Dataspaces Standardization
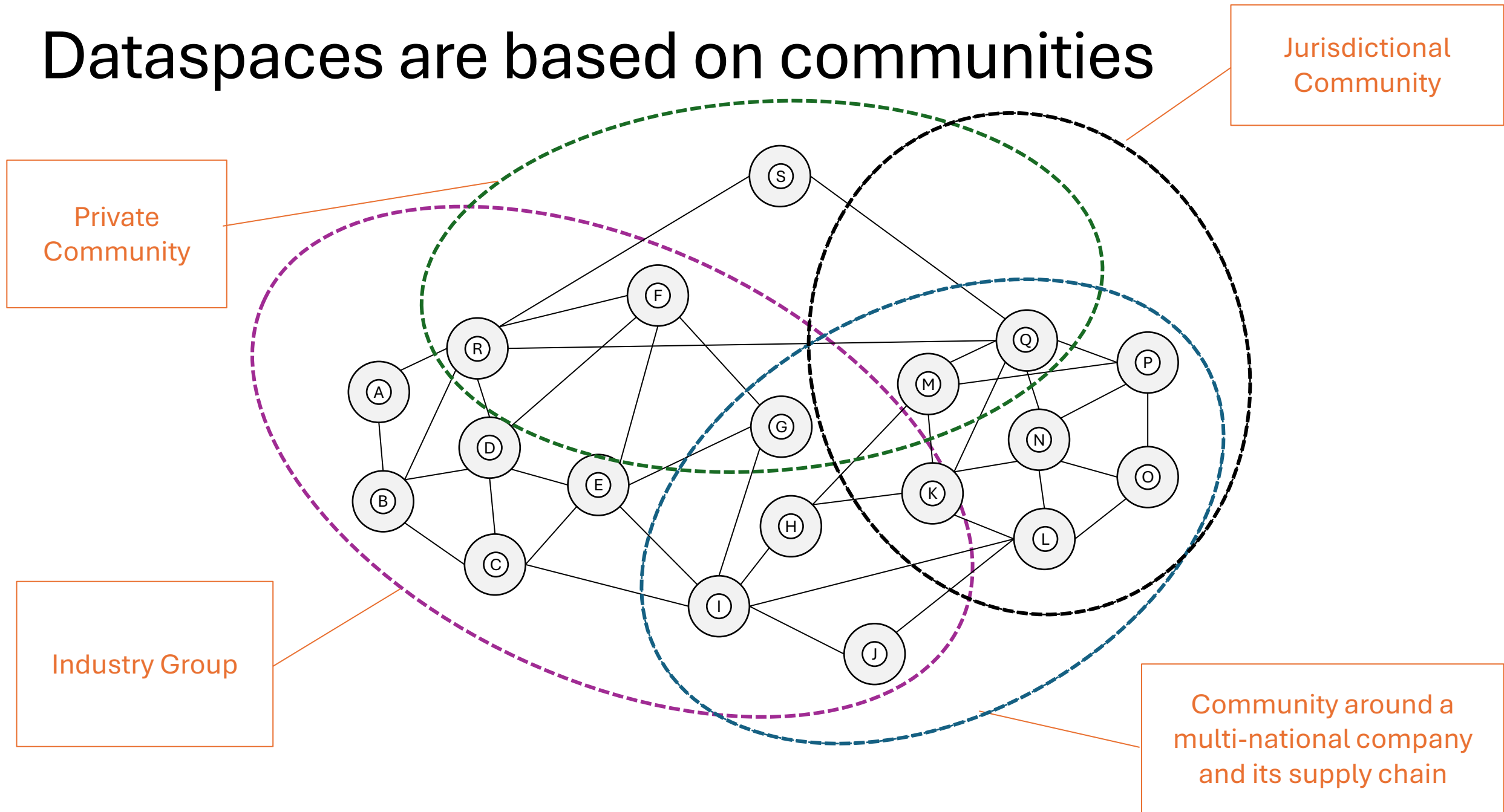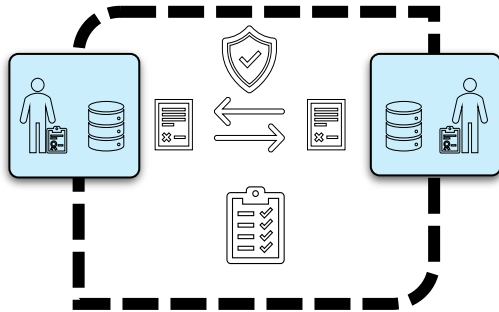
October 2025

Dataspaces are based on communities

Jurisdictional Community

Private Community

Industry Group

Community around a multi-national company and its supply chain
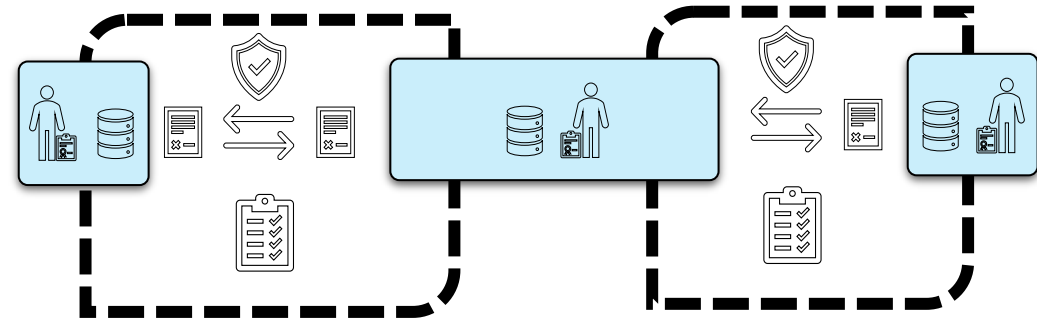
Interoperability Models

