Data Act & Data Spaces

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Chapter VIII of the Data Act

- Focuses on **interoperability and standards**, laying the foundation for seamless **data exchange** between and **within data spaces**.

- Ensures that data spaces facilitate **collaboration and innovation** across diverse sectors through common standards and protocols, creating interconnected ecosystems.

- Mandates essential requirements for participants, emphasizing **privacy and security standards to foster trust** and encourage broader participation in data ecosystems.

Interoperability of Data (Article 33)

- **Article 33** highlights the essential requirements for **interoperability of data, data sharing mechanisms, and services**, as well as the **common European data spaces**.

Facilitation of Cross-Sectoral Data Sharing

- Emphasizes the creation **of sector-specific and cross-sectoral interoperable frameworks** for sharing or jointly processing data for new products, scientific research, and civil society initiatives.

Data Quality and Accessibility:
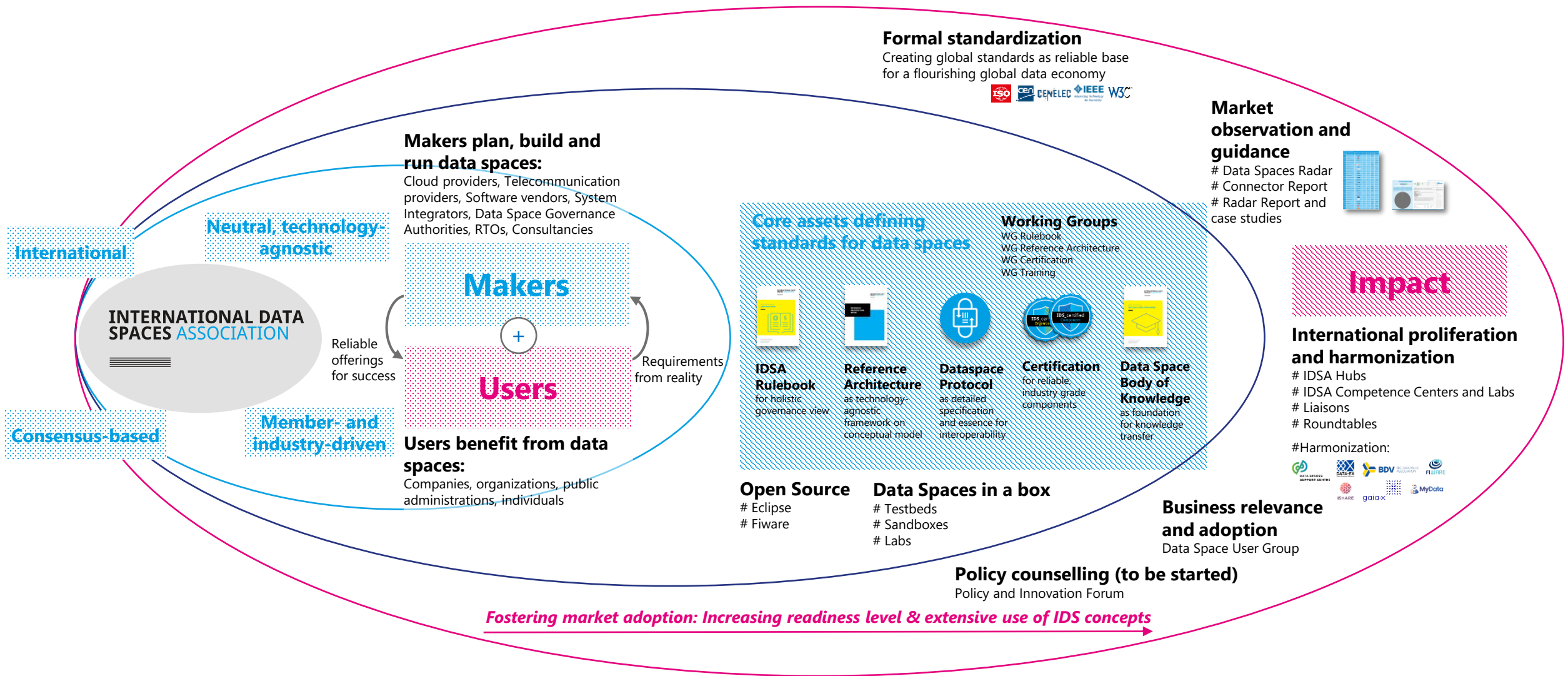
- Participants offering data must provide **sufficient metadata**
- Ensures a high level of **data quality**, which is crucial for **AI-driven applications** within the data spaces framework.
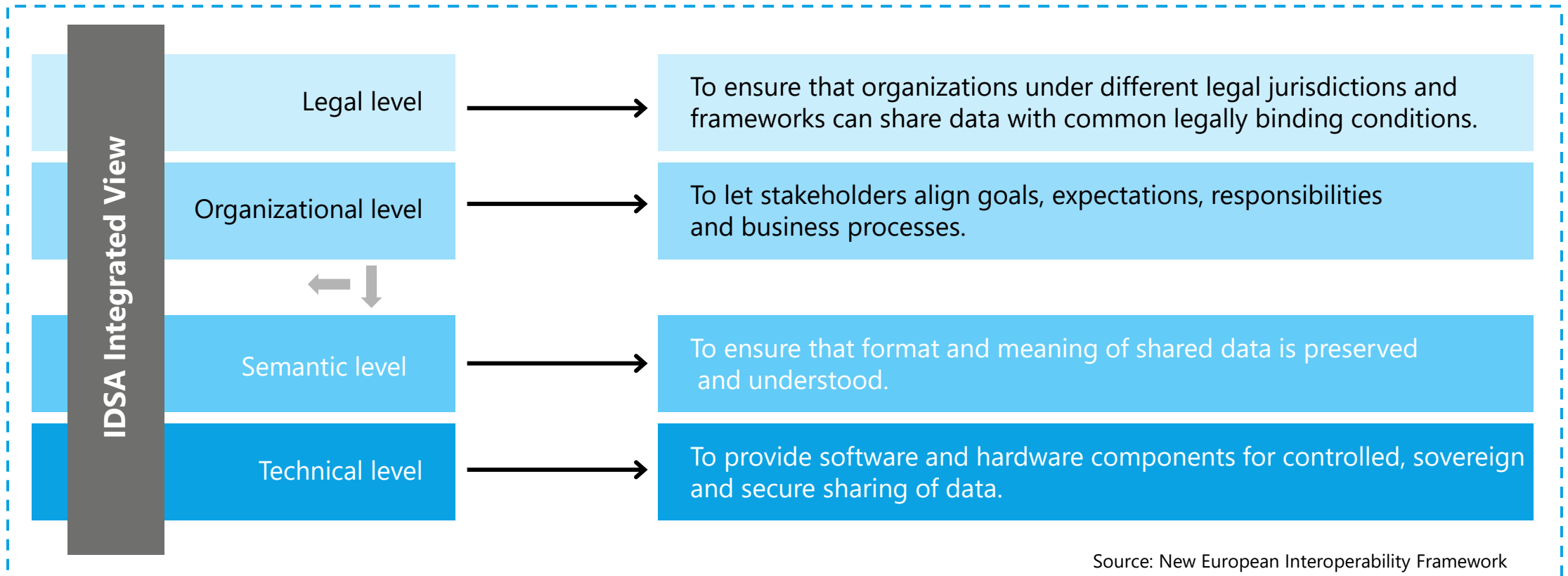
Compliance with Standards:

