Data Spaces Symposium

13:30

Key role of telecommunication companies and ICT providers: Enabling data spaces and providing infrastructures

Focus session [Telco]

Key role of teleco companies and ICT providers Enabling data spaces and providing infrastructures

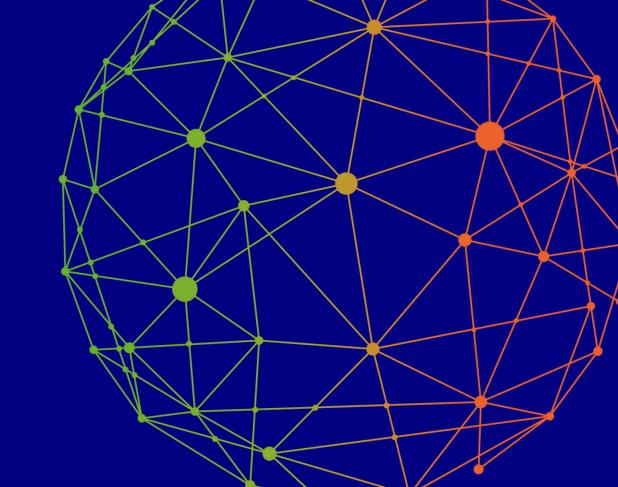
Data Spaces Symposium Warsaw, 12.03.2025

Christoph Mertens Head of Adoption @ IDSA









Global Infrastrucutre for Data Spaces

INTERNATIONAL DATA SPACES ASSOCIATION

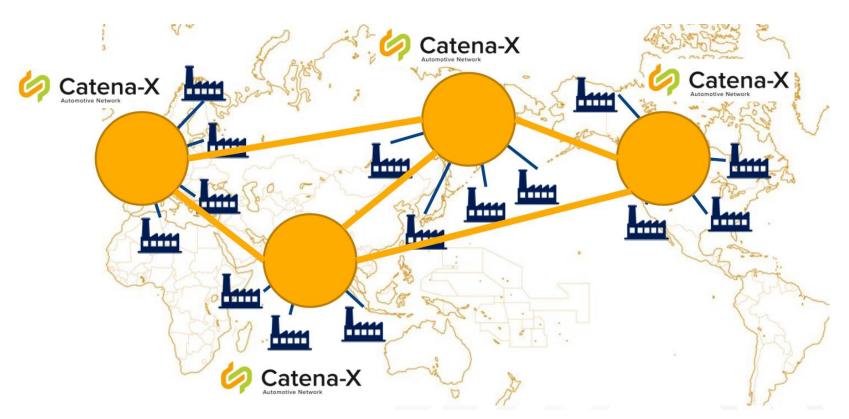
National telecommunication providers as key to success

- Data Spaces are data ecosystem aiming at a global and crossborder data exchange
- The reference architecture model (RAM) of International Data Spaces Association (IDSA) does not explicitly call for national infrastructure which is locally deployed
- Technically, to join a data space, all that is required is an IDSbased connector which is compliant with the governance of the data space
- Like with other data ecosystems the security that a customer "feels" is different from the one that is provided technically (e.g. data storage on local server vs. cloud solution)
- Therefore, a locally operated infrastructure for a data space that operates globally still could be beneficial
- In addition, a globally operated infrastructure will help to balance peeks in capacity utilization
- Key is an interoperable soft infrastructure, which is operated by companies that own a high level of trust in local markets such as telecommunication operators
- IDSA suggests to set up a first interoperable demonstrator between all G7 countries starting with Germany (Deutsche Telekom), Japan (NTT, others) and the Netherlands (KPN).



"Data Value creation relies on a soft data infrastructure that enables data exchange and data sharing while maintaining data sovereignty. The provisioning of the soft data infrastructure, especially to support SMEs in participation in data spaces, can be supported with the expertise and on the infrastructure of telecommunication providers. This will boost the adoption of data spaces."

- Sebastian STEINBUSS, CTO of IDSA -



Example of Catena-X as a global network with national infrastructure (potential scenario).

The IDSA Telco Provider Community

A step towards standards for trusted network services

The goal:

We establish international de-facto standards for trusted network and interoperability services mainly in the B2B area, ensuring fair, secure, and interoperable data sharing on global scale.

The vision:

To become the leading provider of global data space connectivity services, enabling companies to seamlessly and securely access data spaces with the simplicity and reliability of a phone call - leveraging the existing infrastructure of national telecom carriers to drive digital transformation and collaboration worldwide.



