

We want to know
more about you.

<https://create.kahoot.it/share/dio-roadshow-data-spaces-unchained/19a1c510-f6f4-4fe9-9913-53c50d7e2333>

Join at
www.kahoot.it
or with the Kahoot!
app

Game PIN:

939 9113



Kahoot!



Start


Waiting for players...

Erste Schritte in den Data Space

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Teamlead Data & Analytics

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**Like water,
data needs to be
accessible,
it needs to be clean and
it is needed to survive.**

Dan Vesset, Group Vice President,
Analytics and Information Management at IDC

Beispiele für die Nutzung von externen Daten

- Wetterdaten
- Volkswirtschaftliche Daten
- Umrechnungskurse
- Marktdaten
- Verkehrsinformationen

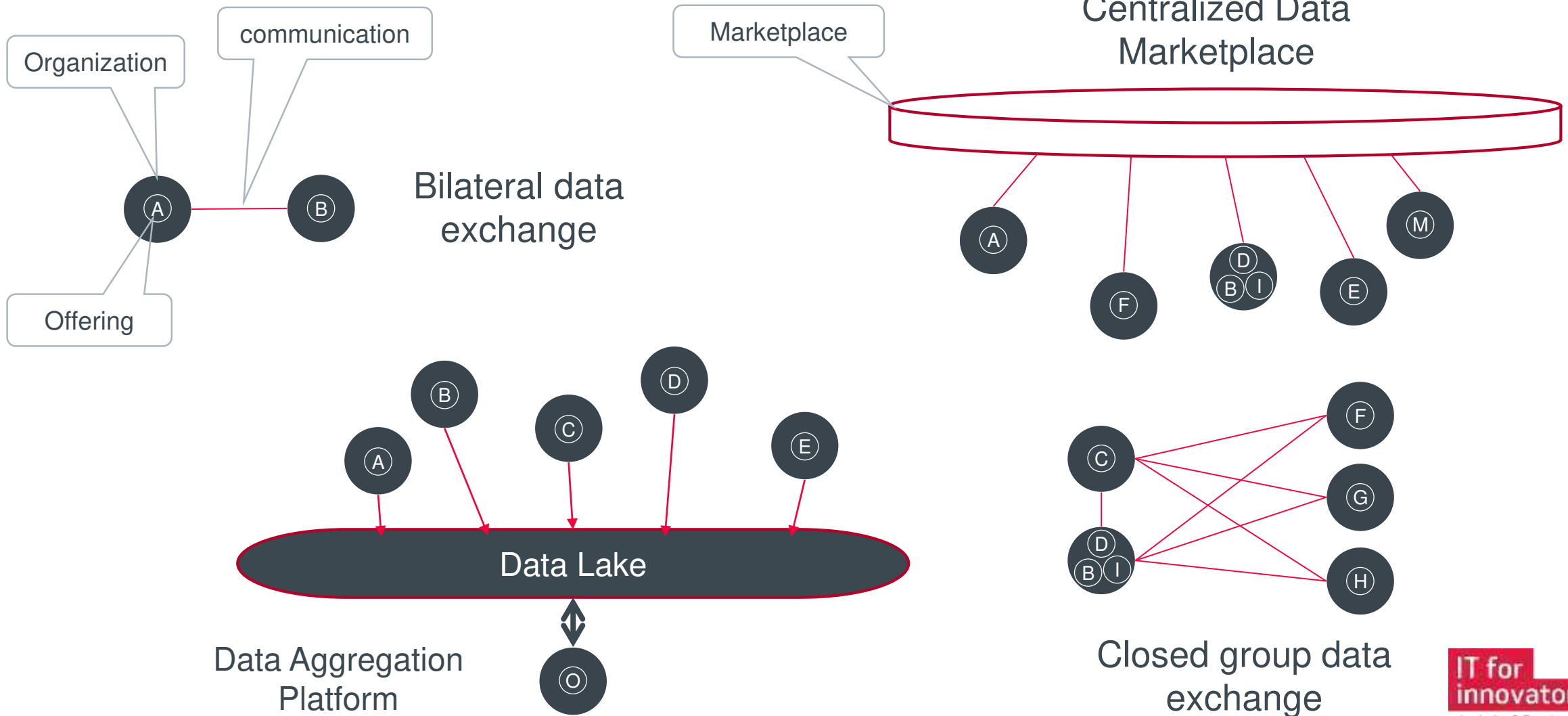
Aktuelle Herausforderungen:

- Standardisierung von Datenquellen
- Verlässlichkeit und Verfügbarkeit

The background is a dark teal color with a complex pattern of glowing lines and shapes. There are several bright orange lines that stand out against the teal. Some lines are straight, while others are curved or wavy. There are also some rectangular and circular shapes, some of which are blurred, giving a sense of depth and movement. The overall effect is that of a digital or data network.

**Wie passiert aktuell
der Datenaustausch?**

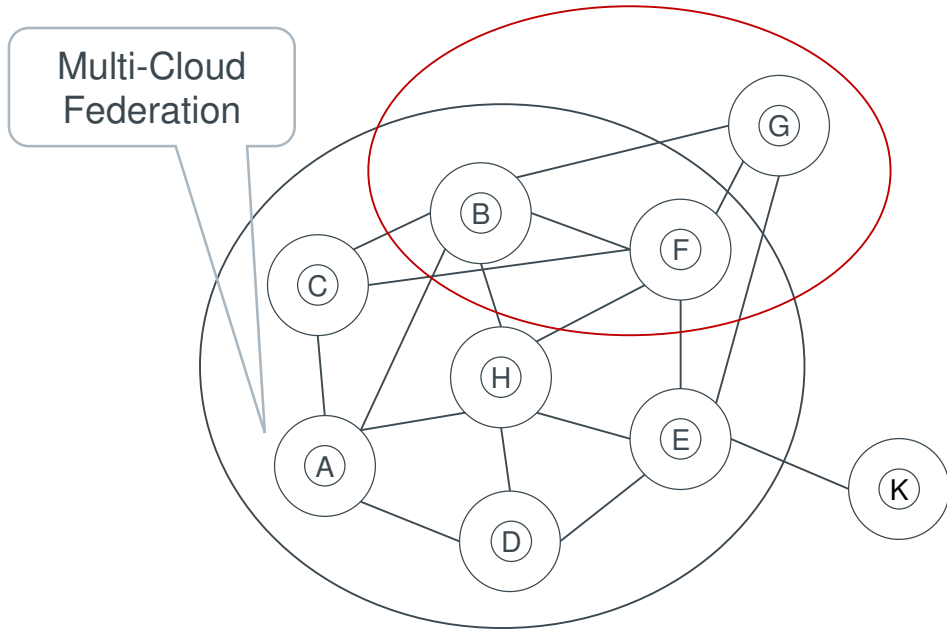
Data Collaboration... before Data Spaces



Es braucht eine
Möglichkeit zum
dezentralen
Datenaustausch



Wie funktioniert Datenaustausch in Data Spaces?