- The Data Act requires **compliance** with **harmonized standards and common specifications** to ensure that data spaces operate within a **uniform regulatory framework**.

A holistic approach to bring data spaces to global scale

IDSA defining global standards for data spaces

Formal standardization
Creating global standards as reliable base for a flourishing global data economy

ISO   CENELEC   IEEE   W3C

Market observation and guidance
Data Spaces Radar
Connector Report
Radar Report and case studies

Makers plan, build and run data spaces:
Cloud providers, Telecommunication providers, Software vendors, System Integrators, Data Space Governance Authorities, RTOs, Consultancies

Neutral, technology-agnostic

International

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Makers

+

Users

Reliable offerings for success

Requirements from reality

Consensus-based

Member- and industry-driven

Users benefit from data spaces:
Companies, organizations, public administrations, individuals

Core assets defining standards for data spaces

Working Groups
WG Rulebook
WG Reference Architecture
WG Certification
WG Training

IDSA Rulebook
for holistic governance view

Reference Architecture
as technology-agnostic framework on conceptual model

Dataspace Protocol
as detailed specification and essence for interoperability

Certification
for reliable industry grade components

IDS_cert Organization   IDS_certified Component

Data Space Body of Knowledge
as foundation for knowledge transfer

Open Source
Eclipse
Fiware

Data Spaces in a box
Testbeds
Sandboxes
Labs

Impact

International proliferation and harmonization
IDSA Hubs
IDSA Competence Centers and Labs
Liaisons
Roundtables

