Catena-X
THE FIRST OPEN AND COLLABORATIVE DATA ECOSYSTEM

Supported by
Federal Ministry for Economic Affairs and Climate Action
Our Motivation

“Today’s peer to peer supply chain network doesn’t do the job”
EXECUTIVE AWARENESS

“Flow of data across the entire value chain requires new collaboration models”
DATA ECOSYSTEM

“Sharing data is a matter of trust and sovereignty”
EUROPEAN VALUES GAIA-X

“Network adoption and interoperability is a team effort”
INDUSTRY DATA SPACE
Our Motivation

**RESILIENCY**

Today’s peer to peer network approach

“Today’s peer to peer supply chain network doesn’t do the job”
EXECUTIVE AWARENESS

**SUSTAINABILITY AND REGULATORY REQUIREMENTS**

Potential data-driven value chain
Interoperability

“Flow of data across the entire value chain requires new collaboration models”
DATA ECOSYSTEM

**GEOPOLITICS AND INNOVATION**

From central to decentral → Data Sovereignty

“Sharing data is a matter of trust and sovereignty”
EUROPEAN VALUES GAIA-X

**ECONOMICS**

We design and build together …

Provider & Operator

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We Create the First Data-Driven Value Chain Incorporating all Participants and Steps

Supplier Network
Production Partner
R&D Partner
Finance Partner
Mobility Partner
Recycling Partner

Entire Automotive Value Chain

Production IoT Partner
Logistics Partner
Distribution Partner
Service Partner
Digital Services Vehicle
The Catena-X Data Ecosystem

Build a global data space that can host our industry

Create the first data driven value chain; incorporating all participants via interoperable and trusted solutions

Optional adjacent industries:

- 275,000+ legal entities
- # locations globally
- # digital twins machines, products
- # apps business processes
- # users business responsibility

Example: Sustainability

PCF = x kg CO₂e

Marketplaces

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What Does it Mean, to Be...

THE FIRST OPEN

Technology & Architecture
The network foundation is build upon shared services and GAIA-X / IDSA principals - We all can take ownership

COLLABORATIVE DATA ECOSYSTEM

Working Model
All industry players join forces to build, operate and utilize the data ecosystem - Right from the start

Decentral | Open Source | Standards (e.g. for interoperability) | Neutral Governance | Ecosystem Kits

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Catena-X Assets aka Our Unique Value Propositions

1. **Boost to Digital Readiness**
   - Time to value promise via holistic onboarding services, made for SME

2. **Community of Trusted Members**
   - Industry data space with shared values, principals and neutral governance

3. **Largest Library of Digital Twins**
   - Comprehensive data sets across all partners united by e.g. shared semantics

4. **Active Data Chains**
   - Joined digital twins and members, incl. building-& governance-services

5. **SDKs & Services for an Open Ecosystem**
   - Boost collaboration & utilization. Breeding ground for innovation
A Glance on What to Expect as a Catena-X Partner
What’s in It for Me?

**App Provider**
- E2E ecosystem
- Customer-facing offering
- Reduced costs
- Innovation boost

**Core-User (SME specific)**
- Individual benchmarking
- Onboarding made for SME
- Achieve data readiness
- Access to global markets
- Time to value

**Provider Onboarding Services**
- Fast growing network
- Potential cross- & up-selling
- Credibility

**Operator**
- Growth market for managed services
- Customer-facing offering
- Immediate market access

**Core-User**
- e.g. Sustainability Mgt, Logistics Planner, Quality Engineer
- Simple way to meet regulatory requirements
- One interface to the industry
- Interoperability and flexibility of solutions
- Efficiency, resiliency, cost control
- Expansion of business model

**Developer Community**
- Street credibility & visibility
- Customer base for beta testing
- Development contracts
- Global technology stack

**and many more…**
- Data providers
- Secure and standardized infrastructure

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Lighthouse Project for the Automotive Industry

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

We are the fitness program for the automotive industry & tap into new value pools
It Takes an Open and Balanced Approach to Build and Run a Global Data Ecosystem for Our Industry

Association Catena-X e.V.
Standardization | Certification | Neutral Governance | Transfer

External Input

Application for Standardization

Certification

Certification

Development Environment

- 28 Partners
- 10 Use Cases
- 1 Consortium

- 28 initial partners to kick-start the ecosystem

Open Source Code Repository
- Proprietary Applications
- Services

Operating Environment

License & Service Agreements

Target: 1,000 Users within Year 1

104 Members (01.06.2022)

28 Partners
10 Use Cases
1 Consortium

Target: 1,000 Users within Year 1

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Who Is the Team to Kickstart the Ecosystem?

