



TwInsider Session #2: Digital Twins x Data Spaces

Online workshop | 6 November 2025

Sonia Jiménez

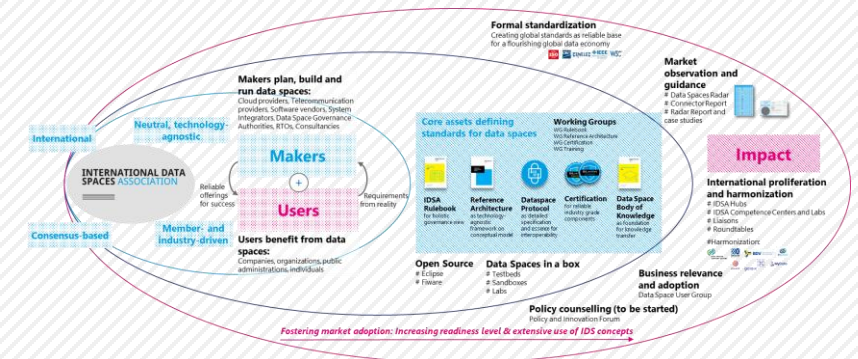
Director Data Space Technology, IDSA

IDSA – state of the union

What we have achieved, where we are

- IDSA has set the **foundation for data spaces and coined the term** (national data strategies and business frameworks are built on IDSA groundwork)
- **IDSA is a neutral**, true international, member-driven and consensus-based organization
- **ONE framework for data spaces** as soft infrastructure for a flourishing data economy and to enable AI
- **All relevant players** on board (users, providers, policy makers)
- **Global reach** (members from all over the world – all continents, hubs and research centers in relevant economic areas)
- **All running data spaces are built upon IDSA concepts** (150+ data spaces on our radar)
- Relevant **technology is in place** and will be brought to broad commercial offerings
- **Global standardization** ensures industry grade quality and wide adoption

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Standardization and harmonized frameworks - why now?

It's time to provide clarity

Market demand for **mature, standardized data spaces** is increasing

Existing definitions **lack prescriptive clarity** – ISO/IEC 20151 fills this gap

Standardizing data spaces aligns with the growing need for **standardized digital business environments**, such as cloud



Scaling data spaces – a joint and global endeavor

Why standardization matters

Interoperability: Connect seamlessly with partners across industries and regions.

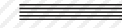
Trust: Ensure sovereign and secure data sharing with verified partners.

Scalability: Grow your data sharing ecosystem without technical limitations.

Compliance: Meet global regulatory requirements.