Offener und dynamischer
Datenaustausch

- Entworfen für maximale **Autonomie/Souveränität**
- Dataspaces definieren die Rahmenbedingungen (**Richtlinien, Regeln** und **Trust Anchors**)
- Dezentraler Datenaustausch:
Die Daten bleiben beim Data Provider –
Daten sind **nicht in einem zentralen Datenspeicher**
- Datenverbindungen sind immer peer-to-peer
- Viele Teilnehmer, aber Datenaustausch immer 1:1
- Dataspaces sind **Multi-Cloud Umgebungen**
- Teilnehmer können verschiedene Rollen einnehmen
- Teilnehmer können Mitglieder verschiedener Dataspaces sein



**Wer organisiert und
fördert Data Spaces?**

European Strategy for Data - Legislative

4 key instruments



Projekt Gaia-X



„Ziel des Projektes Gaia-X ist es, dass Organisationen, Unternehmen sowie Nutzer:innen Daten effizient und ökonomisch verarbeiten und untereinander teilen können, aber dennoch weiterhin die **Kontrolle über diese Daten behalten**.

Nicht nur darüber, wo diese gespeichert werden, sondern auch darüber, wer diese Daten zu welchem Zweck nutzen darf.

Gaia-X ist daher weder ein neues europäisches Rechenzentrum noch ein neuer Cloud-Service.“

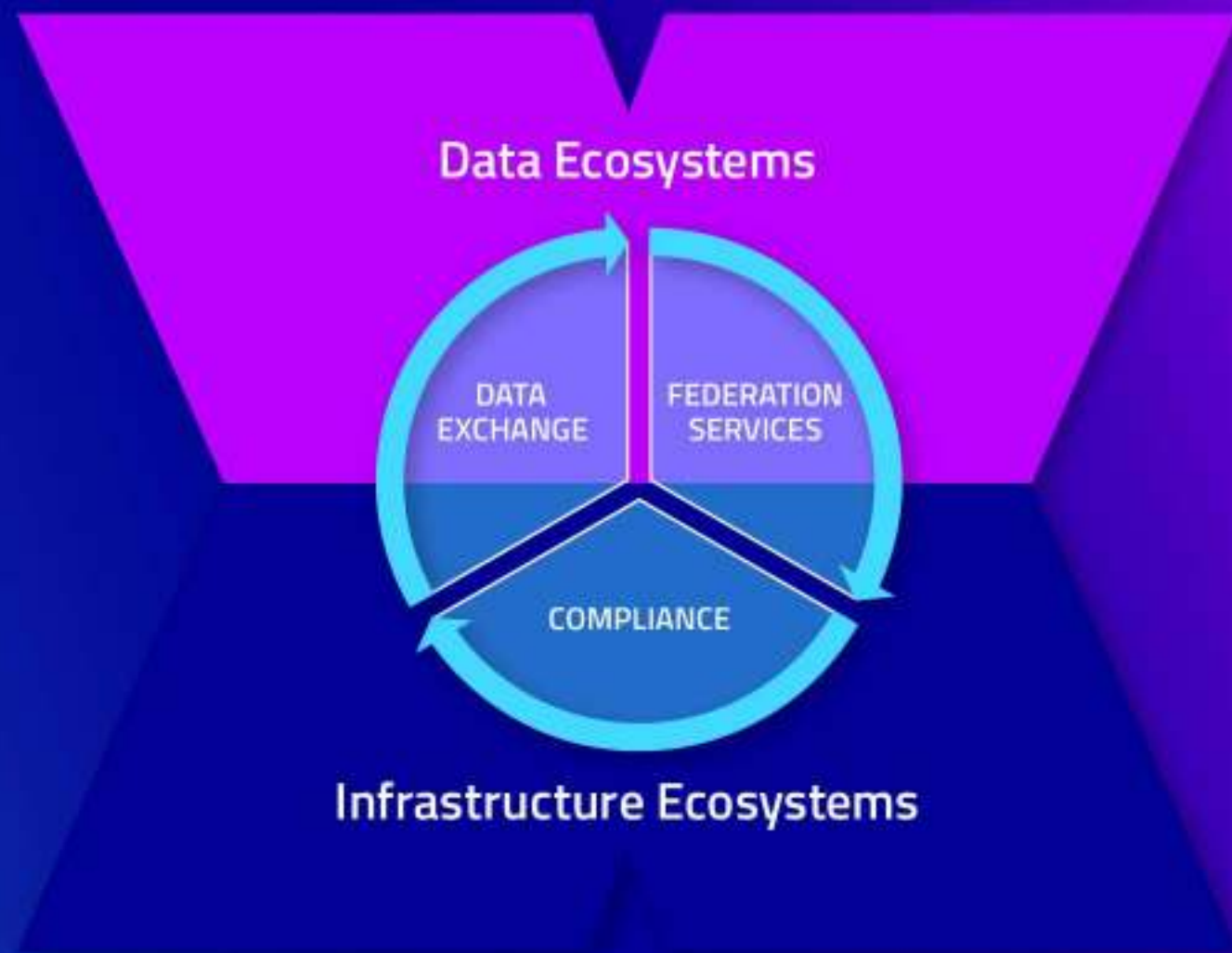
- Gaia-X Association auf EU-Ebene
- Gaia-X Hubs in den EU-Mitgliedsstaaten
- Gaia-X Community

Our X-Model

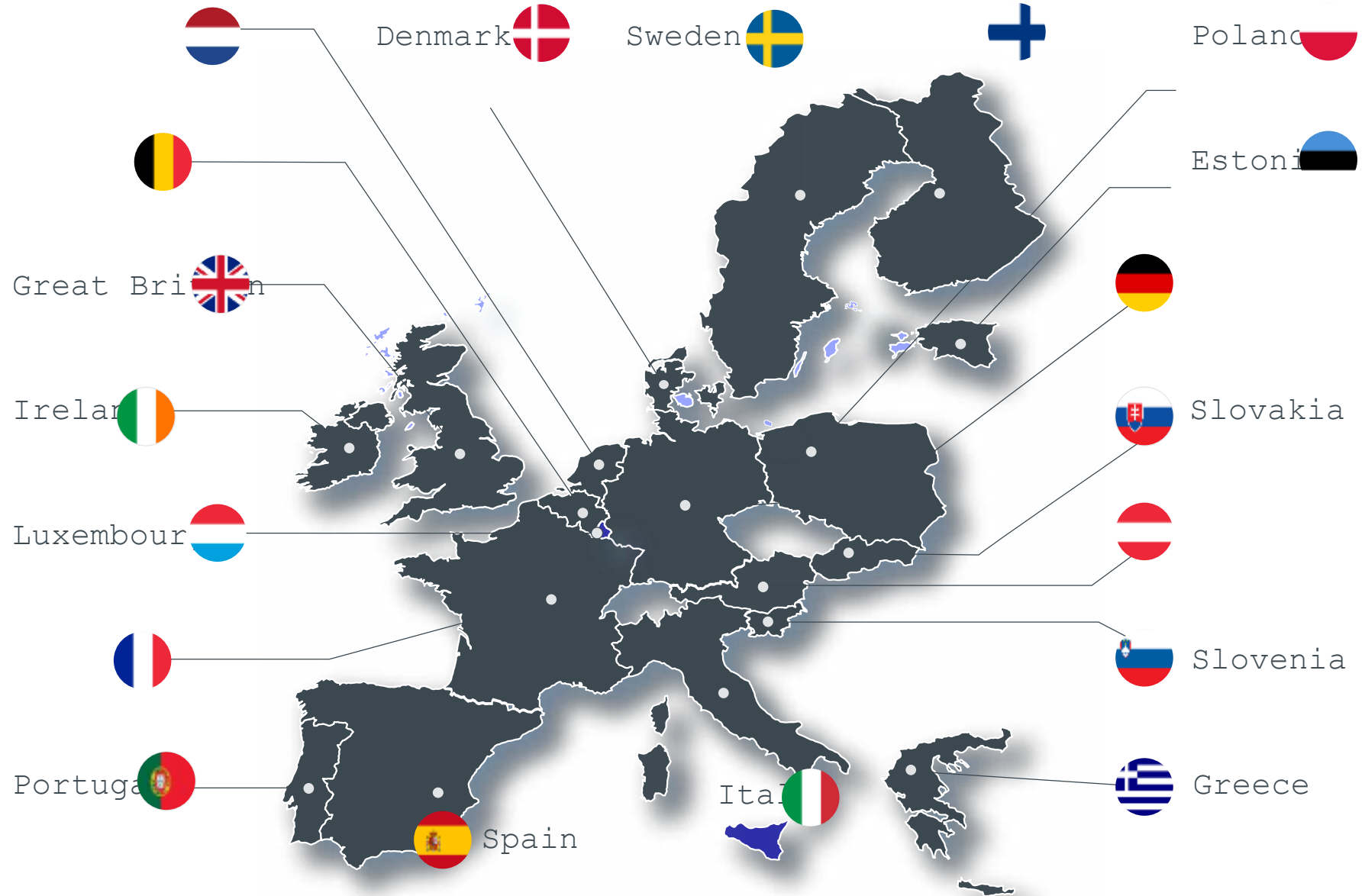
Connecting Data & Infrastructure Ecosystems