INTERNATIONAL DATA

Community Founders

T··Systems·

New Member









Discover more



Test Beds: One Base – Multi Purpose















Set-Up Industrial Use Cases

Harmonization



FLEXIGROBOTS



X Tractus X

Testing Real Life Scenarios

INTERNATIONAL DATA SPACES ASSOCIATION

R&D

Certification

Compliance Test



@kpn

Reference Implementation

Commercialisation











Creation of Open-Source Solutions



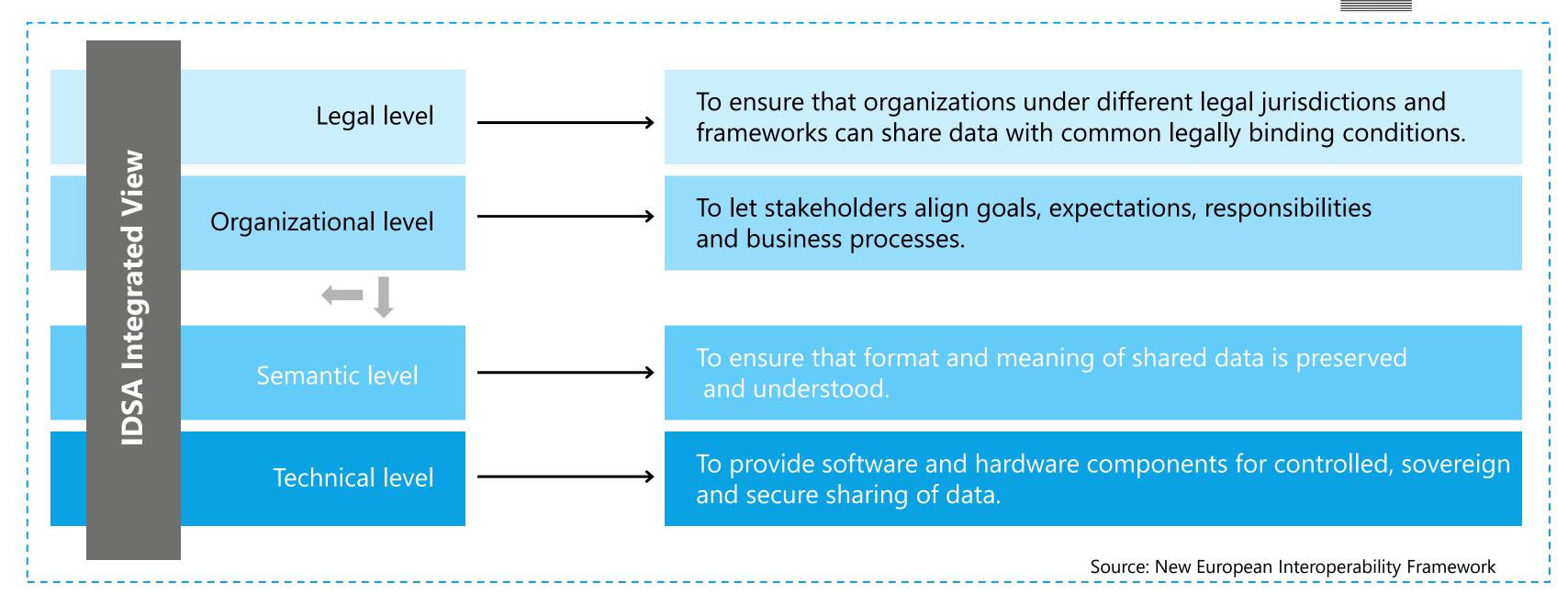






Layered model for interoperability



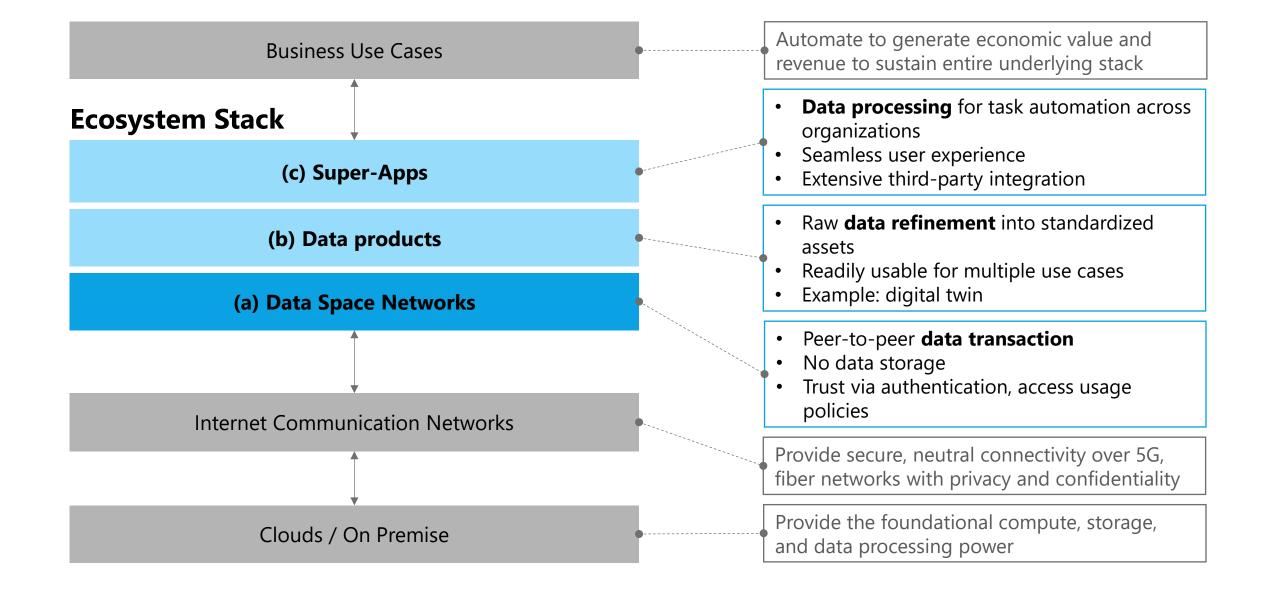


- Intra data space interoperability, between the data space authority, processing, and data sharing building blocks within a single data space instance
- Cross data space interoperability, between multiple data space instances at each of the functional levels