Intra-Dataspace

Inter-Dataspace

Interoperability Standards

Policy

Behavior

Transport

Semantic

Syntactic
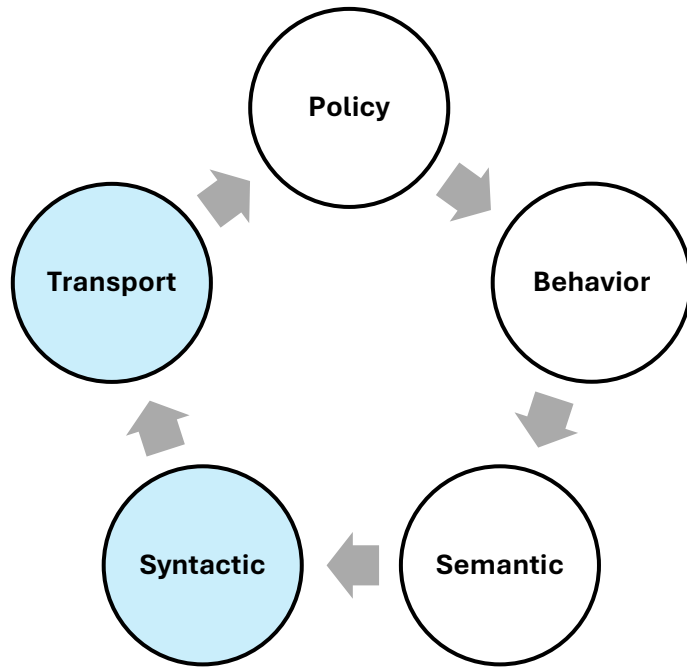
- ISO 19941 – Cloud Computing Interoperability and Portability
- -referenced in EU Data Act

Legal

Organizational

Semantic
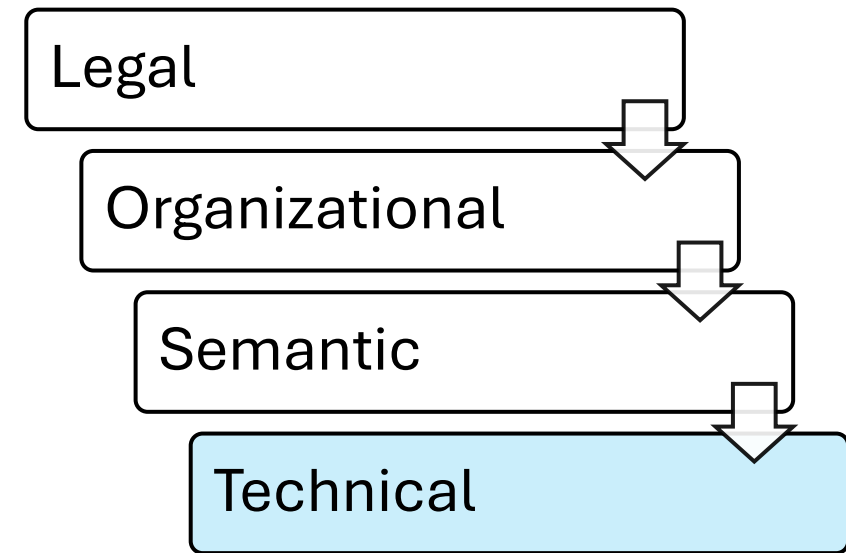
Technical

- European Interoperability Framework
  - -creating a digital single market
  - -improving interoperability
  - -boasting internet trust and security
  - -encouraging investment in R&D
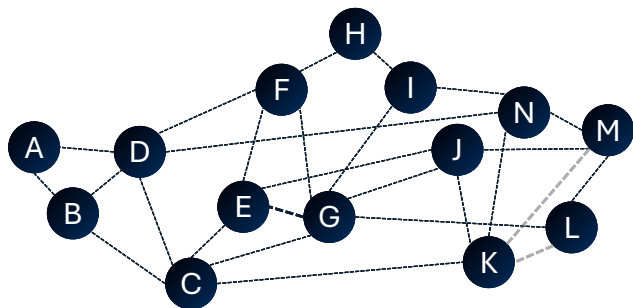
Technical Layer
"connecting agents"

Dataspace Protocol

Decentralized Claims Protocol

Conformity Assessment Policy and Credential Profile (CAP)

Data Rights Policies Profile (DRP)

Eclipse Dataspace Components
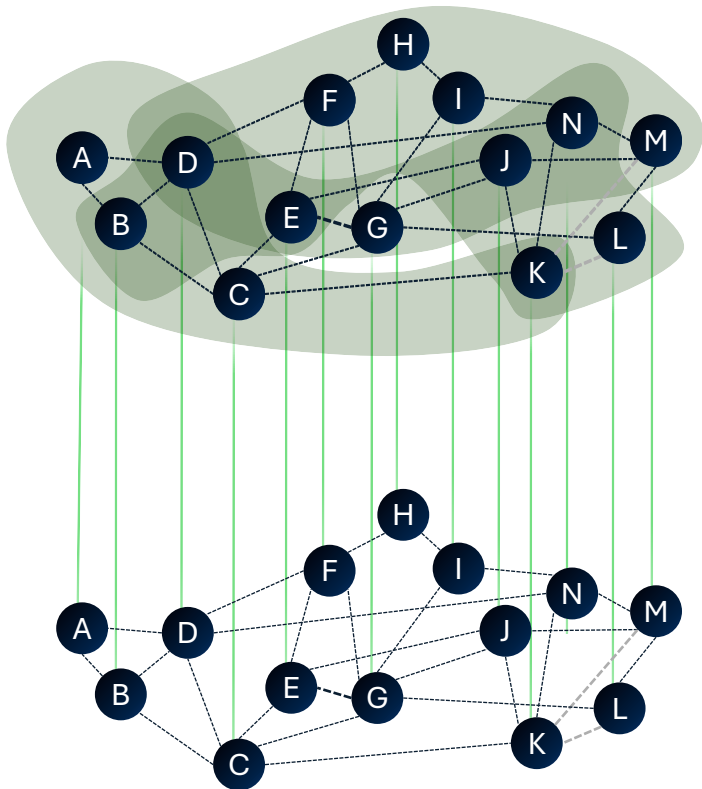
Business Layer
"connecting organizations"