#Harmonization:

DATA SPACES SUPPORT CENTRE   DATA-EX   BDV   FIWARE   iSHARE   gaia-x   MyData

Business relevance and adoption
Data Space User Group

Policy counselling (to be started)
Policy and Innovation Forum

Fostering market adoption: Increasing readiness level & extensive use of IDS concepts

Layered model for interoperability

IDSA Integrated View		
	Legal level	To ensure that organizations under different legal jurisdictions and frameworks can share data with common legally binding conditions.
	Organizational level	To let stakeholders align goals, expectations, responsibilities and business processes.
	Semantic level	To ensure that format and meaning of shared data is preserved and understood.
	Technical level	To provide software and hardware components for controlled, sovereign and secure sharing of data.

Source: New European Interoperability Framework

- **Intra data space interoperability,** between the data space authority, processing, and data sharing building blocks within a single data space instance

- **Cross data space interoperability,** between multiple data space instances at each of the functional levels

The Dataspace Protocol

Advancing interoperability

A **growing number of connectors** is witnessed. But how do we ensure that these connectors are **interoperable**?
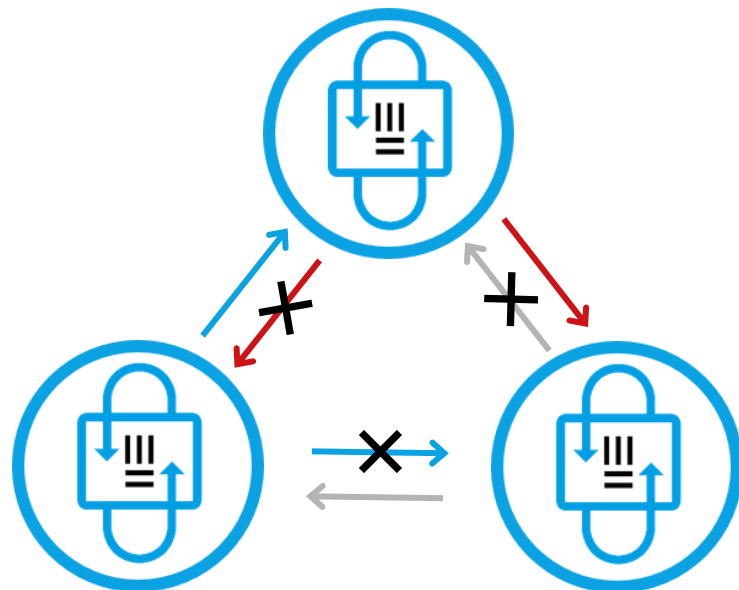
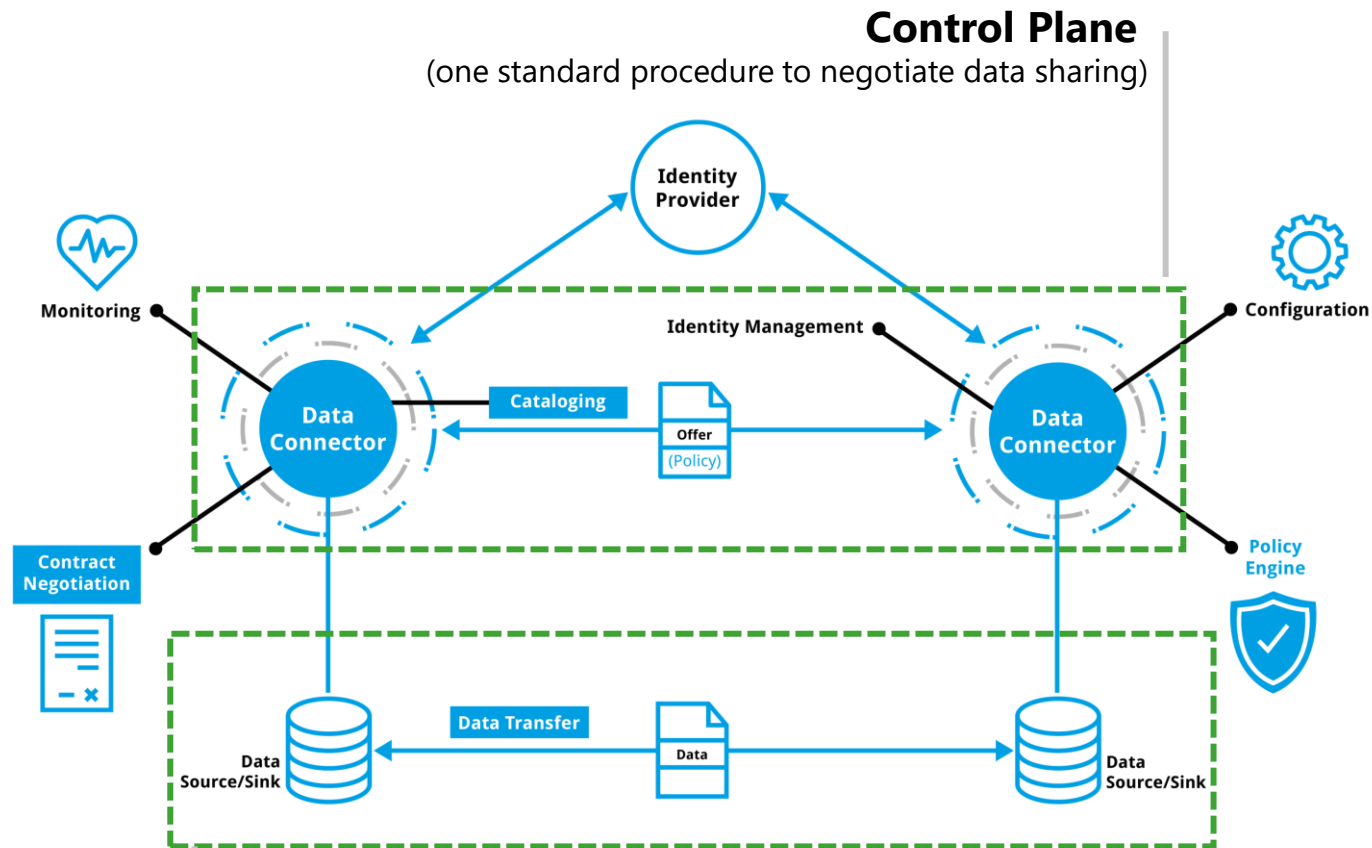Initiating the implementation of the **Dataspace Protocol**