-  **Advanced Services**
New (Cross-) Sector Innovations / Applications build from service composition.
-  **Data Spaces / Federations**
Interoperable & portable (Cross-) Sector data-sets and services.
-  **Data Exchange**
Anchored contract rules for access and data usage.
asdsadadads
-  **Gaia-X Compliance**
Decentralized services to enable objective and measurable trust.
-  **Label framework**
Gaia-X and ecosystem specific Labels to ease market adoption through autonomy and self-determination.



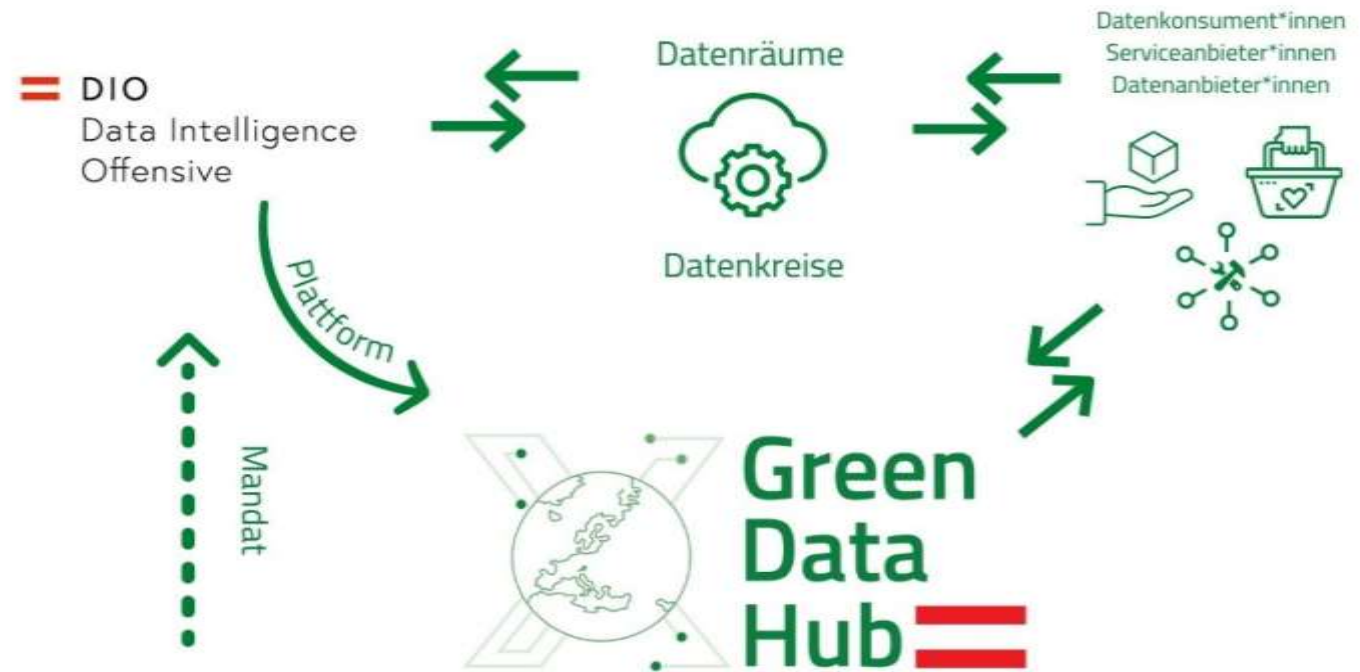
Gaia-X is setting up a network of country hubs to foster adoption of cloud and data sovereignty




Data Intelligence Offensive Austria

- Koordiniert den
- Data Spaces / Use cases

-
-
-
-

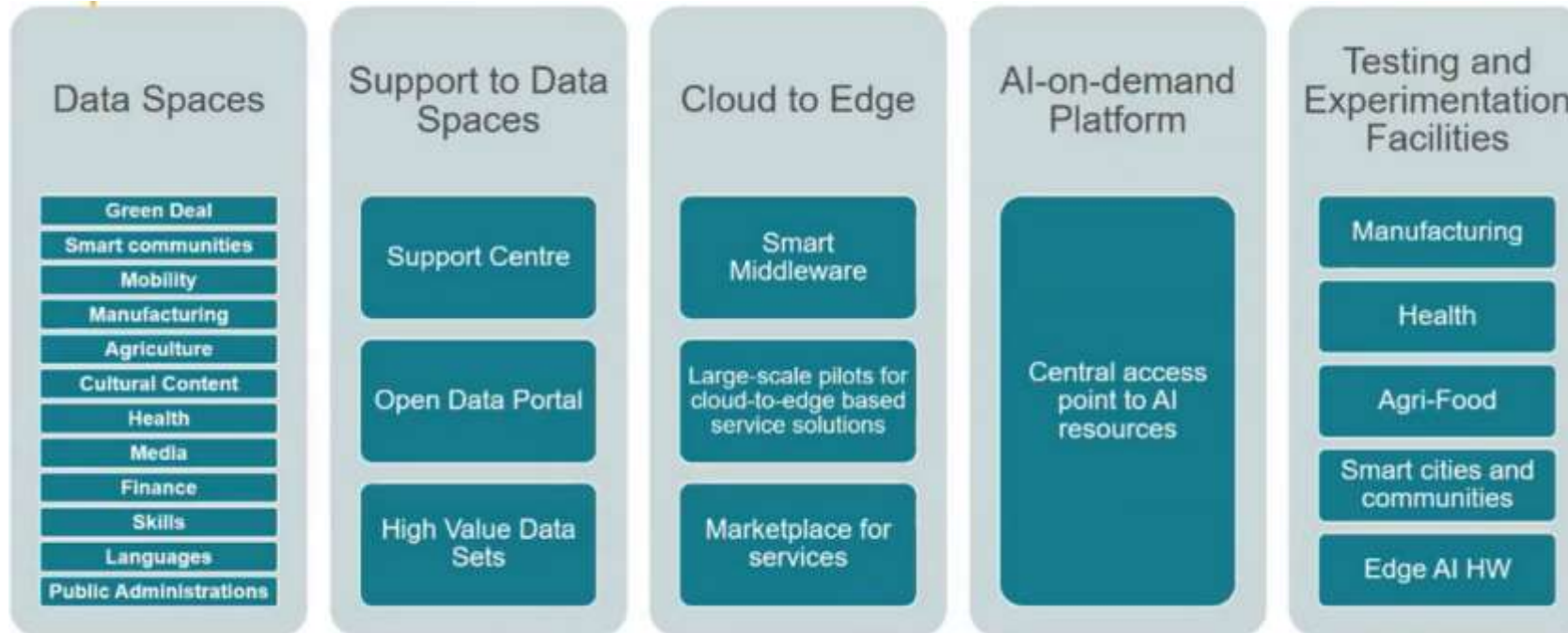


 Bundesministerium
Klimaschutz, Umwelt,
Energie, Mobilität,
Innovation und Technologie