Stability: Avoid costly rework and secure long-term ROI

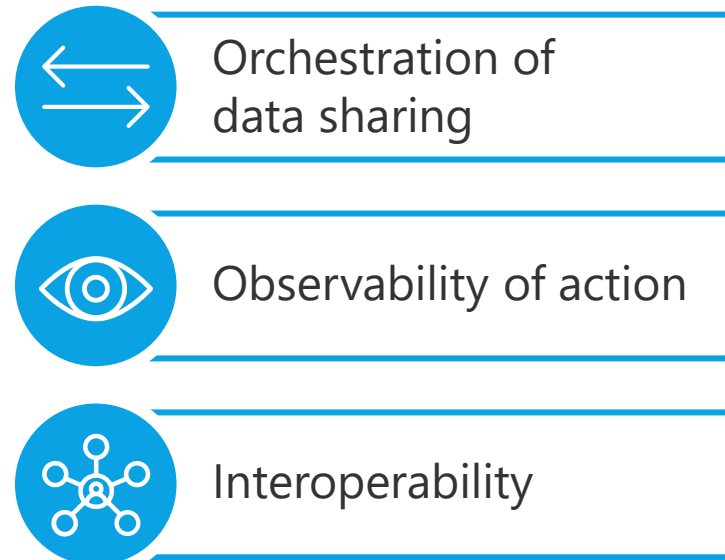
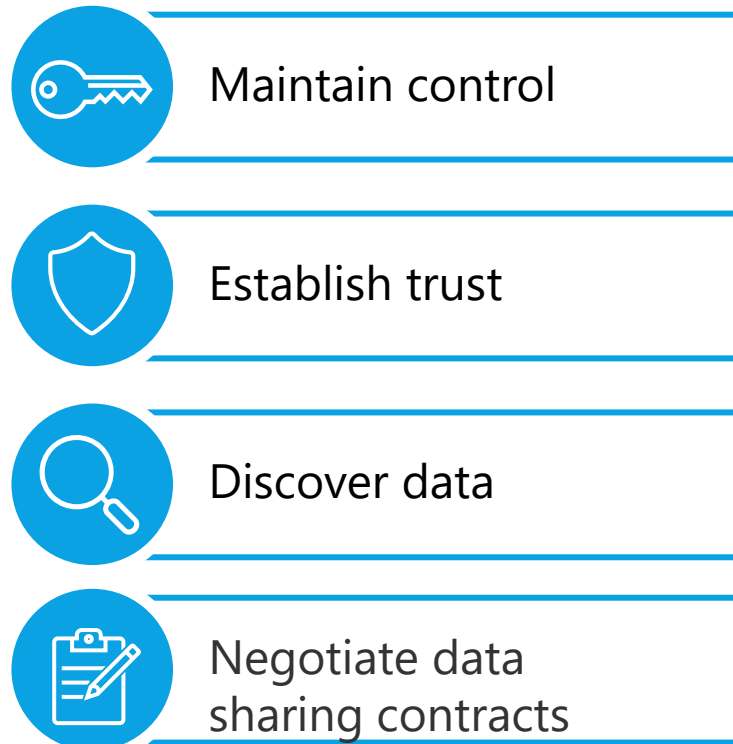
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- Standards may appear abstract, but they are what makes collaboration possible at scale.
- Think of how container sizes transformed global trade, or how GSM made mobile networks interoperable across borders.
- Data spaces need the same kind of common understanding if they are to grow beyond isolated pilots.



Data space characteristics | ISO/IEC 20151



Functional components

- Multi-level policies
- Semantic models
- Communication protocols
- Processes and Rules



ISO/IEC CD 20151
Dataspaces concepts
and characteristics

More to do: The work of IDSA in the context of other standardization efforts

Integrating global standards

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Align with European Standardization Bodies

- CEN\CENELEC JTC 25 Data management, Dataspaces, Cloud and Edge – workinggroups 1 - 4
- Harmonized standards on European Trusted Data Framework

Alignment with legal and regulatory requirements

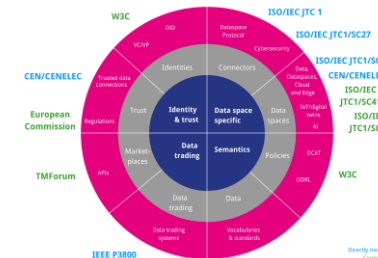
- DATA ACT, Data Governance Act
- AI ACT
- PIPL/GDPR
- ...

International Standardization Efforts

Ensuring global applicability and adoption:

- ISO/IEC AWI 20151 Dataspace Concepts and Characteristics – is now DIS!
- ISO/IEC TS 10866 Digital Sovereignty and organizational autonomy
- NEW PWI in ISO/IEC JTC1 SC38: use-cases for data spaces
- NEW PWI in ISO/IEC JTC1 SC38: Dataspace Trust Frameworks
- Ongoing :Support for semantic interoperability (W3C) DCAT and ODRL policy model

Holistic Standardization



Asian Standardization efforts

- China: TC609 – trusted data spaces, collaboration with CESI
- Japan: ODS RAM – collaboration with DADC
- Japan: IEEE P3800, 3800.1, 3800.2
- ...