Check Dataspace Protocol:

* *Data Connector Report*
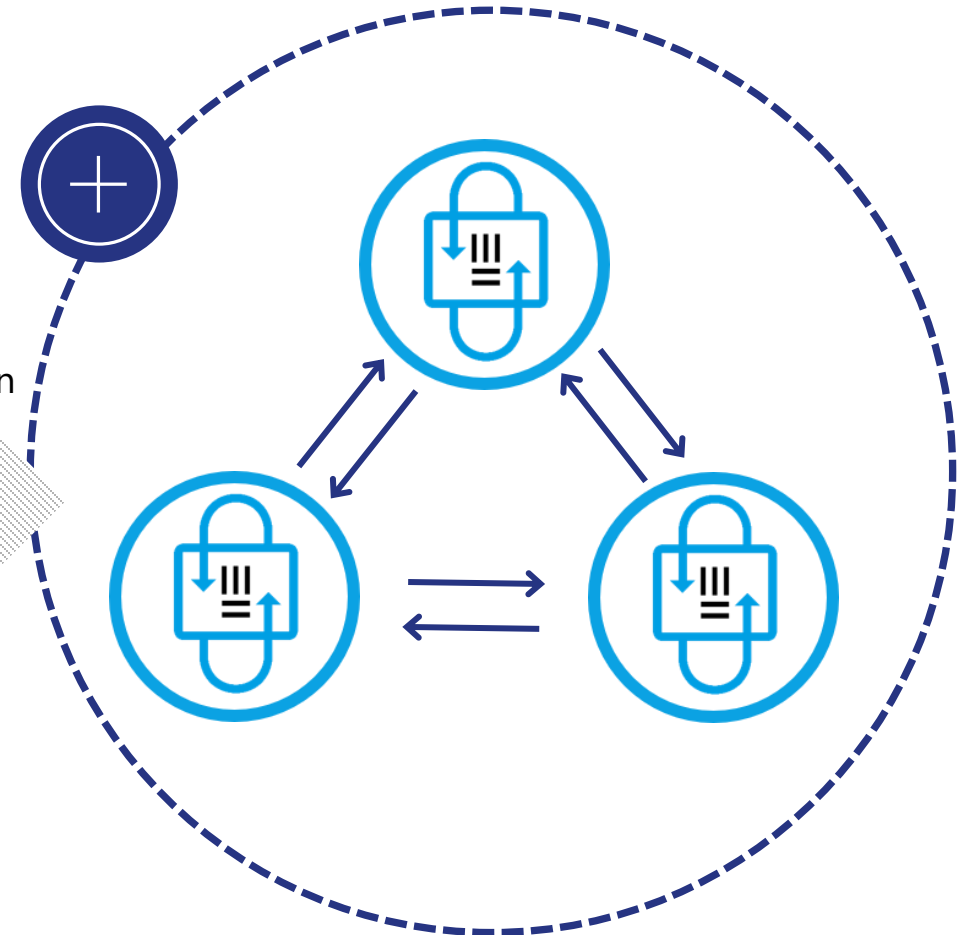
The need for Dataspace Protocol