Marketplace
Research Community
Supply Chain
PCF Reporting
...

Technical Layer
"connecting agents"

Dataspace Protocol
Decentralized Claims Protocol
Conformity Assessment Policy and Credential Profile (CAP)
Data Rights Policies Profile (DRP)
Eclipse Dataspace Components

Legislation Layer
"connecting nations"

National Sovereignty / Laws
Governance & Regulatory Regimes
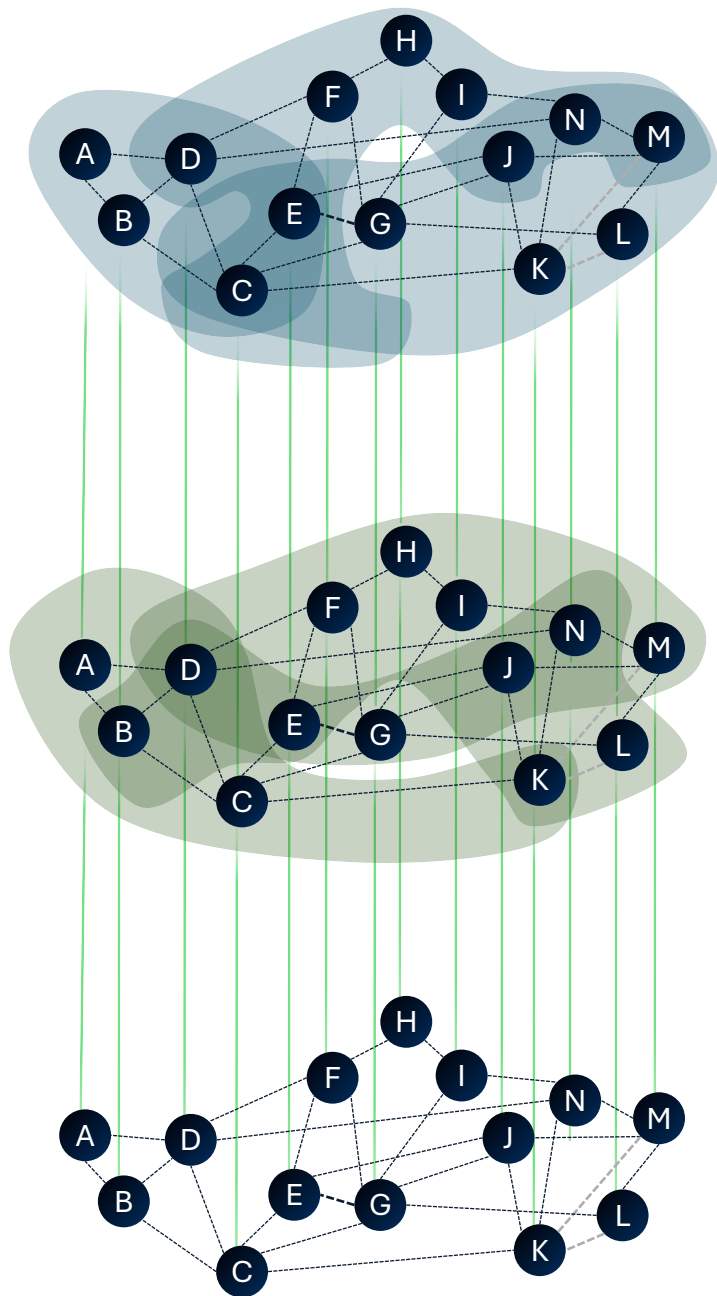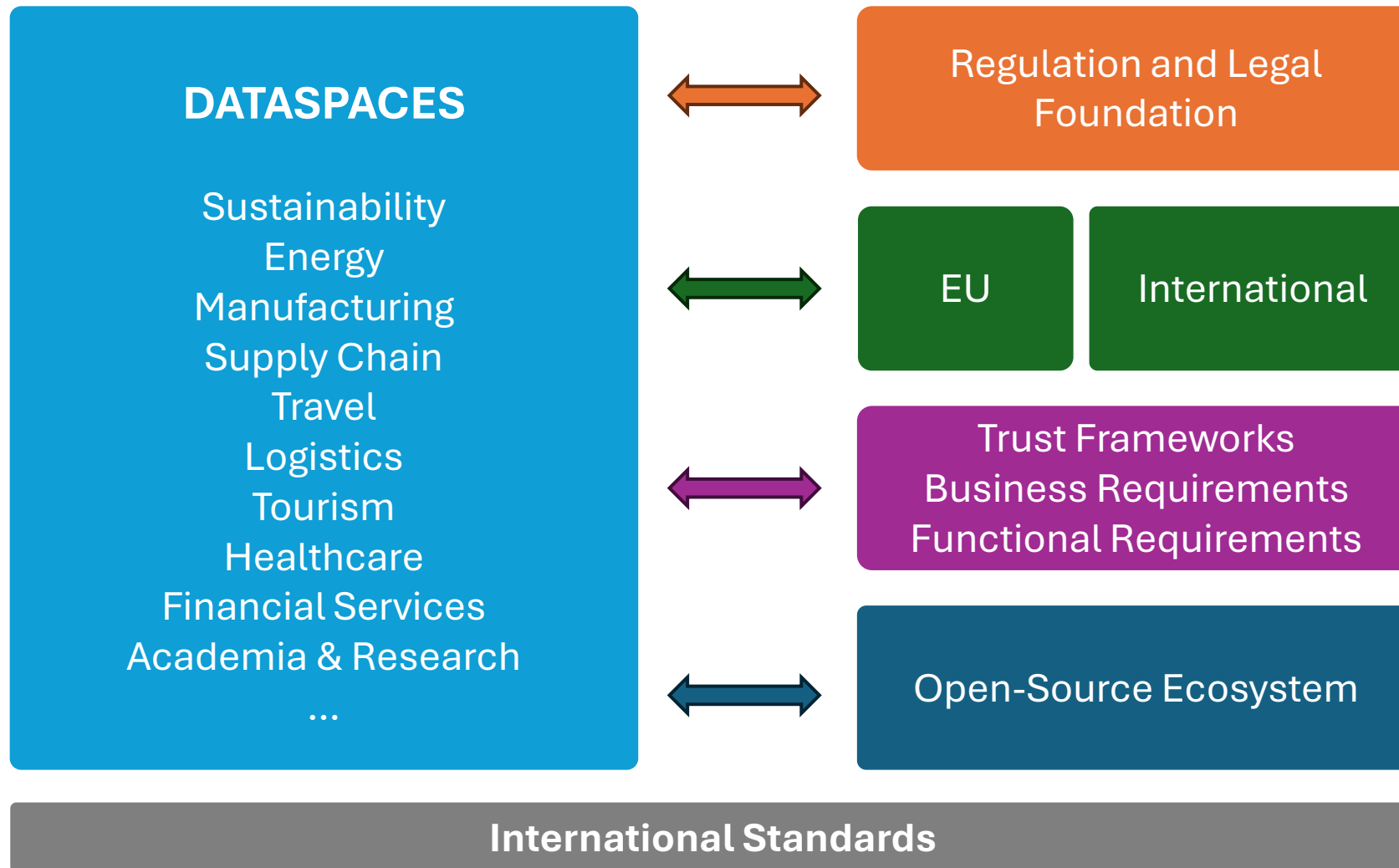International Agreements