The Dataspace Protocol

3-layer model of a data ecosystem's software stack

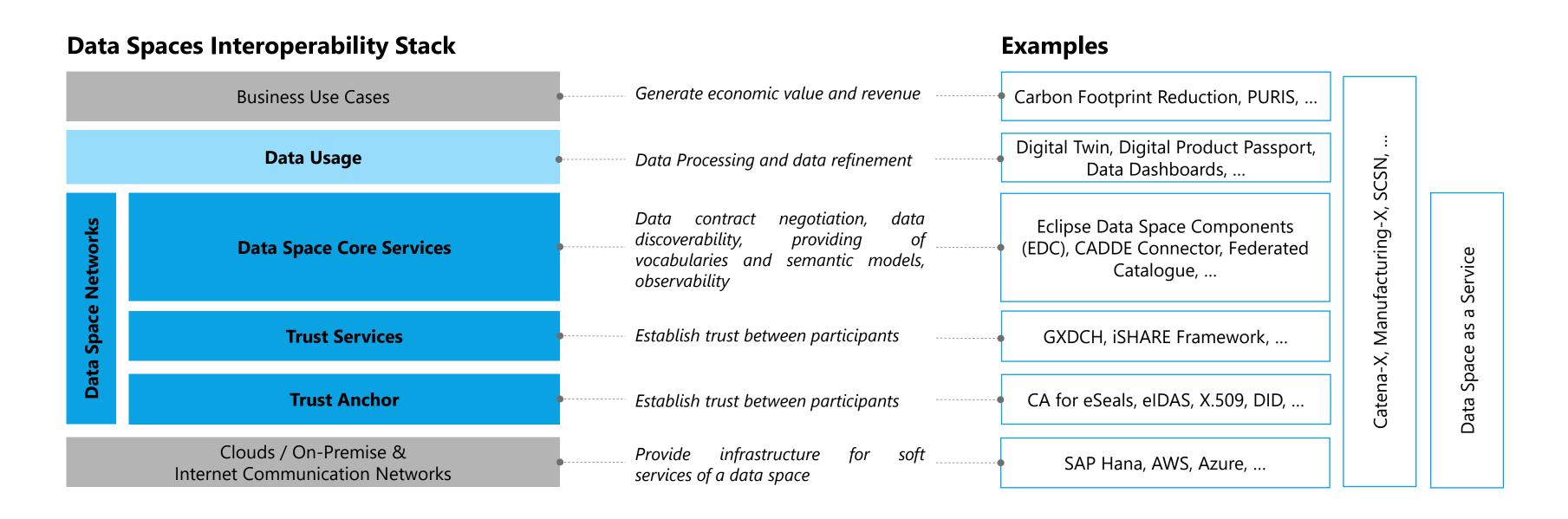
INTERNATIONAL DATA SPACES ASSOCIATION



Interoperability Stack for Data Spaces

INTERNATIONAL DATA SPACES ASSOCIATION

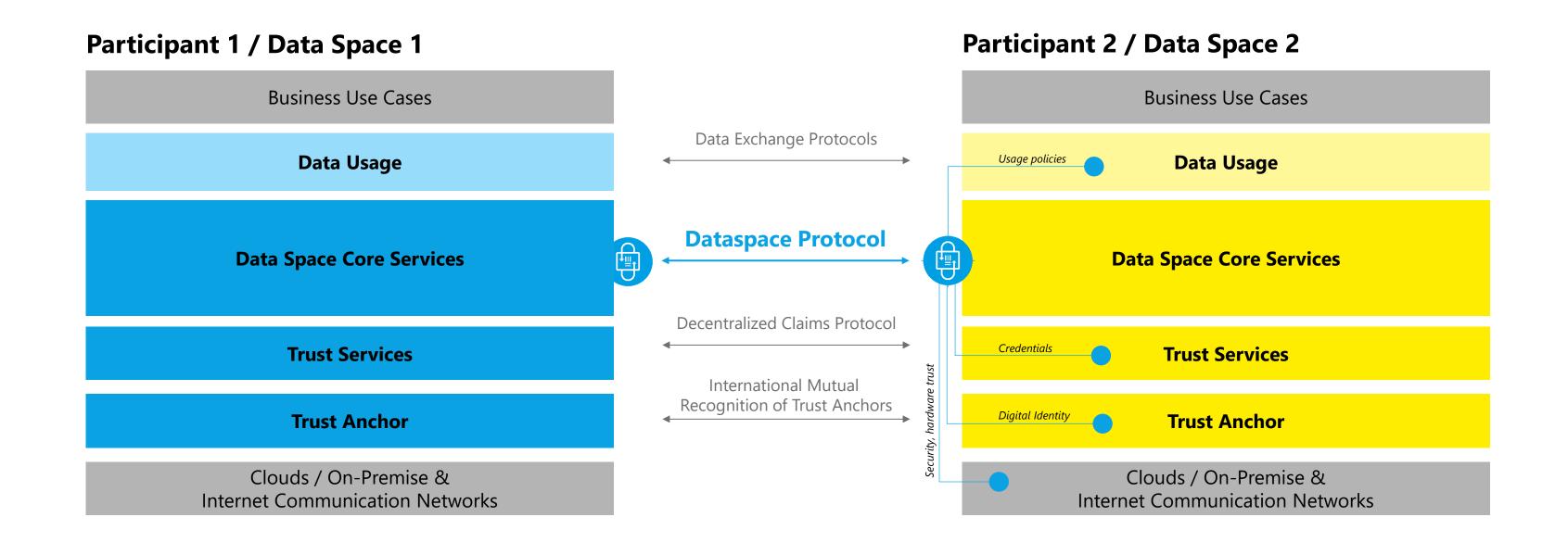
Aligning different perspectives



Interoperability on International Scale

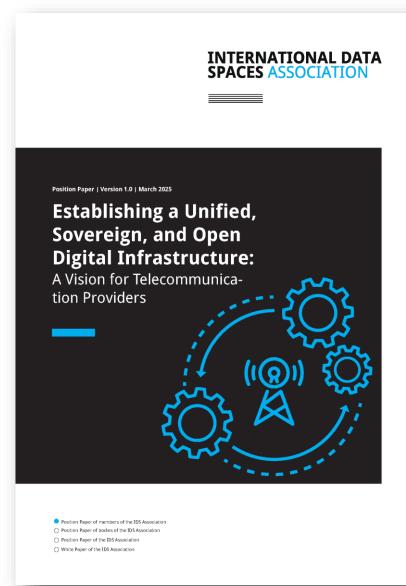


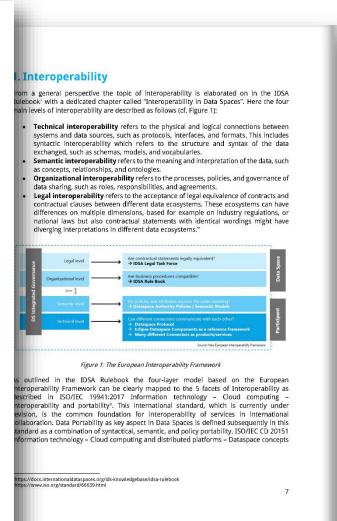
Data sharing between different data spaces (x-domains, x-countries)



Interoperability Framework in Energy Data Spaces







New position paper: and characteristics4 bases its work on interoperability i ucture of companies who want to become a participant in dat The following part will give better insights into this model. Maturity of data ecosystems: A 3-layer model of the system software stacl landscapes by operating atop cloud or on-premises hardware and communication networks to support the automation of your business use case. Drawing on established conceptualizations of information systems? – including the abstraction layers of the Open Systems Interconnection (OSI) model, a reference framework by the International

- » Telcos as Key Enablers: Their expertise in global networks positions them to drive data space development.
- Lessons from GSM:
 Collaboration and
 standardization can ensure
 interoperability in data spaces.
- » Interoperability Model: A structured framework addresses technical, semantic, organizational, and legal layers.
- » Case studies from major telcos showcase successful implementations and collaborations



Data Spaces Symposium

Sven Löffler



Let's stay in contact!

