Open-source specification projects

Eclipse Foundation:

- Dataspace Protocol
- Decentralized Claims Protocol
- NEW: Data Plane Signaling
- NEW: Data Plane Core

A global soft infrastructure for data spaces – like GSM for mobile telecommunication

National flavors and power by using global standards

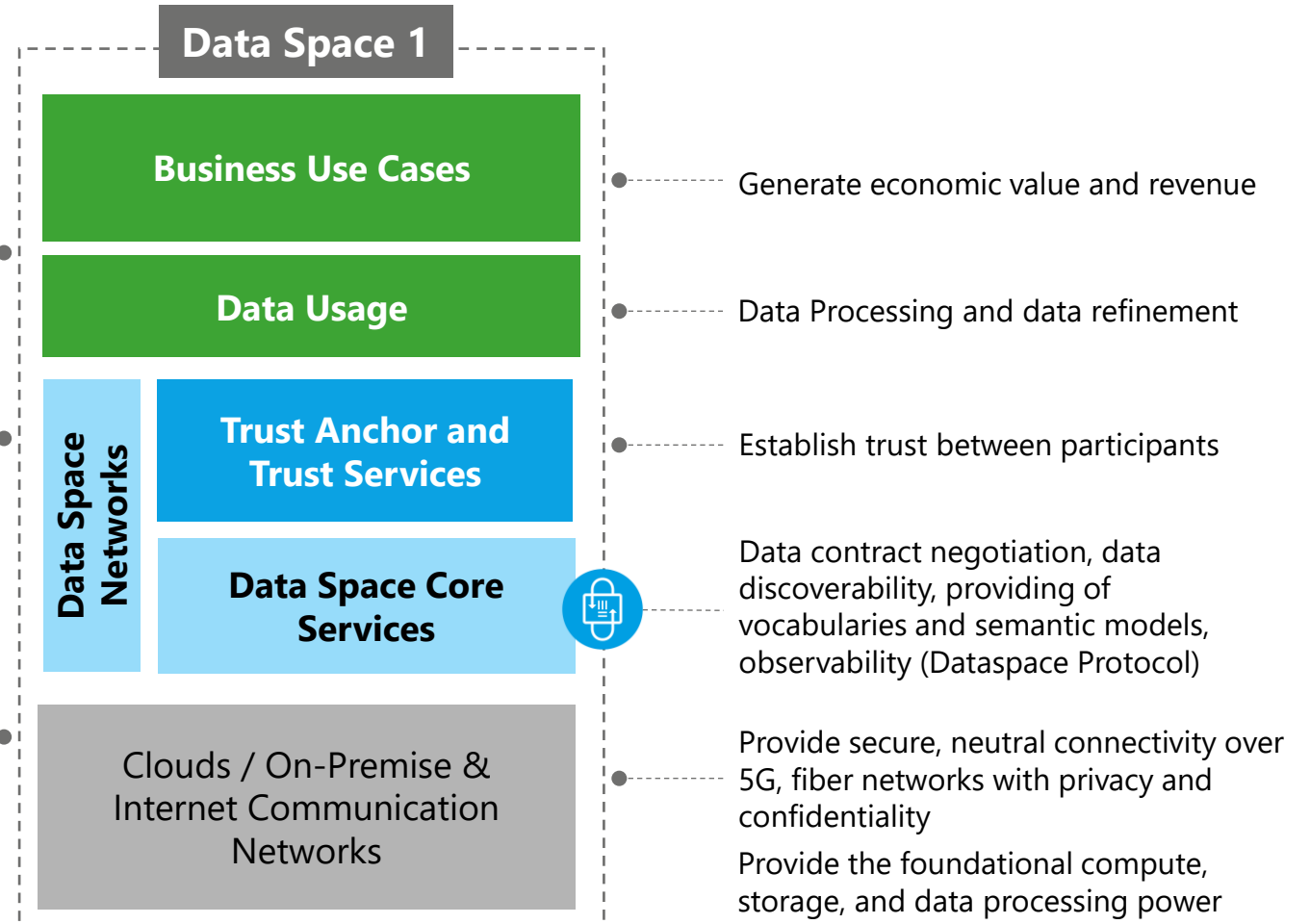
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Specific data strategies and standards in different economic areas and domains