Business Layer
"connecting organizations"

Marketplace
Research Community
Supply Chain
PCF Reporting
...

Technical Layer
"connecting agents"

Dataspace Protocol
Decentralized Claims Protocol
Conformity Assessment Policy and Credential Profile (CAP)
Data Rights Policies Profile (DRP)
Eclipse Dataspace Components

DATASPACES

Catena-X
Eona-X
Mobility Data Space
Sphin-X
Decade-X
SCSN
Factory-X
Aerospace-X
Omega-X
...

Governments

Trust Anchors

EU DSSC

International Dataspace Organizations

Trust Frameworks

IDSA

iShare

Gaia-X

Eclipse Dataspace Working Group (EDWG)

International Standards Organizations
(ISO, IEC, CEN/CENELEC, ETSI, W3C, IEEE, IETF, OASIS,...)

European Commission
Governments
Ministries
Public Sector
Regulators
Non-Profit/NGOs

Consultancies
Certification Body
Auditors

Cloud Providers
Software Vendors
Solution Integrators
Dataspace Service Provider
Data Service Provider
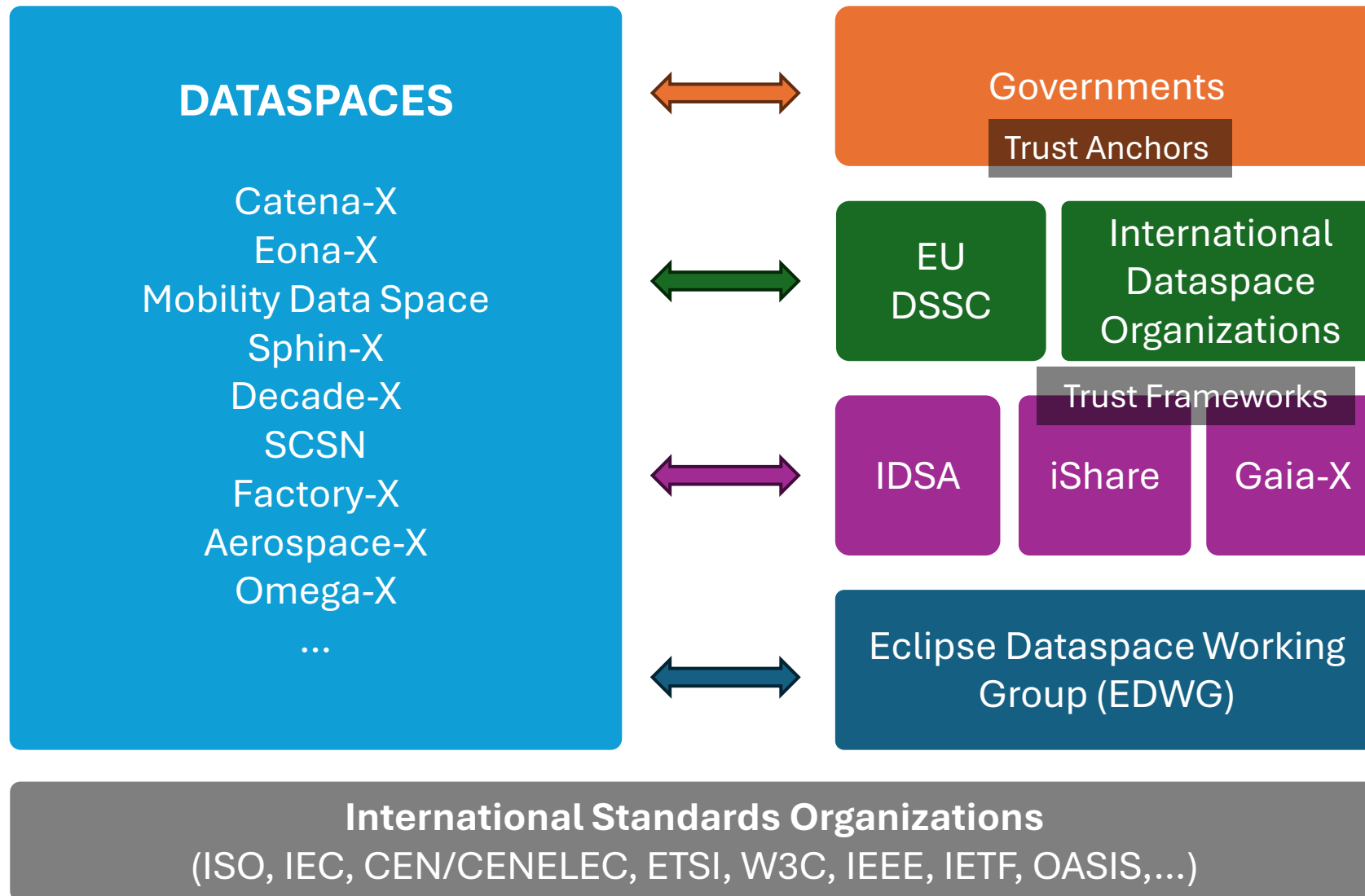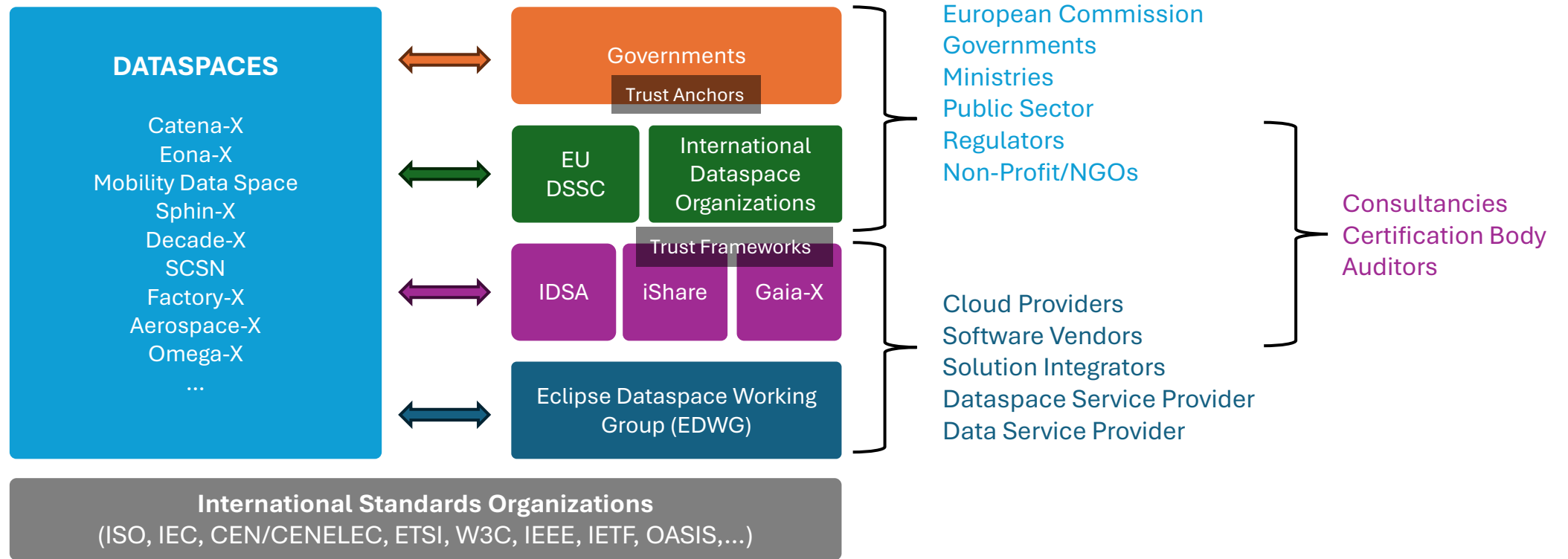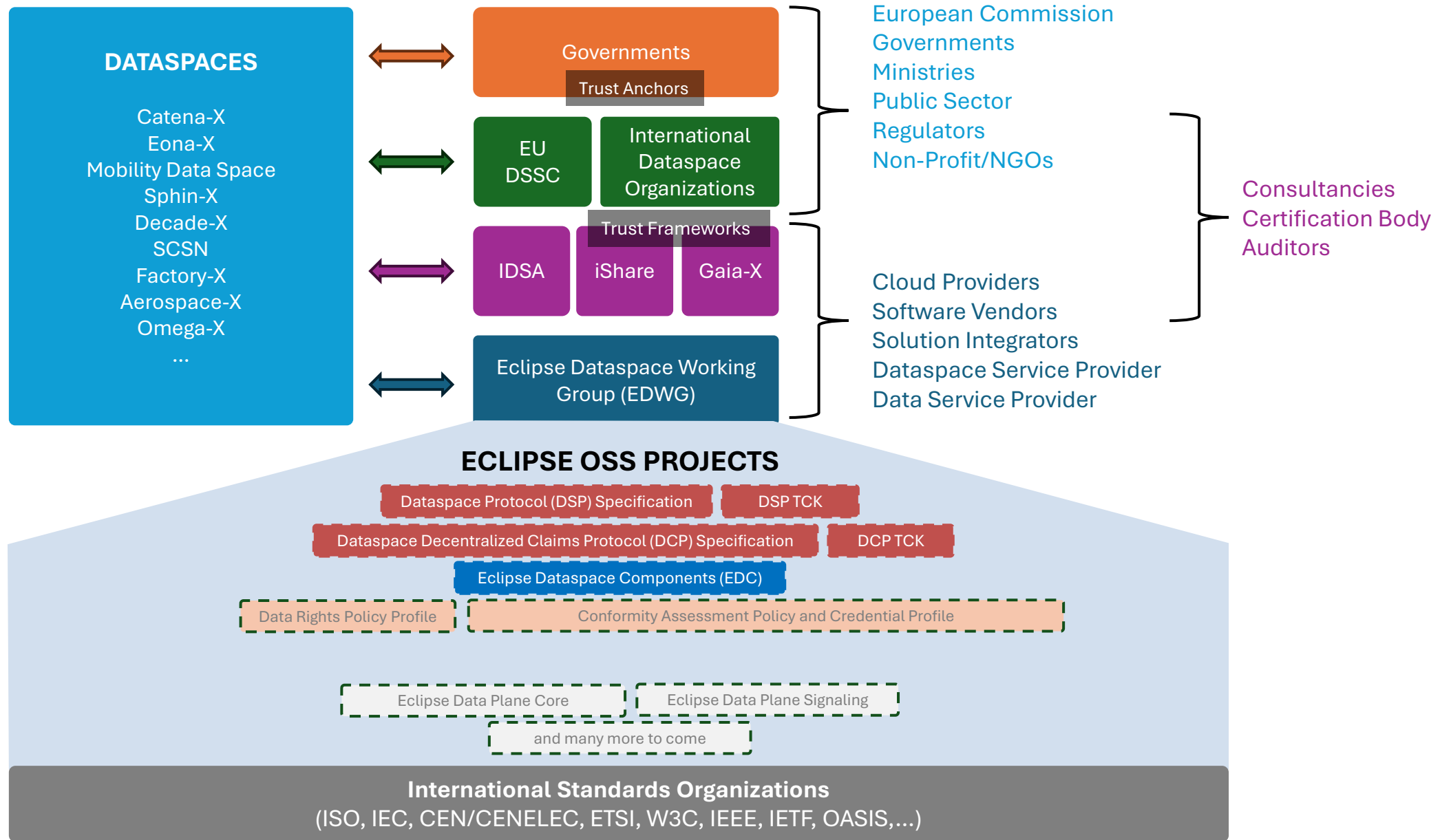
The Eclipse specification projects