klimaaktiv 



Data Spaces Business Alliance



Gala-X HUBS

- 01 Austria
- 02 Belgium
- 03 Finland
- 04 France
- 05 Germany
- 06 Greece
- 07 Hungary
- 08 Italy
- 09 Japan
- 10 Luxembourg
- 11 Netherlands
- 12 Poland
- 13 Portugal
- 14 Slovakia
- 15 Slovenia
- 16 South Korea
- 17 Spain
- 18 USA, California
- 19 USA, Texas
- 20 USA, Washington DC

ISDA HUBS & COMPETENCE CENTRES

- 01 Bulgaria, facilitated by GATE Corp
- 02 Czech Republic, facilitated by Czech Technical University Prague
- 03 Finland, facilitated by VTT
- 04 France, facilitated by IMT
- 05 Greece, facilitated by CERTH/IIT
- 06 Italy, facilitated by Cefnol
- 07 Korea, facilitated by Korea Association of IT
- 08 The Netherlands, facilitated by TNO The Hague
- 09 Fraunhofer FIT
- 10 Intersociety Microelectronics Centre (IMEC)
- 11 LG Research Center, Leibniz University
- 12 LMS University of Pavia
- 13 Polish Supercomputing and Networking Center (PASC)
- 14 Tecnalia

FIWARE IHUBS

- 01 A. Gallo Services & Technology
- 02 Azbil
- 03 ATIO
- 04 Cerifo Hub
- 05 Ciudad del Futuro Hub
- 06 Delcohub FIWARE Hub
- 07 DigCity Connect
- 08 DIBRA-TUR
- 09 Faubourg Numique
- 10 Fihub Azevia DEH
- 11 Fihub Canary Islands
- 12 FIWARE AIUS UPB
- 13 FIWARE Innohub Hub
- 14 FIWARE DEL Hub
- 15 FIWARE Space
- 16 FIWARE Zone
- 17 Future City Hub
- 18 Helsinki FIWARE Hub
- 19 IICADGIRUM
- 20 I-Hub Base
- 21 I-Hub FIWARE Bridge
- 22 IoT Lab Hub
- 23 La Forge de la Innovation
- 24 LAMIT
- 25 Modulo FIWARE Hub
- 26 Marco Numero Cluster
- 27 MIL
- 28 MOA GLOBAL
- 29 Nivid Technology
- 30 The Texas Project Hub
- 31 Uni FIWARE Hub

BDVA i-SPACES

- 01 Africa Hub for the Economy of Data and Devices
- 02 ARIS (Universidad Politecnica de Madrid)
- 03 Anagnin DEH (ITA)
- 04 BIODATACUE (Eusebio)
- 05 DUAVER
- 06 DEH DIGAL
- 07 ICE Data Center (PSE)
- 08 IIT
- 09 Know-Center Graz
- 10 FII
- 11 Genesil (Sintel)
- 12 SCAL (SINCA)
- 13 Shifting Smart Connected Supplier Network
- 14 PRODIGE DEH
- 15 TeratLab (Institut Mines-Telcom)
- 16 Alhydro Lab
- 17 Belgatec Data Innovation Hub
- 18 Cybercity Hub s.r.l.
- 19 DataLife
- 20 DIMAGEC
- 21 DEH TECHDOM
- 22 EDPA
- 23 Edinburgh International Data Facility (EPDF)
- 24 HPC4Poland (Poland Super Computing Centre)
- 25 Latvian IT Cluster DEH
- 26 Linz Center of Mechatronics GmbH
- 27 nCS Smart Home DEH
- 28 Machine Intelligent Storage
- 29 MindTech
- 30 Fionair
- 31 Ruder Boskovic Institute Digital Innovation Hub
- 32 Smart Data Innovation Lab (KIT)
- 33 Transilvania Digital Innovation Hub
- 34 Innovation Cluster Dachen (ICD)
- 35 Minismon
- 36 Munich Innovation Hub for applied AI
- 37 UDS



*digital.***TIROL**



 **DIO**
Data Intelligence
Offensive

**Das Ökosystem
Österreich**

gaia-x

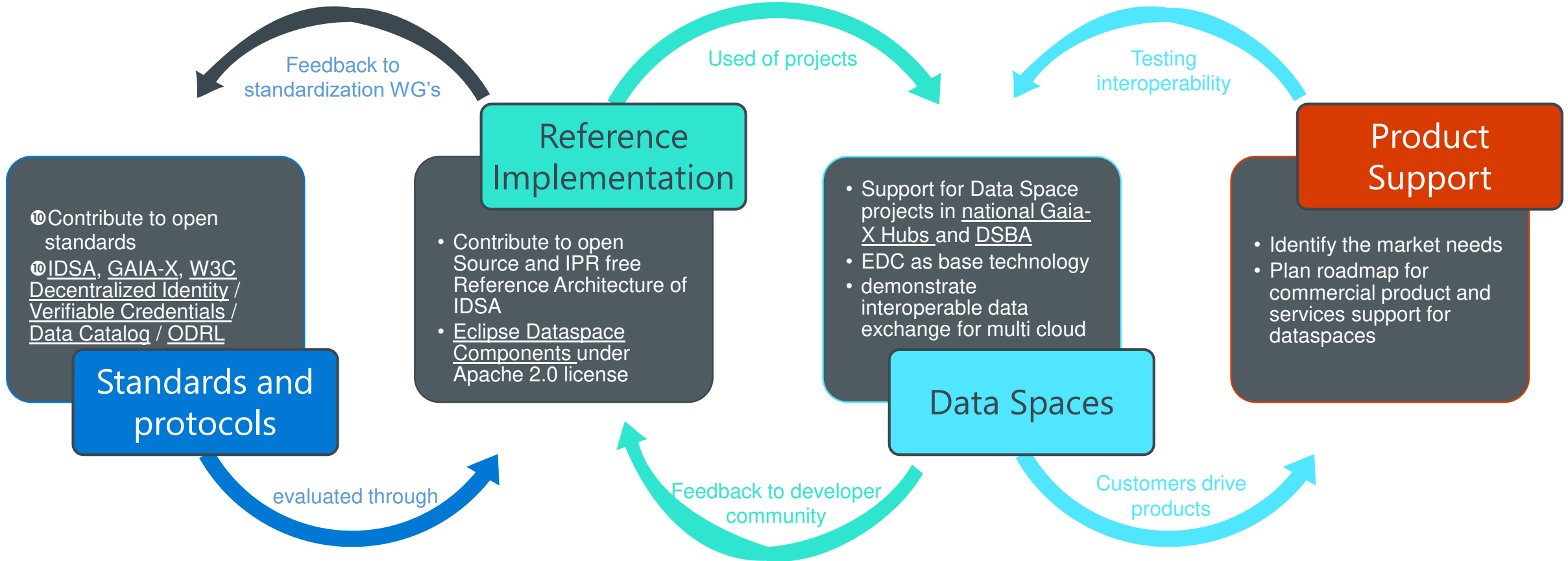


GAIA-X



**Was steckt hinter
einem DataSpace?**

Data Spaces journey and feedback loops





CUBIDO
Digital Solutions

Aus Informationen
Zukunft gestalten.