WE ARE A DELIVERY ORGANIZATION

Core Industry
- Mercedes-Benz
- Schaeffler
- Volkswagen

Cross Industry
- Ze Group
- Bosch

Software
- BIGCHAIN

IoT / Tooling
- ISTO8

Guidance
- Gaia-X
- Fraunhofer

Transfer
- ADAC

Networks
- DLR
- ARENA2036

SME
- fetch.ai

Recycling
- OEMs

Tier-1

Tier-2

Tier-n

Timeframe/project outcome
08/2021 – 07/2024

10x
Use Cases with direct value contribution

1st
Gaia-X / IDSA compliant operating system

2-4 months
Time to value onboarding partner
The First Use Cases to Kickstart the Network

10 business-critical end-to-end use cases

- CO₂ / ESG MONITORING
- CIRCULAR ECONOMY
- DEMAND / CAPACITY MGT.
- ONLINE CONTROL / SIMULATION
- MaaS
- MODULAR PRODUCTION
- LIVE QUALITY LOOPS
- BEHAVIOR DIGITAL TWIN
- FOUNDATION
- TRACEABILITY
- BUSINESS PARTNER MANAGEMENT
Overview

Five Catena-X Core Network Assets

1. **Boost to Digital Readiness**
   - Time to value promise via holistic onboarding services, made for SMEs
2. **Community of Trusted Members**
   - Industry data space with shared values, principles and neutral governance
3. **Largest Library of Digital Twins**
   - Comprehensive data sets across all partners unified by e.g. shared semantics
4. **Active Data Chains**
   - Joined digital data and members, incl. building & governance services
5. **SDK & Services for an Open Ecosystem**
   - EDC

Highlight: **Eclipse Data Space Connector (EDC)**

Pioneering approach to unify all needs
From SME to large corporations and providers of services & apps

**Incubation Room** for innovation & new business models → SDK & Open Source
How Catena-X Works

Data Exchange Option B

Open Source SaaS
Tenant
Tenants
Tenant
Tenant
Tenant

GreenToken SaaS
Tenant
Tenant
Tenant
Tenant
Tenant
Tenant

SiGreen SaaS
Tenant
Tenant
Tenant
Tenant
Tenant
Tenant

SaaS licensed to
SiGreen
SaaS licensed to
Tenant
Tenant
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Tenant

Data Exchange Option A

Catena-X Federated Operating Environment

Portal
Identity Provider
Marketplace
Authentication

Digital Twin Registry
Marketplace Contracting

Semantic Hub
Self-Description Hub

IAM

No operational data
No operational data
No operational data
No operational data
No operational data
No operational data

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Do you plan to exchange data with other companies within the next two years?

8% Yes, I already do so now

27% Yes, I do plan on that (as provider and receiver)

65% remain uncertain

Biggest obstacles for B2B data-sharing:

- Datasets are not compatible: 50%
- No matching partner: 45%
- Legal uncertainties: 38%
- Difficulties to find common ground with partners: 37%
- Economical attractiveness (as data-provider): 36%
- Data privacy: 35%
- Economical attractiveness (as data-consumer): 29%

Source: Bitkom 05/2022, Datenökonomie – Wo steht die deutsche Wirtschaft?
The Catena-X Promise

We take you from where you are and guide you until you benefit from the network.

Onboarding within weeks (approx. 8-12) through our standardized Catena-X process.

Dedicated offerings for small and medium enterprises and large scale organizations.
Knowing Your Customer – Our Must-Win Battle

Understanding & focusing on the main customer

~70% of our customers

Small & Medium Enterprises
(10 - 500 people) with limited data-readiness

- User / Skill Level:
  - Experts, general office staff + multi task talents
  - More is better
  - I have to...

- Apps / Features:
  - Less is more
  - More is better
  - I can do it myself

- Onboarding Support:
  - I have to...
  - I can do it myself

- Operations:
  - My IT provider has to...

Large & Medium Enterprises
(500 – x00.000 people)

- Many experts and digital natives
- Less is more
- I have to...
- I can do it myself
- My IT provider has to...

10-30%
KITs: Unique Assets to Scale Our Network

Apps & services providers utilize the KITs for their offerings to create a multi vendor, interoperable, innovative, and scalable ecosystem.