Dataspaces & Enabling Service Provider

Trust Frameworks

Conformity Assessment Policy and Credential Profile

Data Rights Policy Profile

Implementations & Business Models

Eclipse Dataspace Components
EDC – Identity Hub (Claims Management)
EDC – Connector (Contract Negotiation)
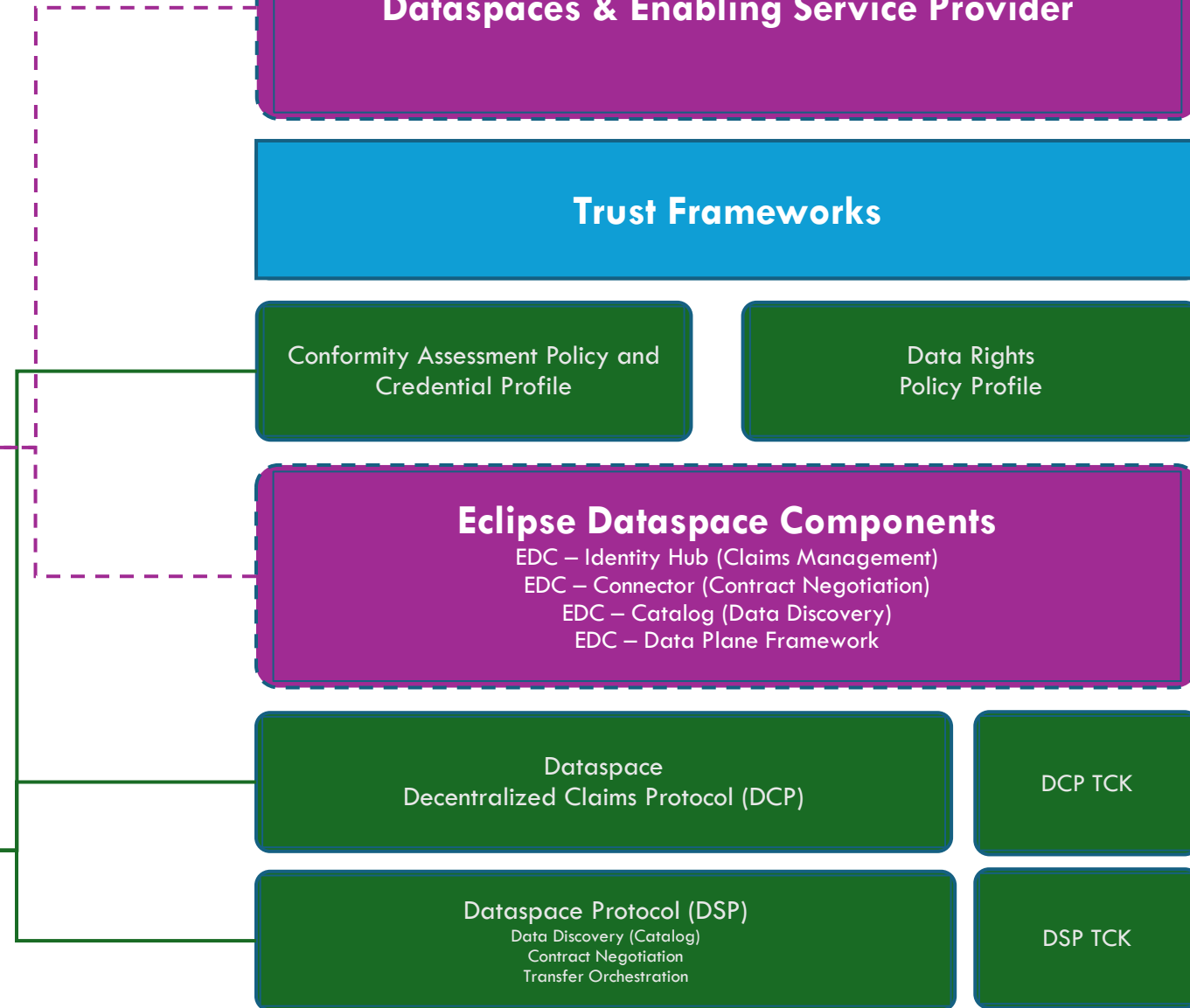EDC – Catalog (Data Discovery)
EDC – Data Plane Framework