Technischer Hintergrund

Standards, Interoperabilität,
Implementierungen, Best Practises

projects.eclipse.org/projects/technology.edc
eclipse-edc.github.io/docs.

Eclipse Dataspace Components

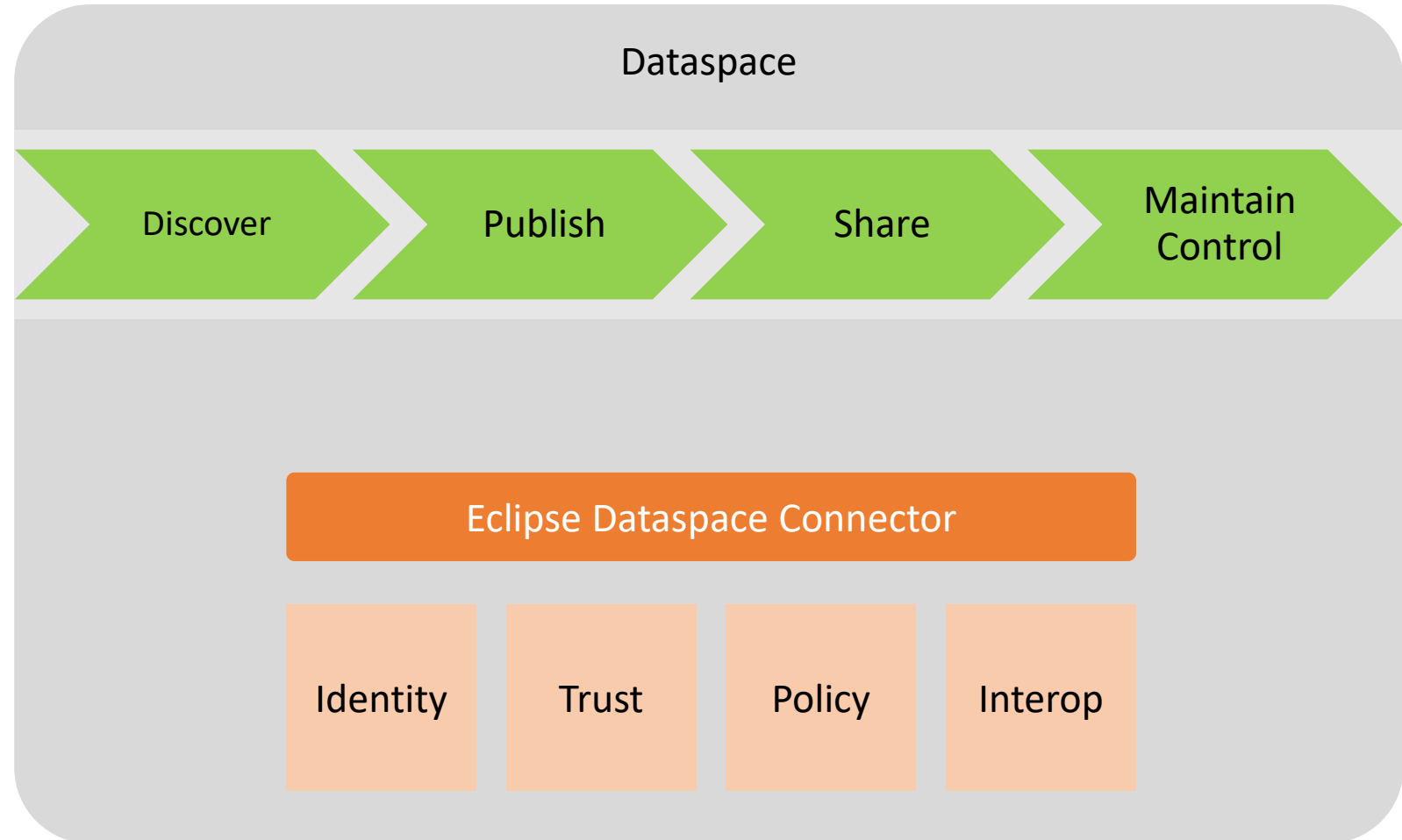
- A reference implementation for IDSA RAM 4.0, aligned with GAIA-X
- Community driven Open Source project under Eclipse foundation on GitHub
- Free of intellectual property rights under Apache 2.0 license for commercial usage
- Used by many GAIA-X projects
- Modular / Extendable Based on Java and RESTful interfaces

The screenshot shows the Eclipse Dataspace Connector project page. At the top, the Eclipse Foundation logo is visible, along with navigation links for Projects, Working Groups, Members, and More+. A search bar and a Download button are also present. The main content area features a navigation menu with tabs for Overview, Downloads, Who's Involved, Developer Resources, Governance, and Contact Us. Below the navigation, there are three main sections: 1. Contribution Activity: A bar chart showing commits on the project from 2021-09 to 2022-09. 2. Individual Contribution Activity: A pie chart showing the distribution of commits by individuals over the last three months, with a legend listing names like Orituk, Paul Letzig, Julia Rappin, and others. 3. Organization Contribution Activity: A pie chart showing the distribution of commits by supporting organizations over the last three months, with a legend listing organizations like Contribute, IBM Corp, and Microsoft Corp. At the bottom, there is a section for Active Member Companies, featuring logos for Amadeus, Fraunhofer, Microsoft, SAP, and ZE Group. On the right side, there are three sidebar sections: Project Links (Documentation), Related Projects (Eclipse Technology, Eclipse Dataspace Connector), and Tags (Data Spaces, Data Exchange, etc.).

The characteristics of a federated dataspace

Main Functionalities of a Dataspace

- Catalogue (Discoverability)
- Sovereign Data Exchange
- Identity & Trust
- Compliance



Main Principles of an EDC powered DS:

- Each participant remains in control of their identity
- Each participant decides who to trust
- Each participant decides under what policies their data is shared
- Each participant remains in control of their infrastructure