Director, Dataspaces & Data Products



IDSA Ambassador



Steering Committee member at Eclipse Dataspace Working Group (EDWG)



Steering Council member, Manufacturing (M-X)



Steering member Gaia-X Federated Services for Clearing House Providers



Project lead T-Systems & Business Owner (C-X Consortia phase 1 for IAM, portal, dataspace components)

Expertise fields

+25 years of experience in the field of Data, AI, Dataspaces & Data Products

Worked previously for Cognos, IBM & Deutsche Telekom





Secure data exchange with data sovereignty protection should be as easy as a telephone call today



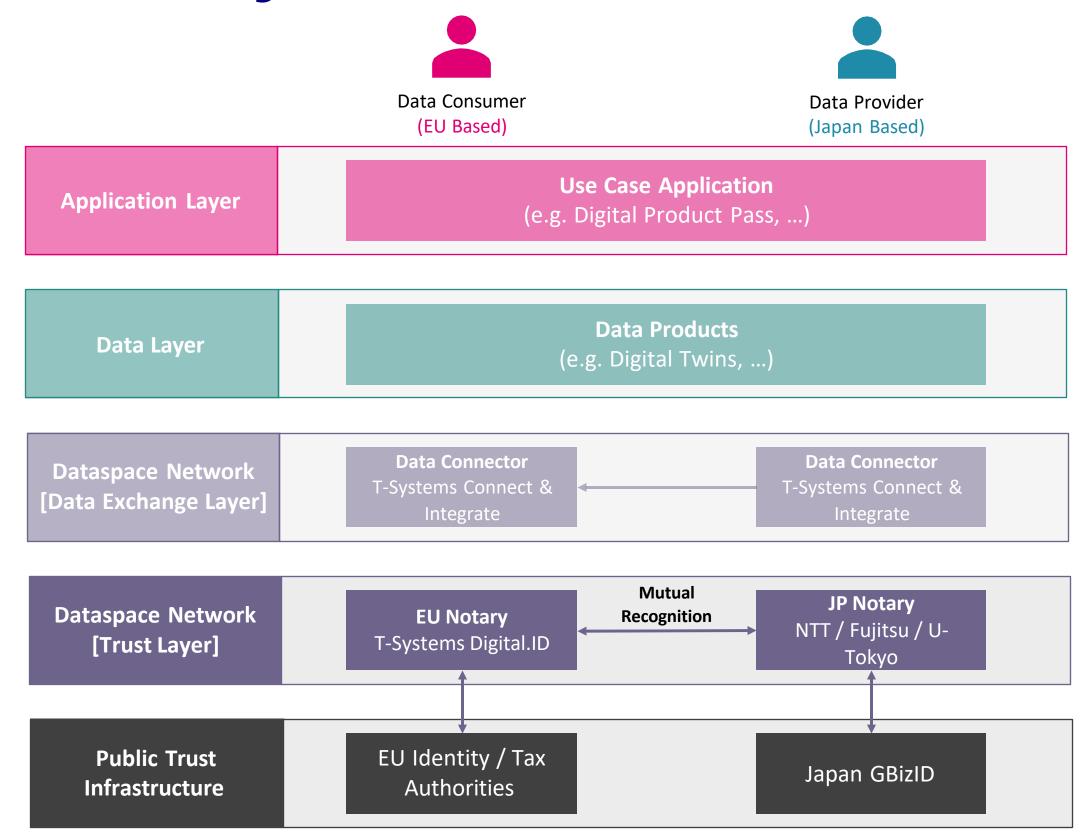
CONTROL

Enablement of data driven ecosystems for secure data exchange of any data where data owners keep control over data usage

