

Welcome!

# Building a Data Space

Dr. Veronika Siska  
AIT Austrian Institute of Technology

Energy Data Spaces Cluster Workshop  
13 September 2023

---

# About us

# Who is behind Gaia-X Hub Austria?

The **Gaia-X Hub Austria** will ensure that Austria as a business location does not waste time in this important phase of digital transformation, but that politics, business, administration and civil society organizations actively participate in the Gaia-X project in a guided manner in some subject areas.

*„Accelerating European data ecosystems  
for economic, ecological and societal value creation“*


 Bundeskanzleramt

 DIO  
Data Intelligence Offensive  
Verein zur Förderung der Datenwirtschaft



 AIT  
AUSTRIAN INSTITUTE  
OF TECHNOLOGY



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





 iv  
INDUSTRIELLEN  
VEREINIGUNG



 Bundesministerium  
Digitalisierung und  
Wirtschaftsstandort





 INDUSTRIE 4.0  
ÖSTERREICH











.....

# Gaia-X Hub Austria – Management Board

## as a strong Multi-Stake-Holder Community

Helmut Leopold (Chair)



Georg Hahn (Vice-Chair)



Roland Sommer



Tobias Höllwarth



Christian Tauber



Brigitte Lutz



Mario Drobics



Stefanie Lindstädt



 DIO  
Data Intelligence Offensive  
Verein zur Förderung der Datenwirtschaft

Michael Fälbl



Gerald Steiner



Annette Trawnicek



 DIO  
Data Intelligence Offensive  
Verein zur Förderung der Datenwirtschaft

# Gaia-X Hub Austria – Team

## Organisational Support & Technical Expertise



**Veronika Siska**

Gaia-X Technical Expert



**Vasileios Karagiannis**

Gaia-X Technical Expert



**Astrid Al-Akrawi**

Gaia-X Programme Management Support

## Supported Projects

- EuProGigant (TUW, Produktion)
- EDDIE (AIT, Energy)
- BatWoMan (AIT, Battery-Passport)
- DS4SSCC (AIT, Smart Cities)
- DigiCities (AIT, Energy)
- ASCEND (AIT, Smart Cities)
- CREATE (AIT, Circular Economy)
- MobiSpaces (AIT, Mobility)
- Champions (DIO, Manufacturing)
- Green Data Hub (DIO, Circular Economy)
- Trusts (DIO, Finance)
- Space4Energy (DIO, Energy)
- etc.