Dataspace Decentralized Claims Protocol (DCP)

DCP TCK

Standardized Protocols & Semantic Profiles

Dataspace Protocol (DSP)
Data Discovery (Catalog)
Contract Negotiation
Transfer Orchestration

DSP TCK

Status and structure of DIS 20151

Dataspaces concepts and characteristics

SC38 DIS20151

» Editor is Geoff Clarke (Australia)

» Project was moved from WG5 to WG6

» Active liaison with Eclipse Foundation

» Active liaison with SC41 IoT and Digital Twins (and others)

» Active liaison with CEN/CENELEC JTC 25

- Trusted data sharing using dataspaces
- Relation to organizational autonomy and organizational interoperability
- Characteristics
- Maintain control
- Trust
- Discover data
- Negotiate data-sharing contracts
- Orchestrate data-sharing and data-use
- Observability
- Interoperability

- Logical components
- Multi-level policies
- Semantic models
- Communication protocols
- Processes and rules

DIS Ballot closing on October 13, 2025
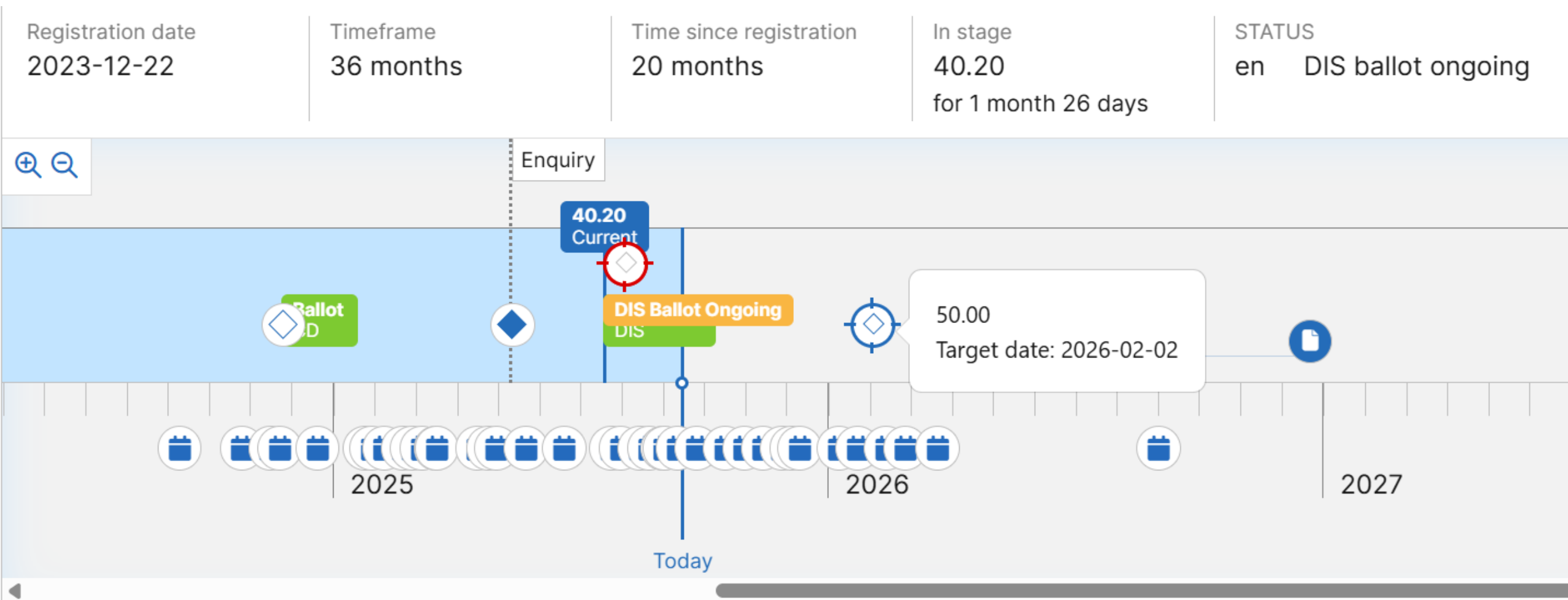
Dataspace Protocol