TRUST

Trustworthy AI with dataspaces on sovereign data infrastructure

Dataspace layers



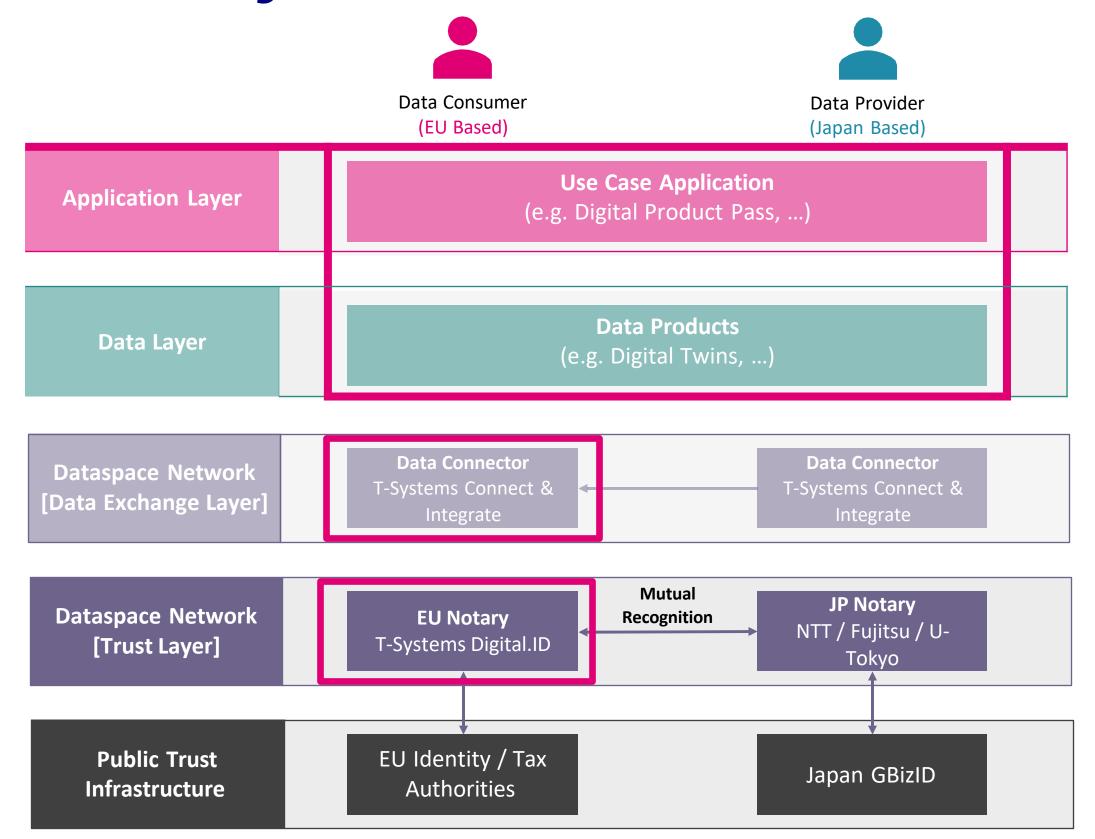








Dataspace layers

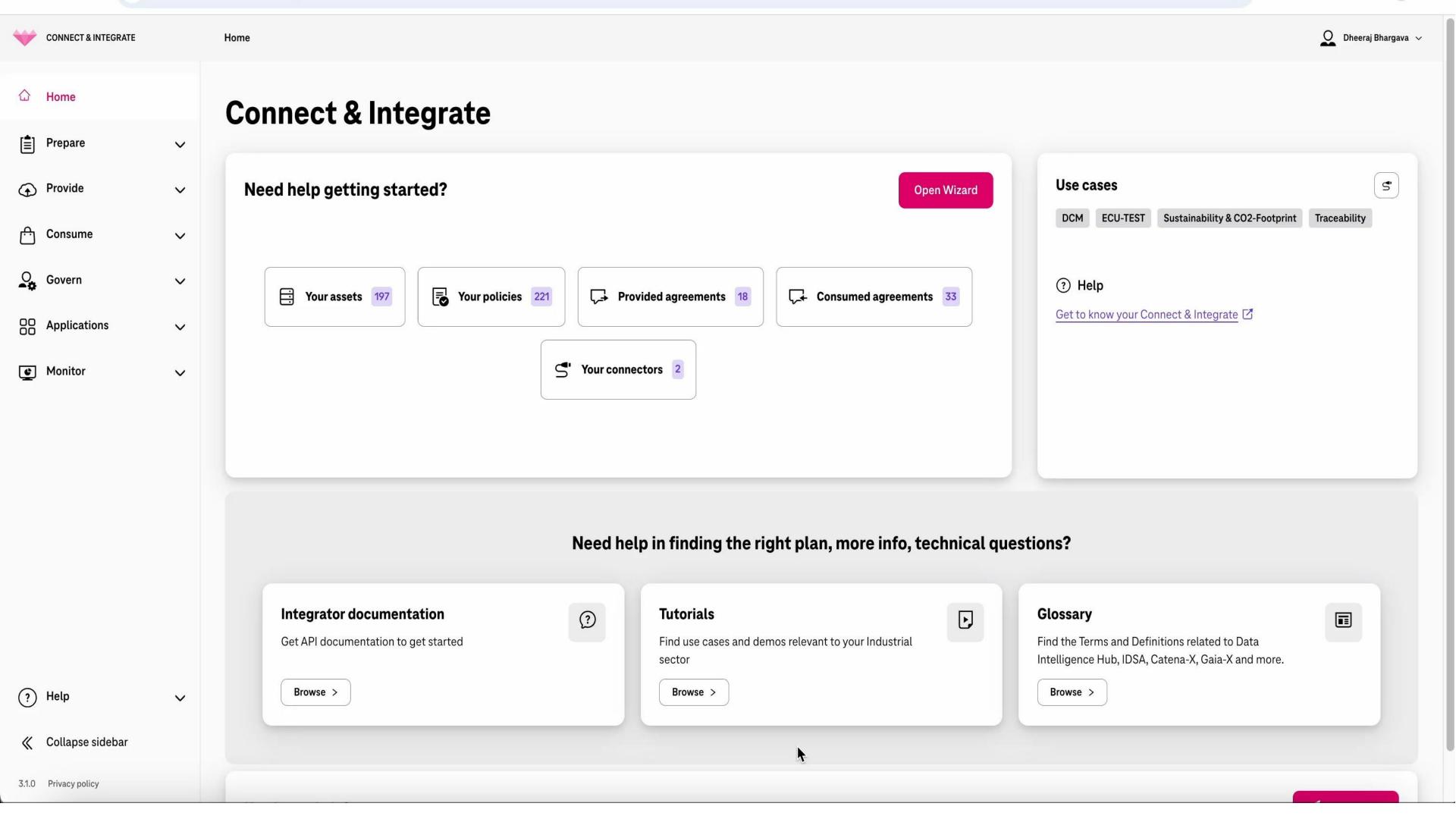










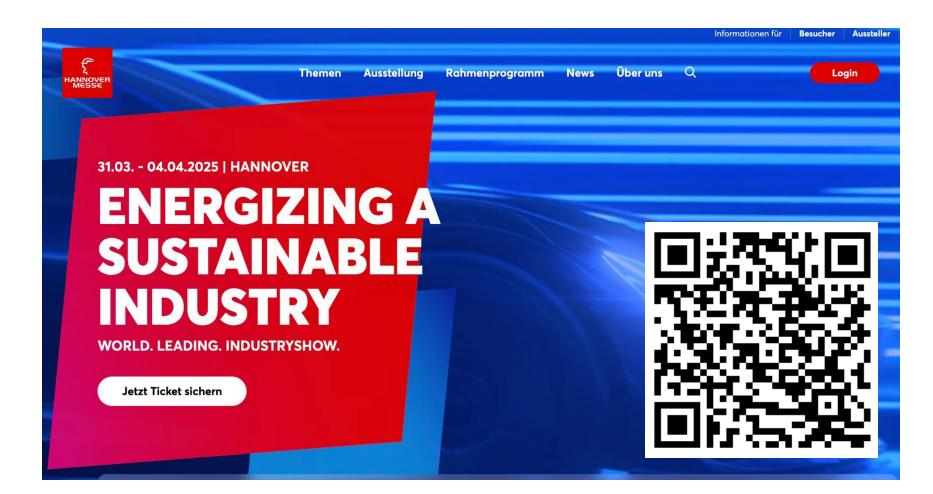


Join us at Hannover Messe 2025



Lead, Dataspaces and
Data Products
sven.loeffler@t-systems.com





T-Systems activities:

- 5 booths: VDMA-Umati, Catena-X, Factory-X, RoX, T-Systems metaverse applications ...
- 11 talks: featuring Ford, Flex, DeltaDao, NTT Communications, Cofinity-X, GDSO, Siemens, Gaia-X ...