---

# Building a Data Space

# Data Space Technology



DATASPACE = FRAMEWORK,  
NOT SPECIFIC SOFTWARE

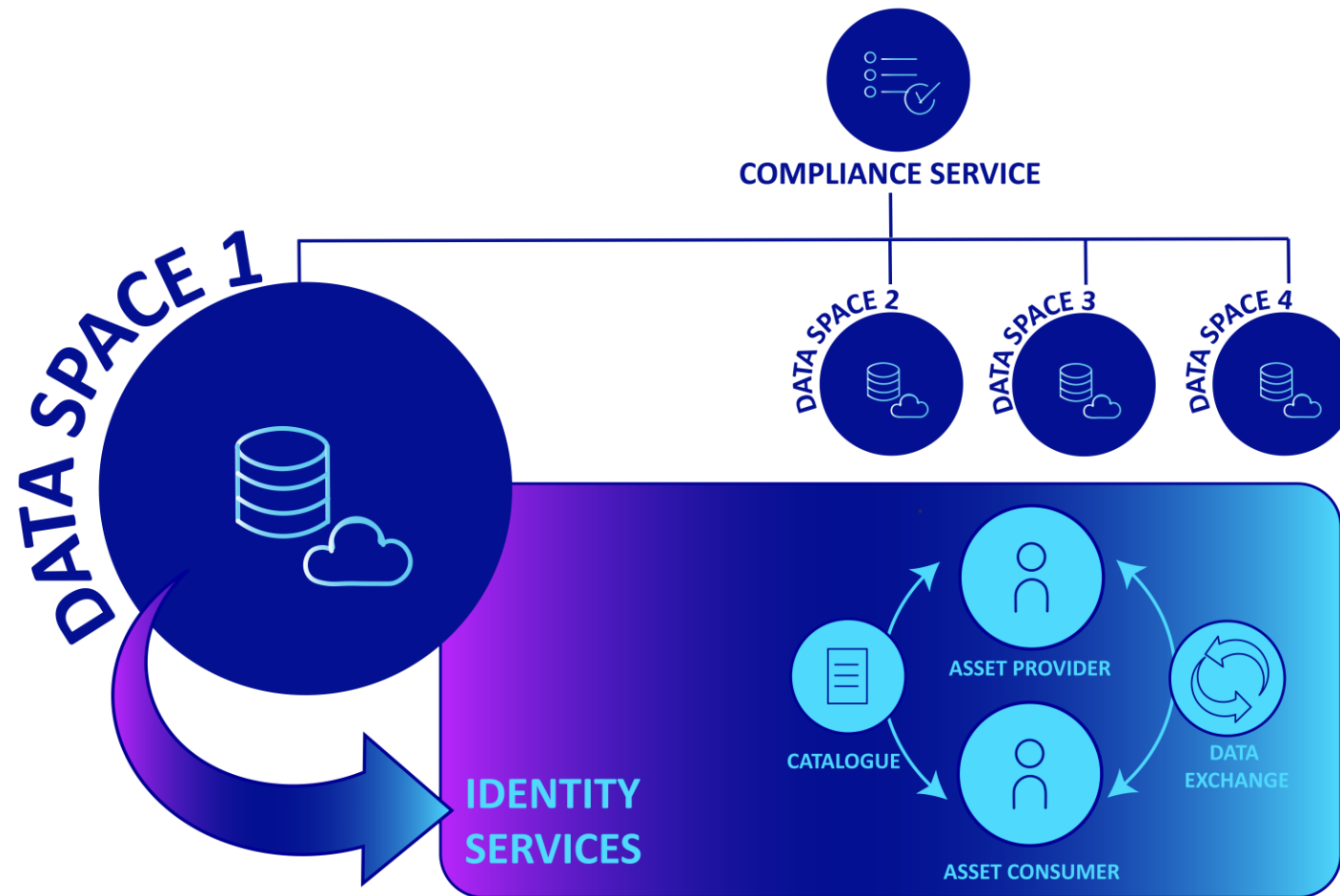


SOFTWARE MAY COMPLY  
WITH A FRAMEWORK



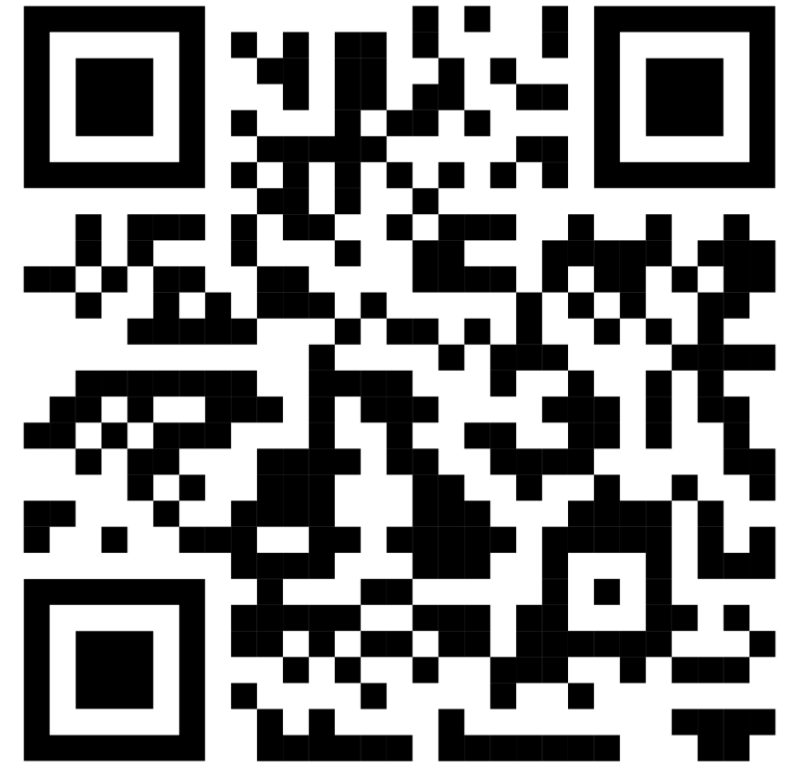
NO SINGLE BEST SOLUTION

# Data Space Architecture



Thank you for your  
attention!

