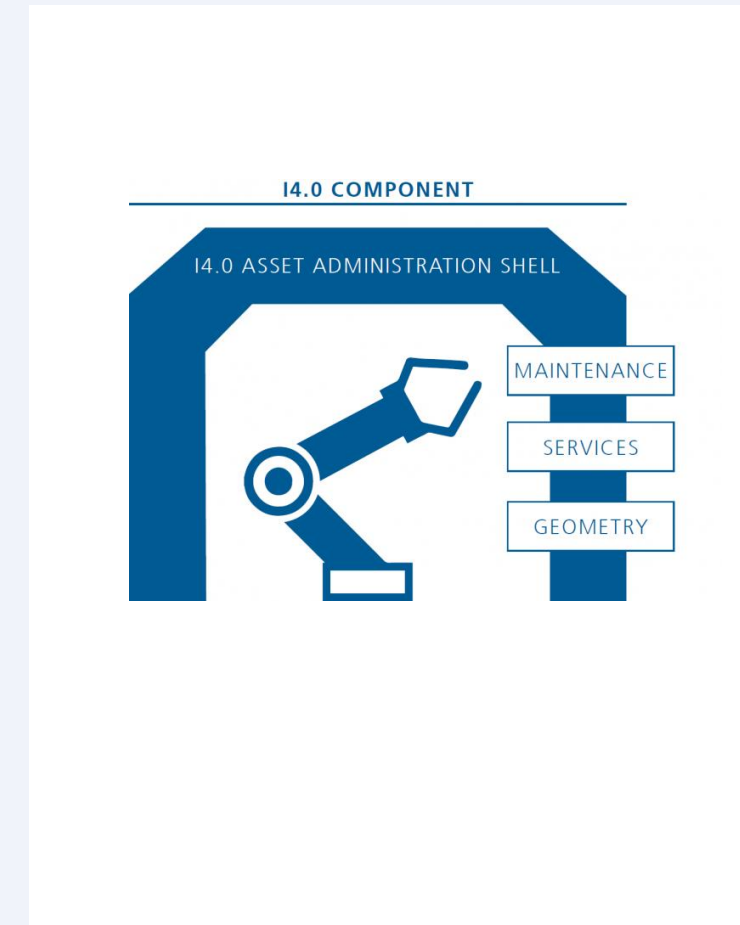
## Role of a joint trust anchor

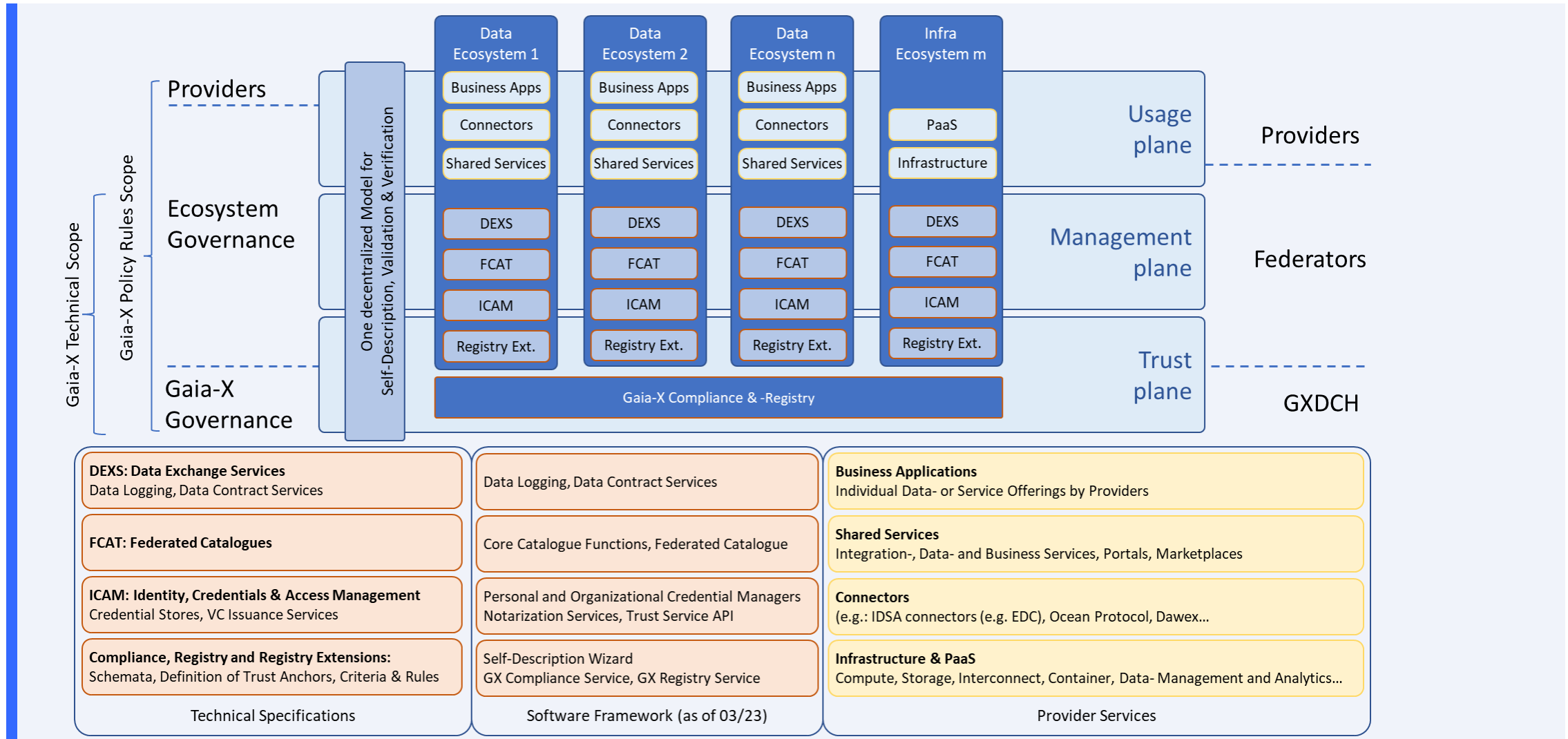


- Compliance verification:
  - How? Which criteria?
  - Trade-off between costs and trust level
  - Legal: contracts, liabilities
- Proposition:
  - Faster onboarding of new participants
  - On-board once, connect to multiple data spaces
- Business model
  - For the trust anchor itself?
  - For the digital clearing house?
  - Who is the paying customer?

# Spotlight: Asset Administration Shell

- Industry 4.0 API definition for exposing Asset data
- Requirement to provide domain and application specific submodels
- Integration of AAS-data with existing databases (e.g. PLM, corporate data warehouses, IoT, factory automation)
- Role of the AAS Server (e.g. BasyX)
- Used for several use cases in SCSN and Catena-X
- Will likely be part of the future Manufacturing-X





# Tech-X: *Data Product Passport with European Manufacturing & Gaia-X standards*

- In this session we have coded an implementation of a digital product passport (DPP) based on Gaia-X standards for Trusted Data Transactions, EU DPP specifications and the information available in an AAS.
- Responsible: Maarten Kollenstart, Matthijs Punter (TNO, SCSN), Oscar Lazaro
- (INNOVALIA, BAIDATA) Goals & Outcomes: The outcome of this session for the participants: to get familiar with IDTA AAS & CIRPASS DPP specifications and to exploit DID, SD and Data Connector technologies to realise through a data space testbed part of a DPP.