Roadmap and timeline

MS 1: Initial Contribution, July 2024 (achieved)
- MS 2: Project is fully operational, October 2024 (achieved)

MS 4: Successful Progress Review
- MS 5:DSP TCK alpha 2, April 2025
- MS 6: DSP Release Candidate and TCK Beta, May 2025

MS 8: DSP Release 1
- MS 9: Start of PAS Transposition to ISO, August 2025
- MS 10: Initiating planning for the next release, October 2025

Feb. 2025

July 2024

Mar. 2025

May–June 2025

July 2025

MS 3: DSP Editor's Draft and TCK alpha 1

MS 7: DSP Release review

Finalizing the Explanatory Report for DSP and DCP in collaboration with the PAS Mentor

Information technology — Cloud computing and distributed platforms — Use cases for dataspaces

New Project in ISO/IEC JTC1 SC38

- Scope: This document describes use cases for dataspaces covering trusted data sharing scenarios, interoperability and business value at various levels and ecosystems based on ISO/IEC 20151 and ISO/IEC 19941

- Assignment: WG: 6

- Editor: Eric Samson (FR)

- Timeline: 36 months

- DTR Target Date: 2027-09-01 (Expected drafting time 6-9 month)

Dataspace Trust Frameworks

New PWI in ISO/IEC JTC1 SC38

- Scope: Explore concepts for the standardization of Dataspace Trust Frameworks (DTFs), describing guidance for their creation and comparison, including their essential and optional elements and related aspects.

- Assignment: WG 6

- Project Editor: Geoff Clarke (AU)

EC Standardisation request European Trusted Data Framework

ANNEX I

List of new European standards and European standardisation deliverables to be drafted as referred to in Article 1

Table 1:   List of new European standards and European standardisation deliverables to be drafted and deadlines for their adoption

	Reference information	Deadline for the adoption by the ESOs
1.	Harmonised standards on Trusted Data Transactions Part 1: Terminology, concepts and mechanisms	1 June 2026
2.	Harmonised standards on Trusted Data Transactions Part 2: Trustworthiness requirements	1 November 2026
3.	Harmonised standards on Trusted Data Transactions Part 3: Interoperability requirements	1 May 2027
4.	Technical specification(s) on a data catalogue implementation framework	1 March 2026
5.	Technical specification(s) on an implementation framework for semantic assets	1 September 2026
6.	European standard on a quality framework for internal data governance	1 March 2027
7.	Technical specification(s) on a maturity model for Common European Data Spaces	1 September 2026

CEN/CLC JTC 25

- WG 1 — Advisory Group
- WG 2 — Dataspaces
- WG 3 — Data Management and Governance
- WG 4 — Cloud and Edge

WG 2 Dataspaces

ETSI TC DATA

WG 3 Data Management and Governance

WG 2 Dataspaces

CEN\CENELEC JTC 25 Data management, Dataspaces, Cloud and Edge TC

- **TDT Part 1.** Editing finalized. Submission to CCMC

- **TDT Part 2**. Delay. Drafting phase. Comments review.

- **TDT Part 3.** Drafting phase. Call for contributions.

- **Maturity Model for CEDS.** Drafting phase. Call for contributions phase

- **Next meeting 30/09/2025, focus topic: Part 1 comments**
- **Plenary meeting in Berlin, October 7th to 10th, 2025**

New Eclipse Project – Eclipse Data Plane Signaling (specification)

- https://projects.eclipse.org/proposals/eclipse-data-plane-signaling

- Description:
  - The Eclipse Data Plane Signaling specification defines an interoperable
    protocol for DSP control planes to communicate with data planes.

- <u>Important features:</u>

- Supports Push and Pull Data Transfers

- Supports Finite and Non-Finte Data

- Back Channels
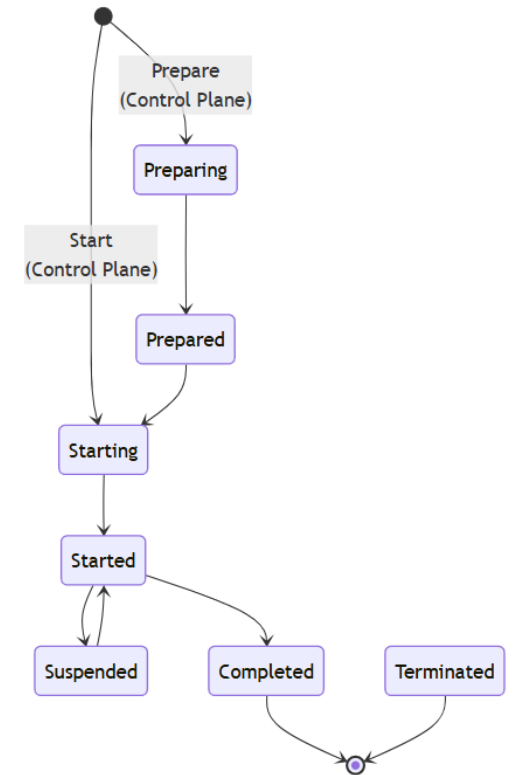
New Eclipse Projects – Eclipse Data Plane Core

- https://projects.eclipse.org/proposals/eclipse-data-plane-core

- Project Description:

- The Eclipse Data Plane Core project provides:

- Data plane SDKs for Go, Java, .NET, Rust, and Typescript. Other languages may be added in the future based on community feedback.

- A Rust-based data plane implementation for transferring data over HTTP compatible with the Data Plane Signaling Specification.