Download our whitepaper:  
Building a Dataspace



<https://www.gaia-x.at/en/media-library/>

# Stack-specific summary

	EDC	GXFS	Pontus-X
Origin	Based on IDS framework, adaptations for Gaia-X	Developed for Gaia-X	Ocean Marketplace, adapted for Gaia-X
Technology	Modular components built with Java & Gradle	Modular components built primarily with TypeScript	Blockchain-based technology
Website	<a href="https://projects.eclipse.org/projects/technology.edc">https://projects.eclipse.org/projects/technology.edc</a>	<a href="https://www.gxfs.eu">https://www.gxfs.eu</a>	<a href="https://portal.minimal-gaia-x.eu">https://portal.minimal-gaia-x.eu</a>
Repository	<a href="https://github.com/eclipse-edc">https://github.com/eclipse-edc</a>	<a href="https://gitlab.com/gaia-x/data-infrastructure-federation-services">https://gitlab.com/gaia-x/data-infrastructure-federation-services</a>	<a href="https://github.com/deltaDAO/mvg-portal">https://github.com/deltaDAO/mvg-portal</a>
Sample projects	<a href="#">Catena-X</a> , <a href="#">Eona-X</a> , <a href="#">Health-X</a> <a href="#">dataLOFT</a> , etc.	Planned adoption by <a href="#">German Gaia-X supported projects</a>	<a href="#">EuProGigant</a> , <a href="#">moveID</a> , <a href="#">Berlin State Library</a> , etc.

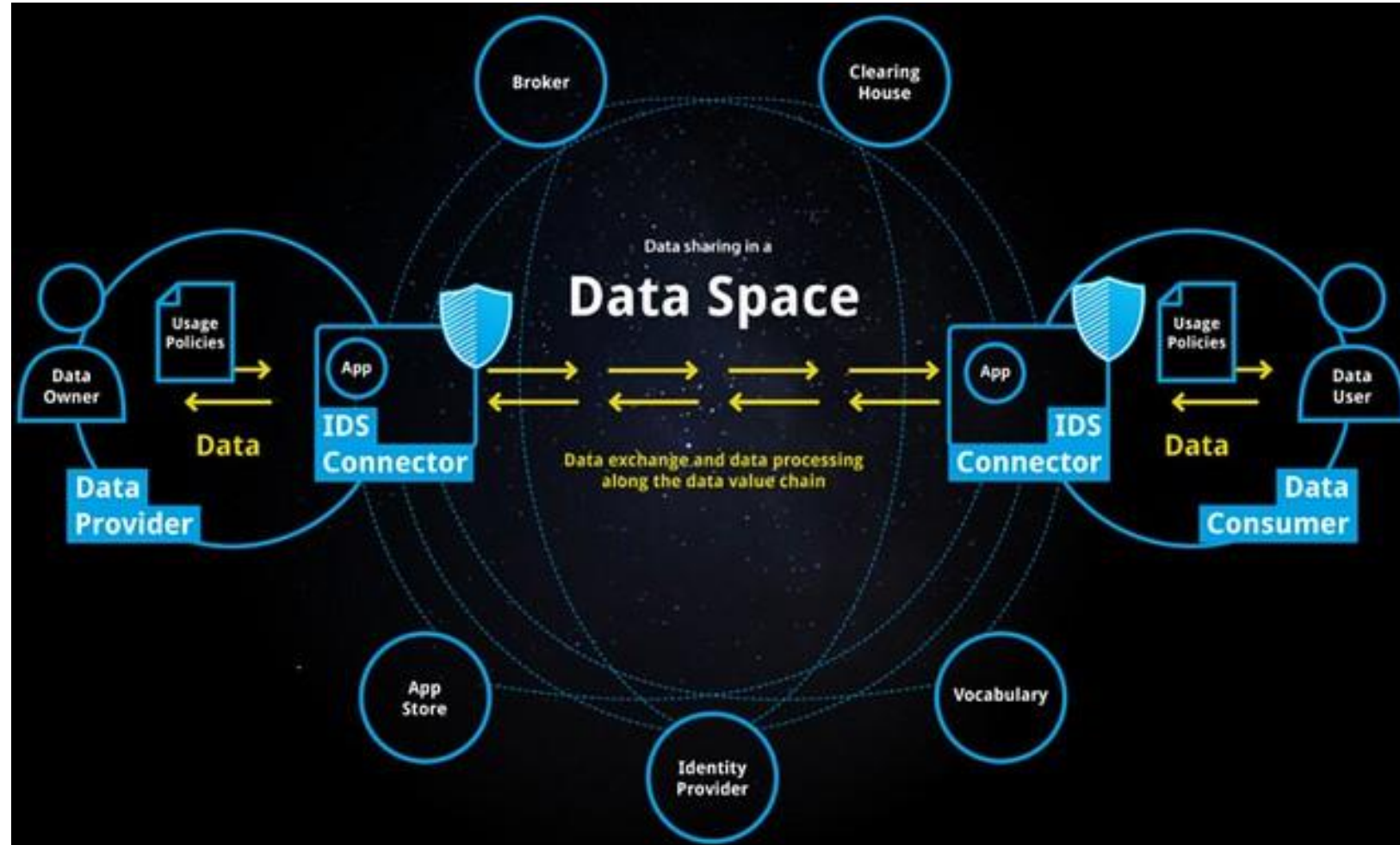
**Note:** *There are other stacks we did not explore! (e.g. other IDS Connectors)*