EDC Core Dataspace Services

Registry

Registration and discovery

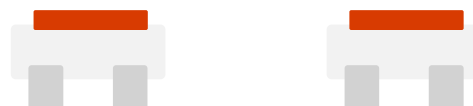
Core Module System



Catalog Services

Publish and search

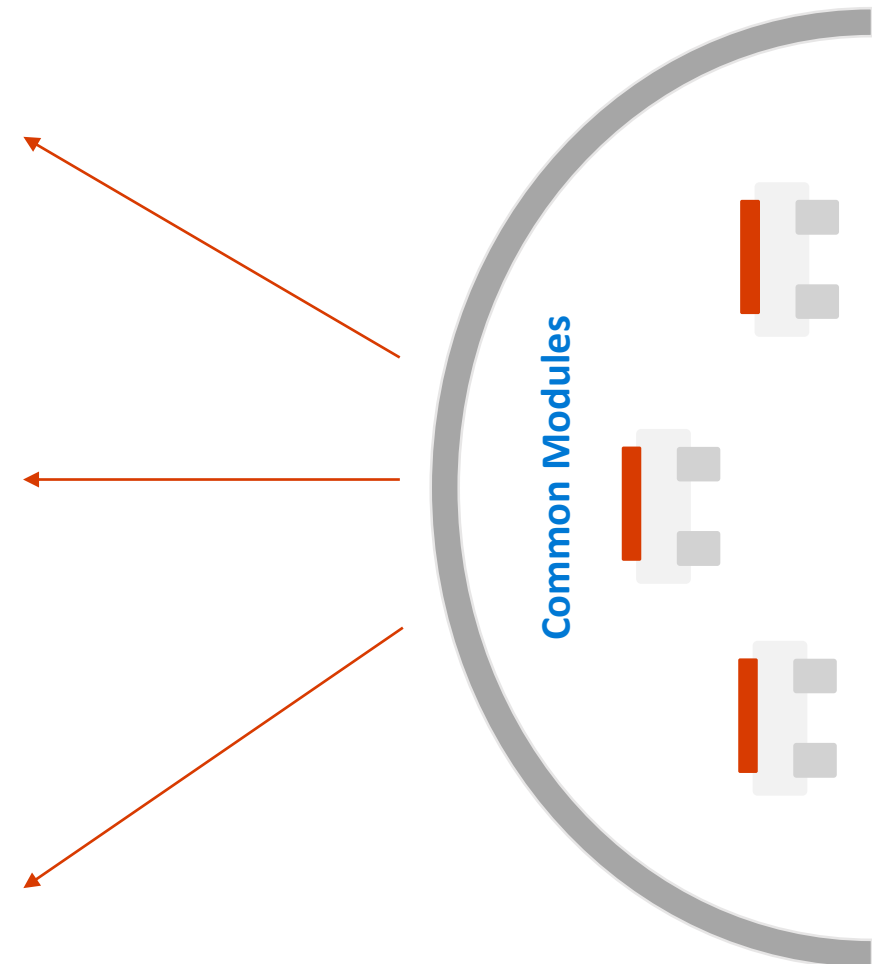
Core Module System



Connector

Contract negotiation and data sharing

Core Module System



Alignment with International Data Spaces Association



Already supporting IDS-based messages and policy definitions



Support development of IDSA Reference Architecture Model 4.0



Part of IDS Open Source Landscape



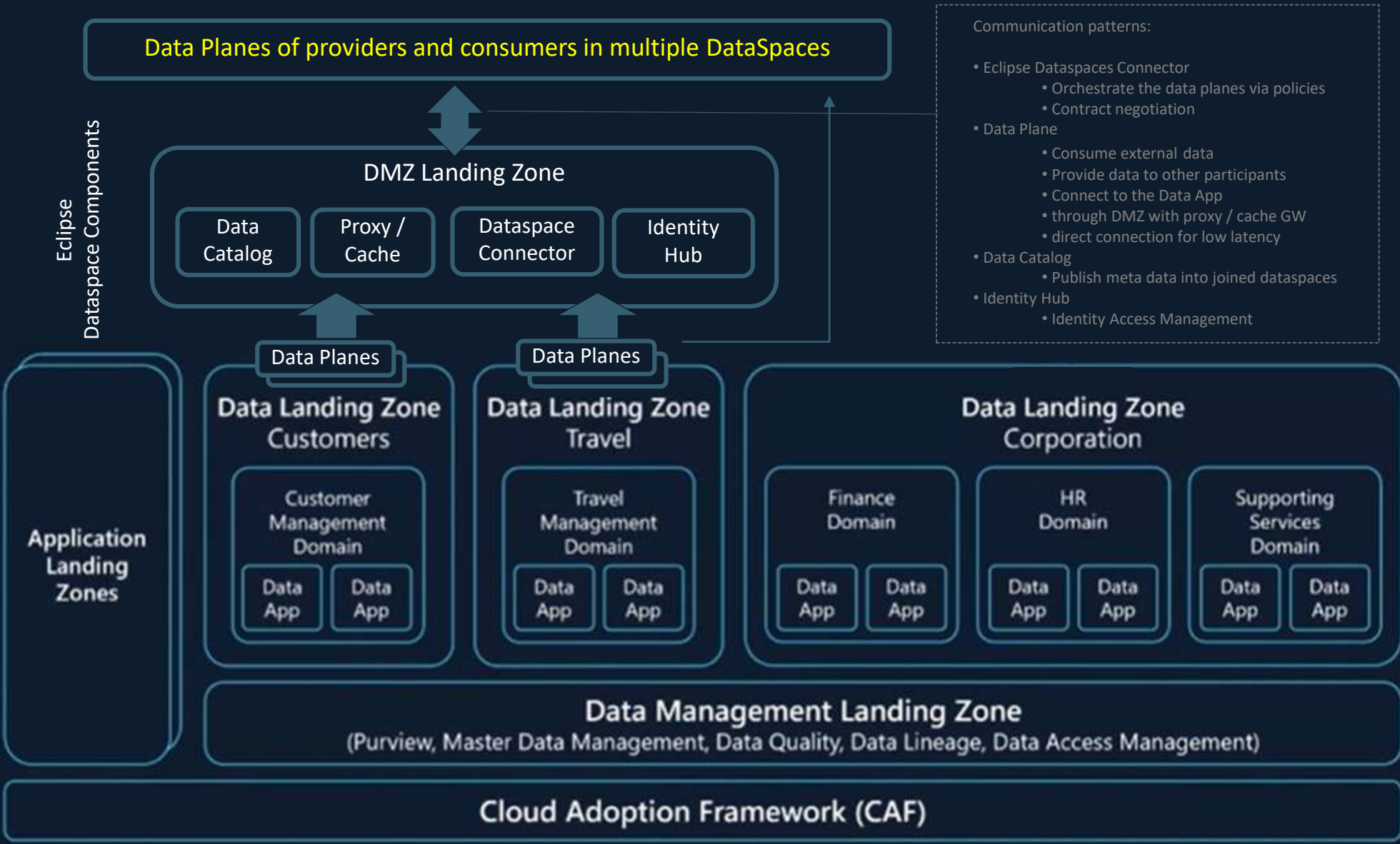
Participating in IDSA committees and working groups