- Topics: Dataspaces across industries (Manufacturing, Automotive, Robotics...), AI readiness, Federated identities, supply chain transparency ... and much more

Contact us to schedule a meeting and get your free ticket!



Cross-border data sharing

Key role of telecommunication companies and ICT providers: Enabling data spaces and providing infrastructures

Data Spaces Symposium 2025

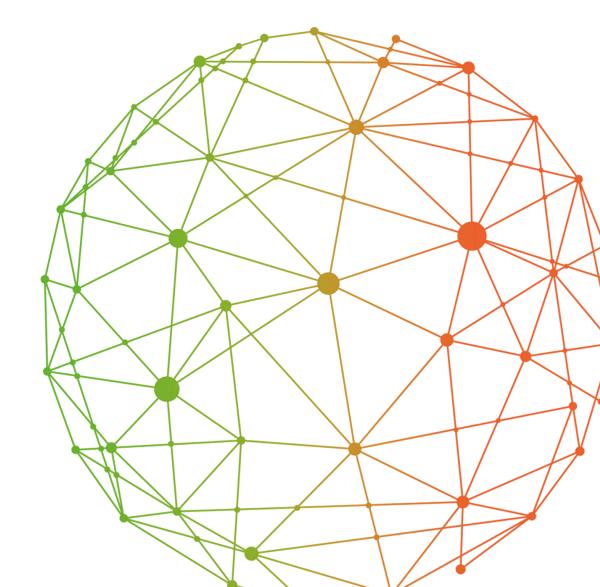
Masaru Dobashi (NTT DATA Group) 2025-03-11











Masaru DOBASHI (土橋昌)



NTT DATA Group Corporation

Other affiliation:

IT Promotion Agency (IPA)

University of Tokyo (Visiting researcher)

Data Society Alliance (DSA)

IDSA Ambassador

etc.