Global standards to ensure global value creation

Companies (Telco operators, CSPs, SW vendors) provide the new soft infrastructure for data spaces



A global soft infrastructure for data spaces – like GSM for mobile telecommunication

National flavors and power by using global standards

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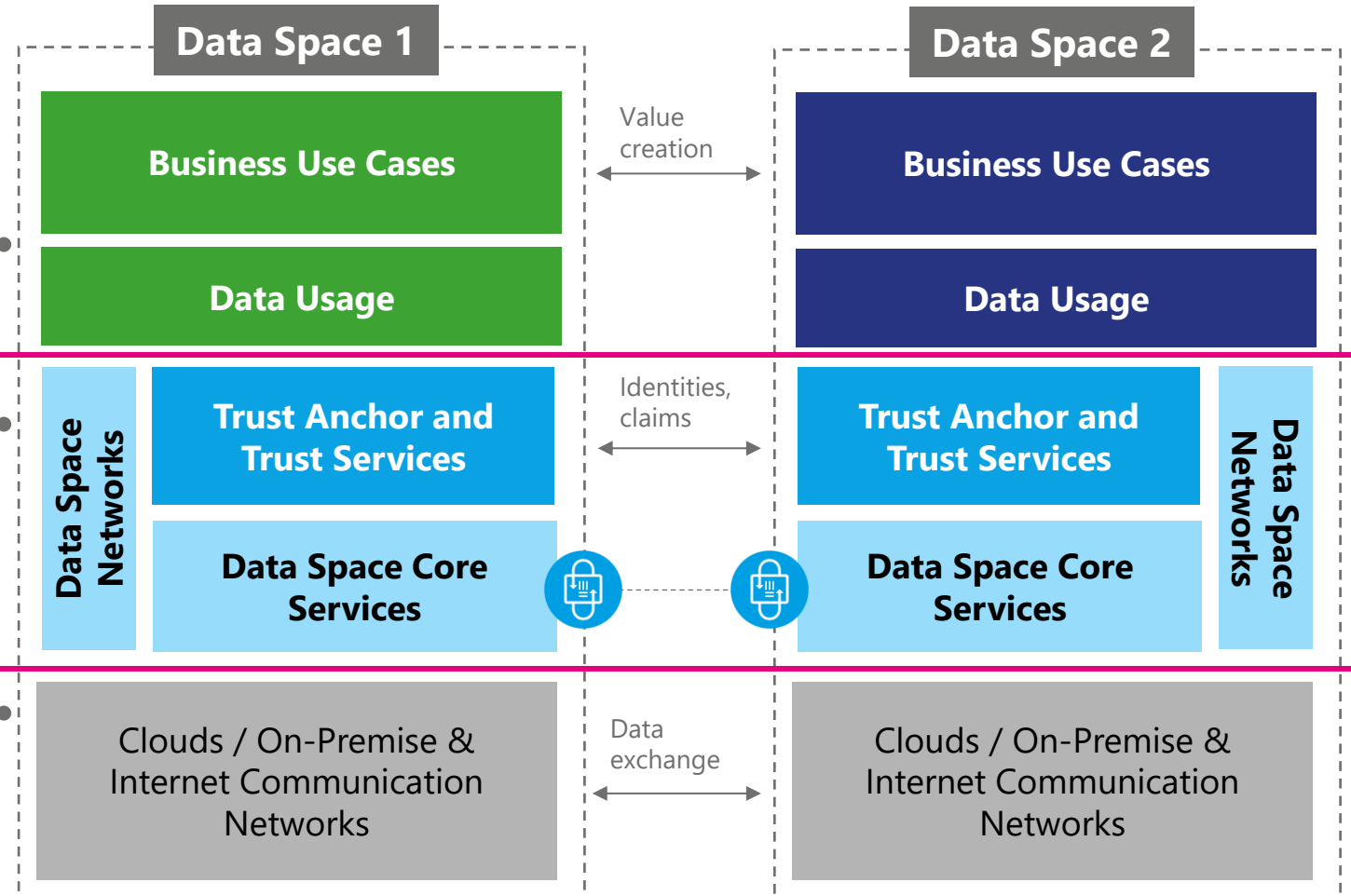