Architecture WG
Rule Book WG

1. Data Management Landing Zone

Setup an secure and scaleable data architecture in your company

Implement data landing zones with Data Mesh and Data Spaces



2. Define the Use Case

Start the user journey into Dataspaces
- Example CATENA-X

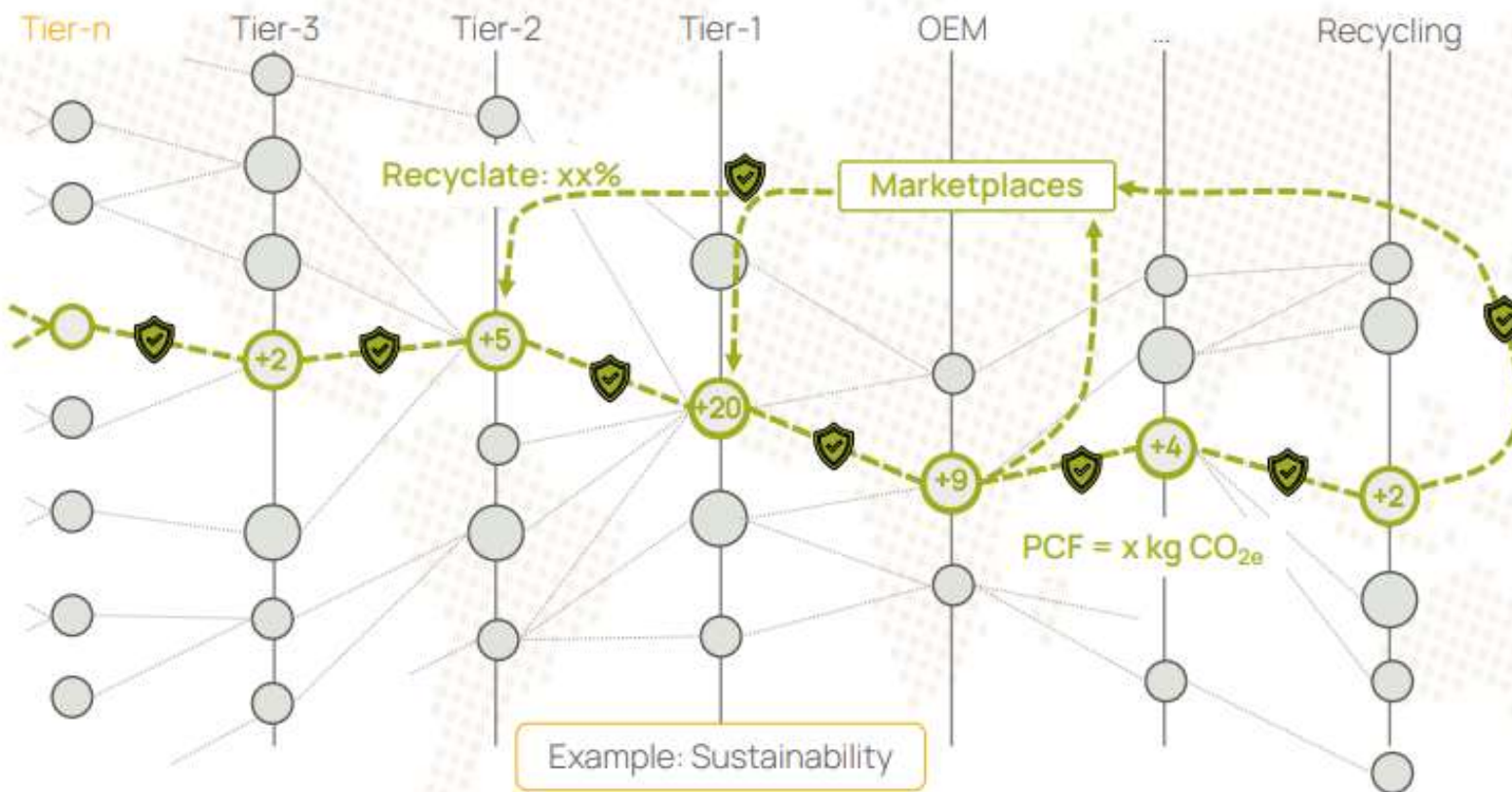
The Catena-X Data Ecosystem



Build a **global data space** that can host our industry

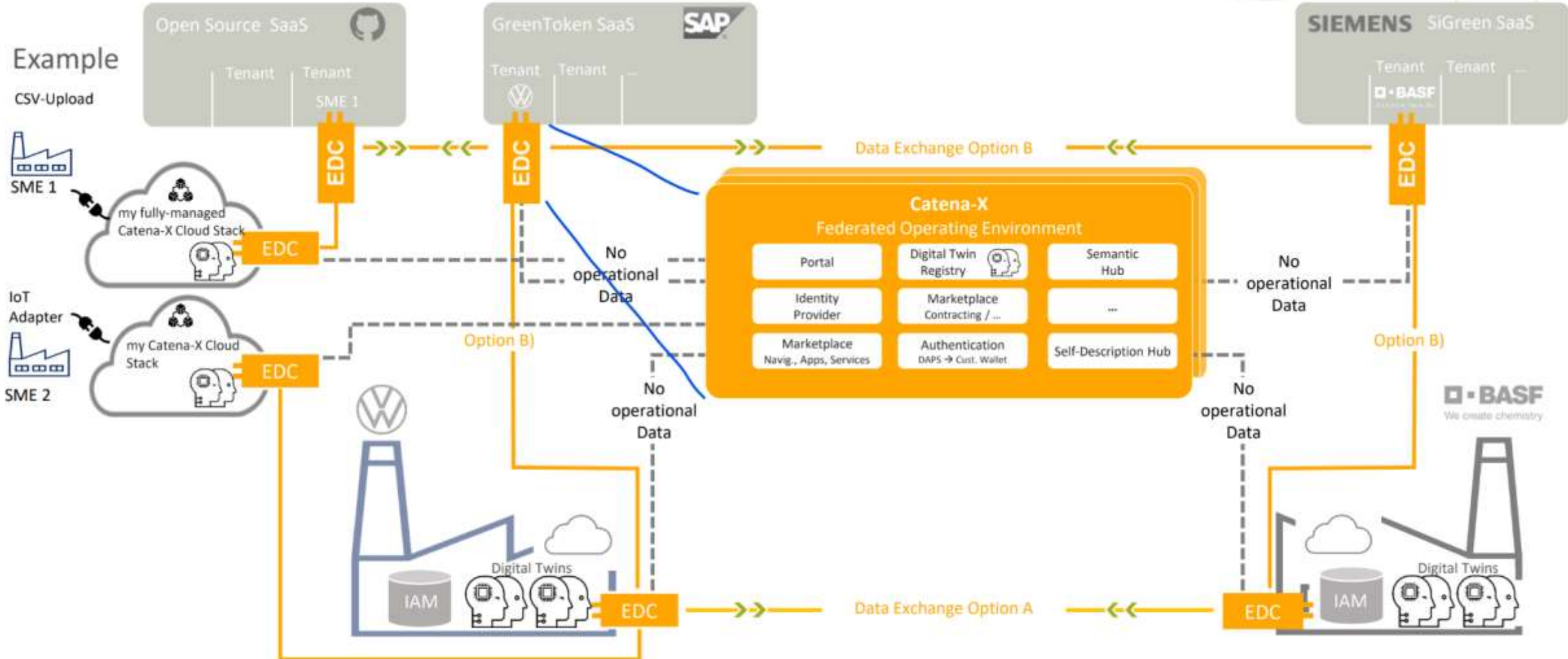
Create the first **data driven value chain**; incorporating all participants via **interoperable** and trusted solutions

- 275.000+** legal entities Optional adjacent industries
- # locations** globally
- # digital twins** machines, products
- # apps** business processes
- # users** business responsibility