CX solution / use case area
Mutually shared industry problem/opportunity

Catena-X software development KITs
- Open source Eclipse projects
- Shared services & standards to foster trust and collaboration governed by the association
- Breeding ground for innovation, efficient development, and interoperability
- Enable sub-ecosystems »» Network of the Networks

Providers
Solution Spaces
Future Spaces
Preparing the Catena-X Market Entry Package

**Onboarding Services**
- Ramp-up in 2nd half of 2022

**Initial Catena-X Portfolio**
- First minimal viable offerings for

**Outlook**
- 1st half of 2023

**Target: Boost digital readiness of all industry partners**

**More MVPs to solve top industry problems (e.g. supply chain resiliency, quality, MaaS)**

**Continue feature boosts & app upgrades**

**Ecosystem + platform KITs**

**Network of Networks**

**Pool of global partners for**
- Technical enablement
- Technical operations
- Organizational enablement
- Guidance

**Portal / Marketplace**
- Federated Network Foundation
- Shared CX Services

**Proof of value hypothesis by 1,000 users within 12 months after market entry**
## Roadmap

### Preliminary Planning Assumption – Subject to Change

**Status 06/2022**

<table>
<thead>
<tr>
<th>Year</th>
<th>Association</th>
<th>Developing Environment</th>
<th>Operating Environment</th>
<th>Selected Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>- Foundational meeting</td>
<td>- Start of BMWK-funded consortium (28 partners)</td>
<td>- Start of Automotive Alliance (6 Partners)</td>
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</table>
| 2022 |  - Start of standardization process  
- Start of certification / governance body  
- Press release Bundeskartellamt  
- Operating model - whitepaper |  - Build network foundation and transfer concept 
- Phase 1 Roll-out of SDKs  
- Foundation for new entrants & developing opportunities |  - IAA  
- GAIA-X Summit  
- COP26 |  |
| 2023 |  - Phase 2 Validate: connect to 1,000 users |  - Phase 3 Expand: global footprint & sectoral |  - Network of Networks - demonstrator |
| 2024 |  - Phase 2 Expected market entry phase  
- Network of Networks |  - Expected market entry phase  
- Network of Networks |  |

**Duration:** 08/21 – 07/24

- Start of standardization process
- Press release Bundeskartellamt
- Operating model - whitepaper
- Start of Certification / Governance Body
- Roll-out of SDKs
- Foundation for new entrants & developing opportunities

**GAIAX Framework**

- **Network of Networks**
- **Demonstrator**
- **Consortium**
- **Certification**
- **Governance**
- **SDKs**

**Key Events**

- IAA 2022
- COP26
- GAIA-X Summit
- HMI 2022
- COP27

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The First Open & Collaborative Data Ecosystem

Offering **Scalable Solutions** for Top Industry Issues

Market Entry **2022**

**One Standard** Serves All Catena-X Partners

Global Value Chain **Optimization**

Tap Into **New Value Pools**
Thank You for Your Commitment to Radically Change Our Industry, Today!

Without Catena-X

- mainly supply chain & peer to peer
- proprietary
- multiple standards
- intermediary / trustee

With Catena-X

- entire value chain (E2E)
- open multi vendor ecosystem
- one time is enough
- user sovereignty

We are the fitness program for the automotive industry & tab into new value pools

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CATENA-X WILL CHANGE THE WAY WE USE AND EXCHANGE RESOURCES AND IT IS OUR CHANCE TO SAVE THE PLANET
How Things Are Connected

**DATA SPACE collaboration spaces**

**Manufacturing-X**
GAIA-X compliant IDS system for all different manufacturing partners. Open, collaborative ecosystem providing standards, applications, services and transfer.

**Catena-X**
Applied ecosystem based on a GAIA-X compliant IDS-system for the entire automotive value chain. Open & collaborative data ecosystem providing standards, applications and services.

**Mobility Data Space**
Applied ecosystem based on a GAIA-X compliant IDS-system for the mobility sector.

**BASIS**

**Gaia-X**
European initiative aligned with EU Commission → Values and principles for a trustful data infrastructure ecosystem.

**IDSA**
Implementation of the GAIA-X framework → Reference architecture model for data spaces. targeting: Interoperability of data spaces

**DIALOGUE**

**Industrie 4.0**
Dialogue platform for the digitalization of industrial production.

**Asset Administration Shell (Digital Twin)**
Conceptional standard defining and handling partial models of digital twins for the manufacturing and engineering industry.