Ensuring data space interoperability

Control Plane
(one standard procedure to negotiate data sharing)

Identity Provider

Monitoring

Identity Management

Configuration

Cataloging

Data Connector

Offer
(Policy)

Data Connector

Contract Negotiation

Policy Engine

Data Transfer

Data Source/Sink

Data

Data Source/Sink

Data Plane
(several possible for different data sharing scenarios:
confidential data sharing, streaming data, event based data, edge devices, …)
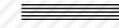
Promotes seamless technical interoperability, while addressing certain aspects of semantic interoperability.

Enables standardized data exchange across different data space instances.

Provides flexibility and scalability through the separation of control plane and data plane.

Standardization activities on Data Spaces

Creating a common foundation for interoperability

ISO 20151 – data space concepts and characteristics
What is a data space? Do I have a data space or not?
Am I compliance with the standard?

*Participants join
Data Spaces*

*Framework
for data spaces*

*Trusted Data Transactions
can happen in Data Spaces*

Dataspace Protocol
*Specifications including
compatibility testing*
Serves as the central
mechanism for implementing
data exchange, ensuring
trust, efficient and
***interoperable
communication between
the data spaces***.

Participant perspective
Am I, as a participant, complying with the
data space? Can I join the data space?.

*Interoperability
standards*

Trusted Data Transactions
National standards and regulations.
Data space can provide a framework for
national standards. And data spaces show
interoperability of national standards with DSP

*DSP provide measures
to comply to interoperability*

Standardization activities on Data Spaces

What is the IDSA contribution?

ISO 20151 – data space concepts and characteristics
Based on the IDSA Rulebook and in line with the IDSA
Rulebook – in CD stage (30.20), to be finalized in 2026

*Digital Sovereignty &
Organizational Autonomy/
Data Governance*

*Framework
for data spaces*

Management of Data Rights

Dataspace Protocol
*Specifications including
compatibility testing*
Project under the umbrella of
the Eclipse Foundation to be
transposed to an ISO
standard via PAS Submission
in 2025

Trusted Data Transactions
Data Sharing and Data Spaces are subject to
national regulations and standards. Those
should be based on international standards.
The European Trusted Data Framework utilizes
IDSA-based standards and comes to live in
2025 and 2026.

Participant perspective
Am I, as a participant, complying with the
data space? Can I join the data space?.

*Interoperability
standards*

*DSP provide measures
to comply to interoperability*

How DSP supports the Data Act

DSP provides a technical and operational framework to meet art. 33

	Data Act (Article 33)	Dataspace Protocol
Technical interoperability	Requires participants in data spaces to ensure **interoperability**	Provides a **technical standard**.
	Use **machine-readable format** to allow discovery, access, and use. This includes data structures, formats, taxonomies, and API terms	Ensures data and metadata interoperability (**formats** like **JSON-LD**).
	APIs enables automatic, real-time, or bulk access	Implements standardized APIs for **data access and exchange**. The protocol supports **continuous data flows**, secure data transmission.
Governance	Introduce **smart contracts** for automating data-sharing agreements to improve interoperability.	Ensure **usage control** and **data sovereignty** principles, using tools like **smart policies.**
Harmonization	Use of **harmonized standards** (developed by EU standardization bodies) to comply with essential requirements.	Aligns with global standards (e.g., W3C, ISO, GAIA-X) CEN/CENELEC and European standardisation initiatives to create harmonized specifications for data spaces.

INTERNATIONAL DATA SPACES ASSOCIATION

Silvia Castellvi

Director research & standardization

www.internationaldataspaces.org

+49 162 2104371

silvia.castellvi@internationaldataspaces.org

International Data Spaces Association

Thank you for your contributions!

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