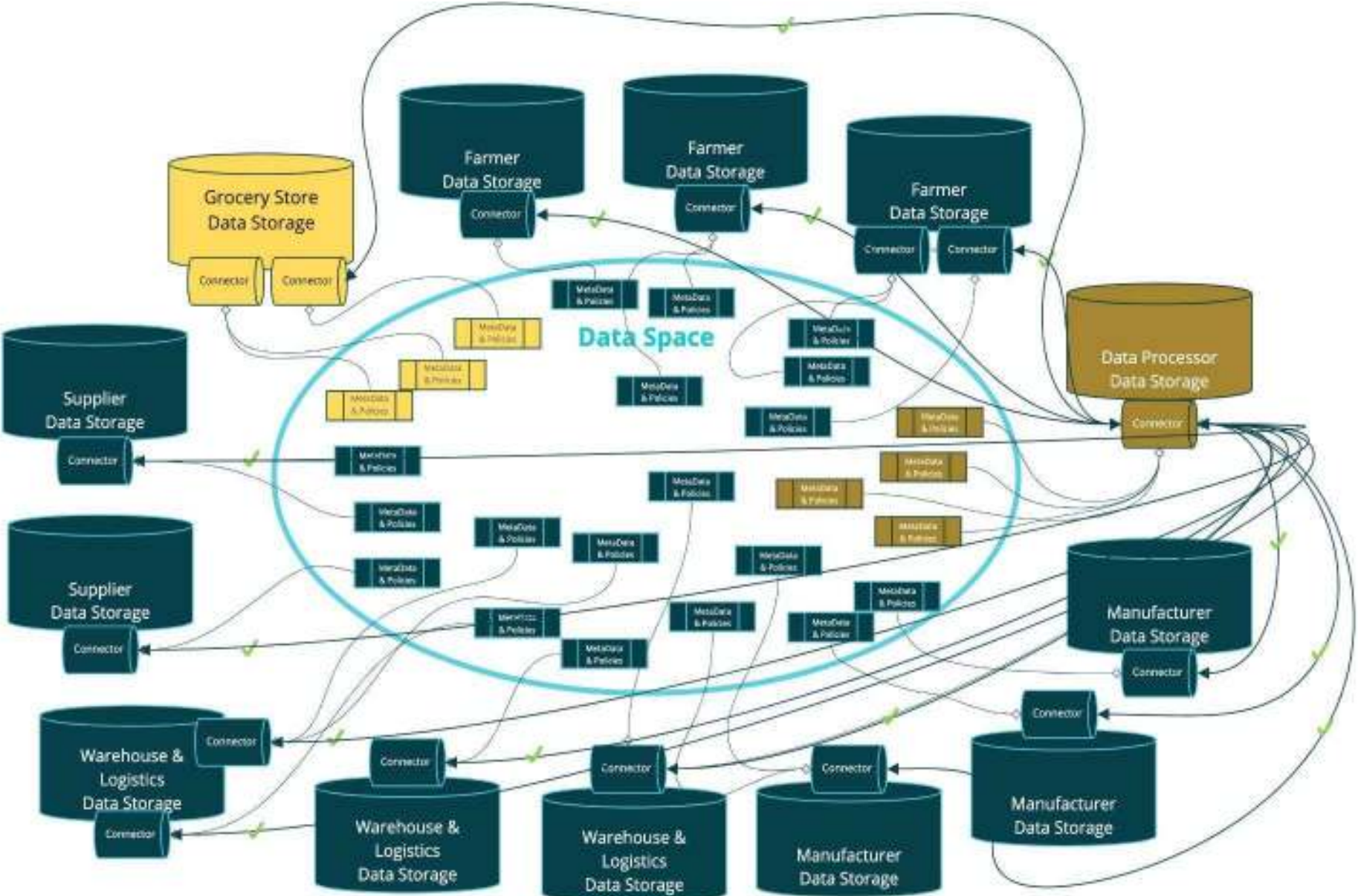




How Catena-X Works – GAIA-X Ready Architecture



Wo ist mein Platz im Datenökosystem?



3. Business discussion

Use the Dataspace Management
Vision Demonstrator

- Flows
- 0. Start Page
- ✓ 1. Manage My Dataspaces
- 2. Discover Data Shared by Others
- 3. Negotiate a Data Contract
- 4. Create a new Policy
- 5. Create a new Data Asset
- 6. Create Data Contract
- 7. Review existing Data Contract and ...

No description

- DATA CONTRACTS
 - Data Shared by Others
 - Data Offered by Me
- DATA MANAGEMENT
 - Policy Store
 - Asset Index
 - Identity Hub
- MY DATASPACE
 - Manage My Dataspaces

- Energy Dataspace
- Education and Skills Dataspace
- Finance and Insurance Dataspace
- Health Dataspace
- Industry 4.0 Dataspace
- Mobility Dataspace
- Space Dataspace

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- Finance and Insurance Dataspace
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- Space Dataspace

Dataspaces Management Vision Demonstrator

Home > **Manage My Dataspaces**

Here you can see all the dataspaces, where you are participating. This list is being populated based on Verifiable Credentials of membership which are saved in your Identity Hub. If you are missing a dataspace, where you are already a member, please check your Verifiable Credentials in the Identity Hub. If you want to join a new dataspace - you are welcomed to do that here!

All Dataspaces (7) Joined (7) Pending (0) Saved (0) [+ Join Dataspace](#) [+ Create Dataspace](#)

Status: all Favorites: all Members: all Filter for any field

Showing 0 to 7 out of 7 records Group by: No grouping Sort by: State

Dataspace Name	Status	Data Shared by Others	Data Shared by Me
Energy Dataspace	Participating	210	0
Education and Skills Dataspace	Participating	14	2
Finance and Insurance Dataspace	Participating	17	0
Health Dataspace	Participating	102	1
Industry 4.0 Dataspace	Participating	51	0
Mobility Dataspace	Participating	85	0
Space Dataspace	Participating	3	5

4. Make or Buy

Minimum Viable Dataspace as starting point for developers

Getting Started

Catalog Browser

Contracts

Transfer History

Contract Definitions

Policies

Assets

EDC Demo

Getting Started

Getting Started

Catalog Browser

Contracts

Transfer History

Contract Definitions

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EDC Demo

Getting Started

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Eclipse Dataspace Connector

The Eclipse Dataspace Connector provides a framework for sovereign, inter-organizational data exchange. It implements the International Data Spaces standard (IDS) as well as relevant protocols associated with GAIA-X. The connector is designed in an extensible way in order to support alternative protocols and integrate in various ecosystems.

[GitHub](#)
[Getting Started](#)
[Onboarding Guide](#)

EDC Data Dashboard (this application)

This EDC Data Dashboard is a developer UI for the EDC Data Management API. This application is not intended for production usage and can be used to showcase EDC from a technical perspective, as the UI is designed as a 1:1 mapping of the Data Management API.

[Data Management API](#)

Example use cases, that you can try out with this application, are:

- ✓ View the asset catalog available to you in your Dataspace using the [Catalog Browser](#)
- ✓ Negotiate a contract for data sharing in your Dataspace using the [Catalog Browser](#)
- ✓ View your existing contracts in the [Contracts](#) page
- ✓ Transfer an asset in your Dataspace using the [Contracts](#) page
- ✓ View which assets have been transferred in your Dataspace in the [Transfer History](#) page
- ✓ View and create assets using the [Assets](#) page
- ✓ View and create policies and apply these to assets in your Dataspace using the [Policies](#) page
- ✓ Publish a new asset into your Dataspace using the [Contract Definitions](#) page



MinimalViableDataspace

Deployment scripts and CI/CD build pipelines



RegistrationService

Central Dataspace Authority



IdentityHub

W3C DID/VC compliance prototype implementation of a DID: web identity provider, GAIA-X Self-description

use a cloud service

deploys one dataspace

deploys 3 dataspace participants



App Insights

collect OpenTelemetry-based on [Java](#) application monitoring.



DataSpaceConnector (Core)

Contract negotiation, data transfer, authentication protocols, monitor via W3C ODRL policies



DataDashboard

User Interface for each participant



FederatedCatalog

prototype implementation of a W3C DCat based Federated catalog



IdentityHub

W3c DID/VC compliance prototype implementation of a DID: web identity provider, GAIA-X Self-description