---

# Technology Stacks

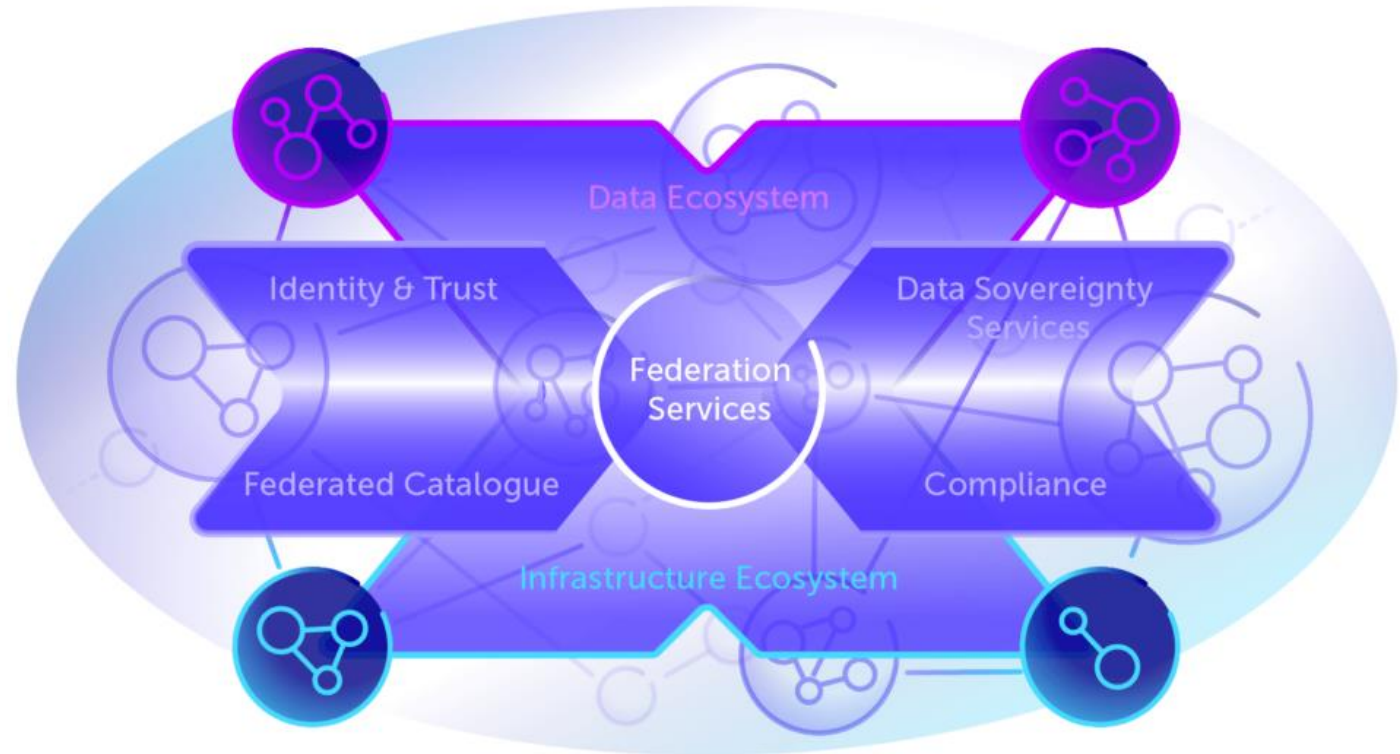
# Eclipse Dataspace Components (EDC)

- Based on the IDS framework, also adaptations to Gaia-X
- Contributions from projects and the community
- Connector architecture
- Modular components, allowing custom plugins
- Sample projects
  - Catena-X
  - Eona-X
  - Health-X dataLOFT