Specific data strategies and standards in different economic areas and domains

Global standards to ensure global value creation

Interoperability – while complying with national data strategies, national standards, regulation and infrastructure

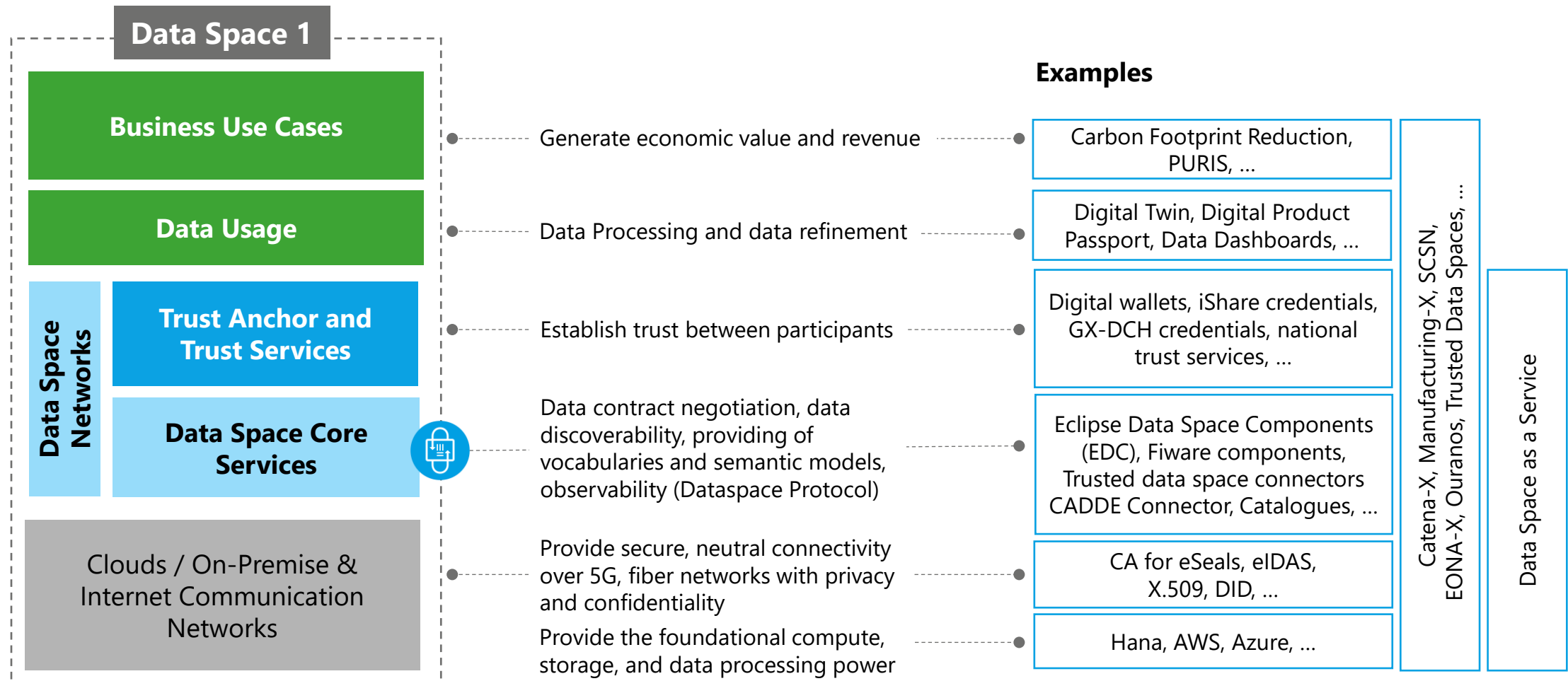
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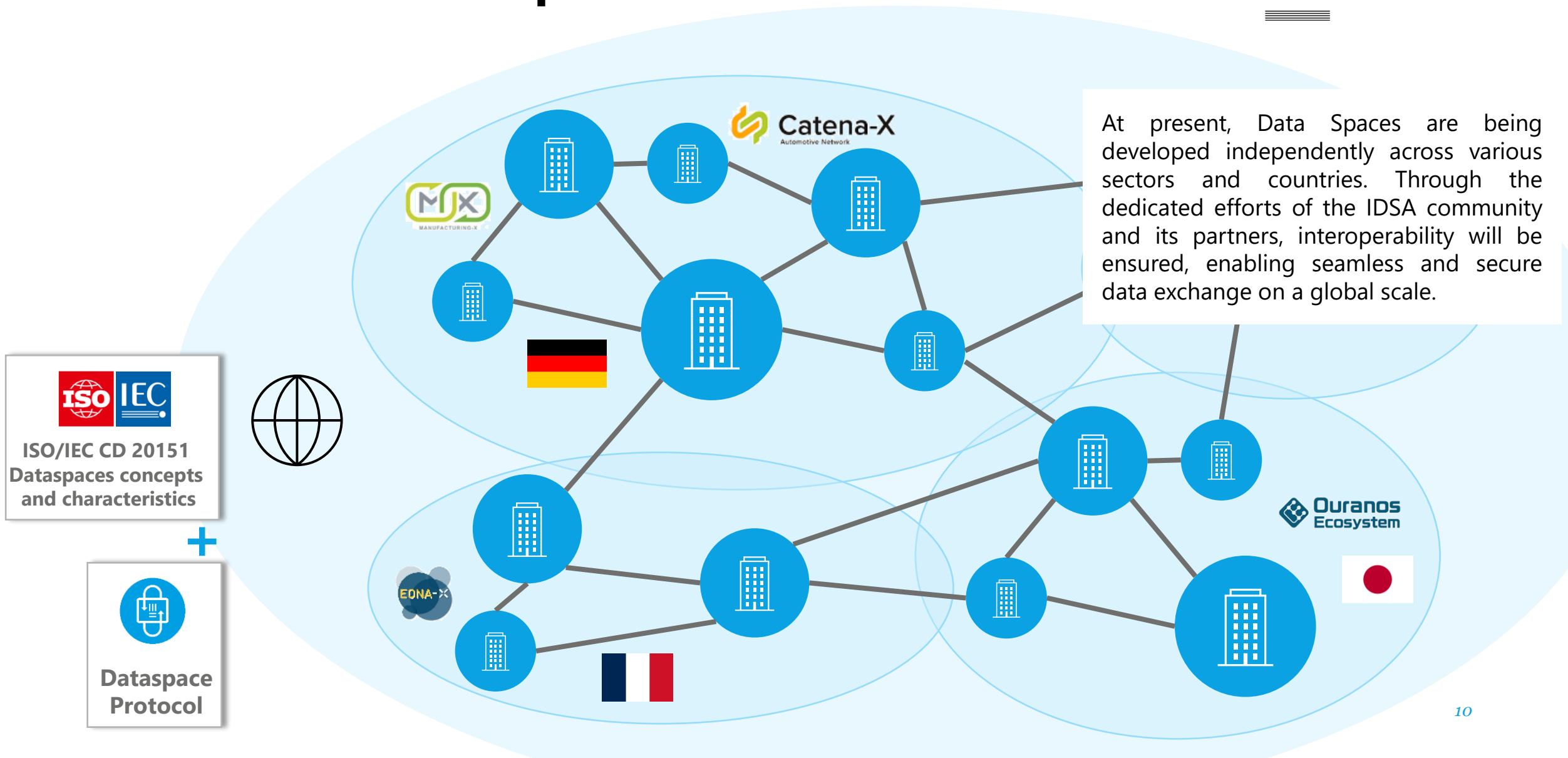
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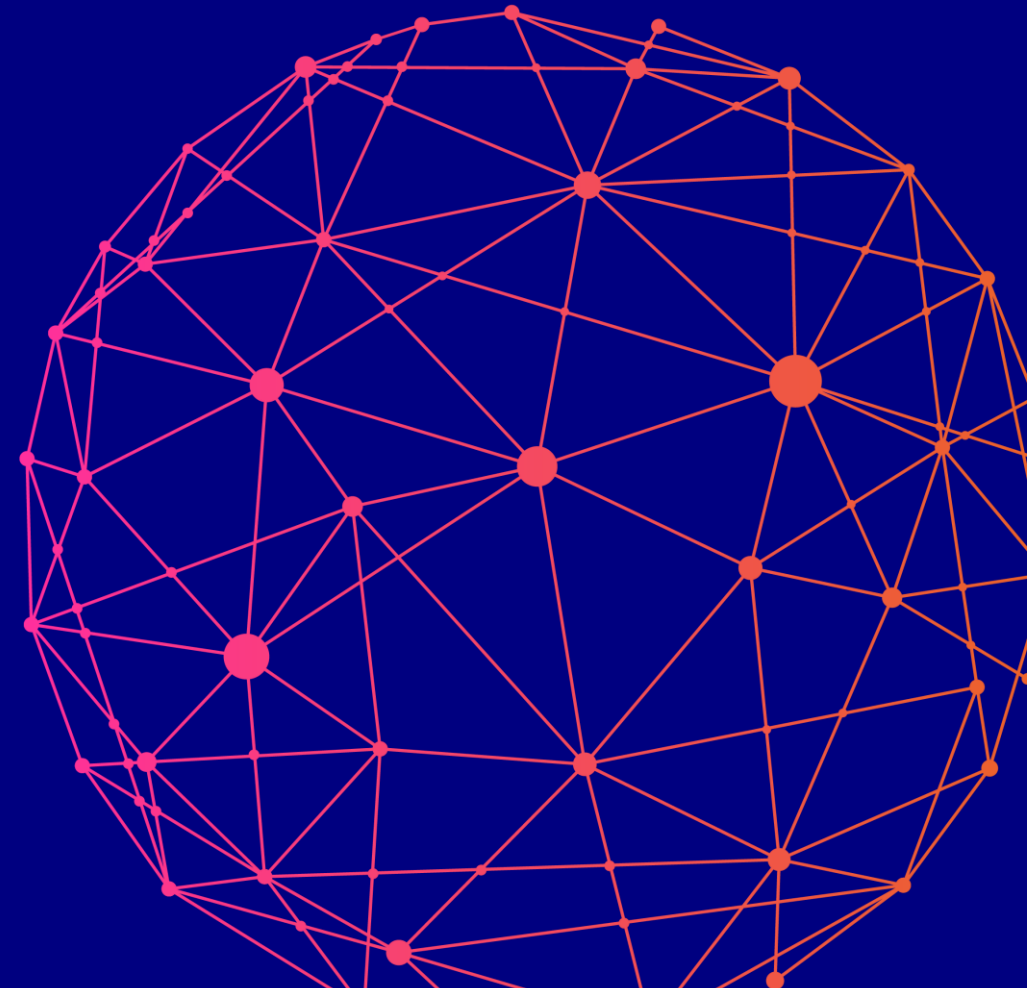
The future of data spaces



Data Spaces Symposium

Scaling cross-border data ecosystems

Madrid | 10 & 11 February 2026



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