# Gaia-X Federation Services (GXFS)

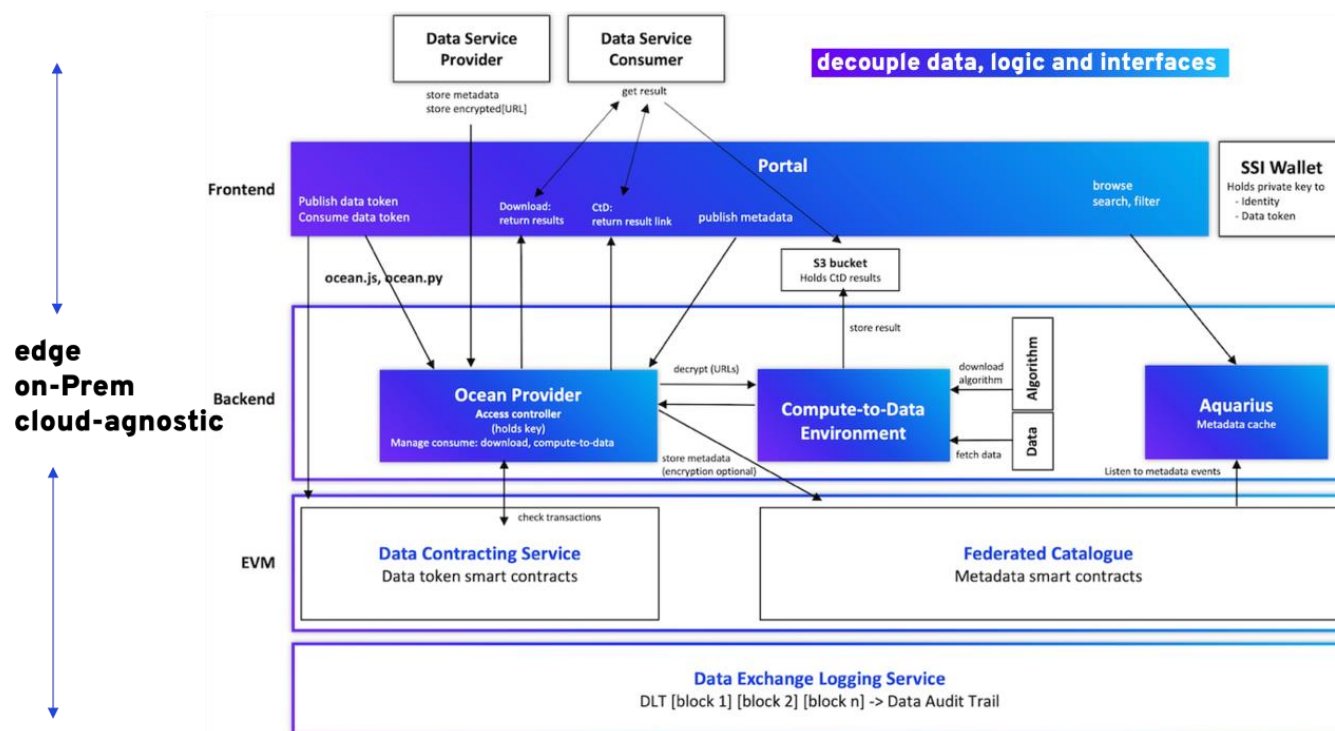
- Modular components
- Funded by the German Ministry for Economic Affairs and Climate Action (BMWK)
- Coordinated by eco – Association of the Internet Industry
- Generic focus (sharing data and services)
- To be used by German BMWK-supported projects



# Pontus-X

- Based on Web3 technologies, using Ocean Protocol and Polygon Labs software
- Developed by deltaDAO
- Uses own blockchain: GEN-X
  - Based on Proof of Authority
  - Operated by "validators"
- Includes "compute-to-data"
- Sample projects
  - EuProGigant
  - MoveID
  - Berlin State Library

## Modular components, based on a DLT core grid, without lock-in



Participants

Portal / API

**K8s / local or CSP**

Catalogue Cache  
Access Controller  
Compute-Cluster

**DLT Layer**

Catalogue  
Contracting  
Exchange Log

# Common characteristics



AIMED FOR DATASPACE



OPEN-SOURCE



RAPIDLY CHANGING

# Vision: interoperability across dataspaces

## federation of interoperable autonomous Gaia-X ecosystems