Expertise area:

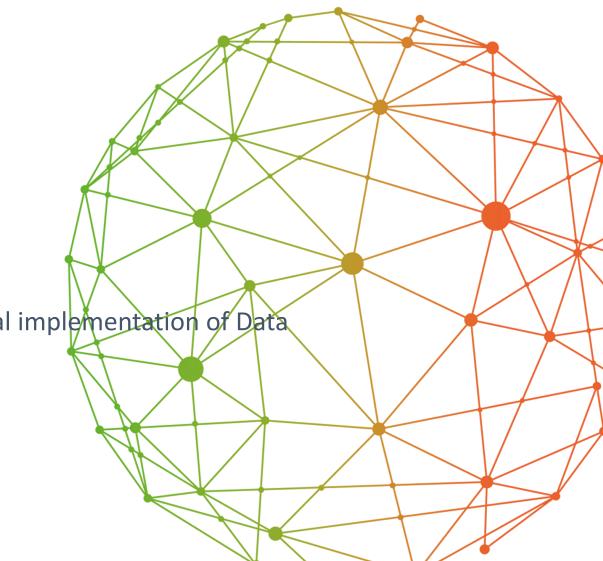
Data platforms in enterprises

Machine learning engineering

Technology development, providing knowledge and social implementation of Data

Spaces

etc.



Contents

- 1. Introduction
- 2. Overview data spaces engagements NTT DATA
- 3. Examples of use cases
- 4. NTT DATA's Foresight



NTT DATA's data spaces engagements overview

Increasing importance and challenges of inter-company data collaboration

There are some needs such as regulatory compliance and the realization of industrial DX, which are difficult to be tackled by individual company alone, or which are to improve efficiency through cooperation among multiple companies. As such, there is a need for a mechanism to solve the problems specific to inter-company data collaboration.

Background

It's a growing social imperative

Compliance with regulations

For the data origin

Realization of industrial DX

Realization of carbon neutrality

Supply and demand optimization

Human rights Due diligence

Healthcare-related data utilization

Forecasting

Issues

The long value chain requires

Many-to-many data distribution

Massive numbers of suppliers

Different laws and rules in the international transaction

Inefficiency of multiple actions for the same purpose

Data sovereignty in the competitive area

Confidentiality for competitors

Appropriate data utilization between business partners

Personal Data

Prevention of unintended use

NTTData

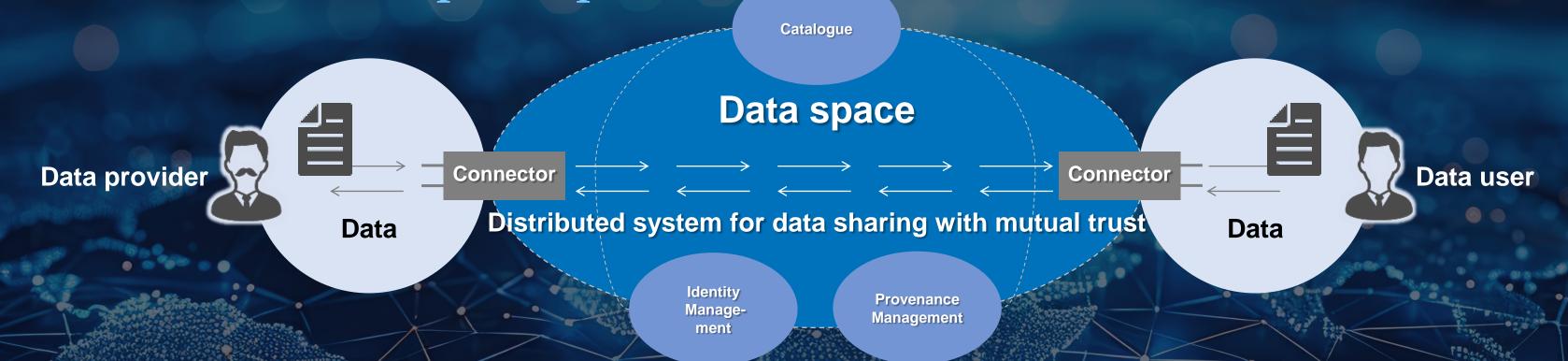
It is difficult to solve

Common problems

by a single company

Requirements for inter-company collaboration

Data Spaces: A decentralized ecosystem for secure and trustworthy data transactions between participants



Key points in building a data space

"Federal" data linkage infrastructure

Collaboration between government and industry to realize ecosystems

- Protect the "data sovereignty" of companies and industries
- Data distribution infrastructure that links existing data infrastructures
- Integrated development of policies, industry rules and infrastructure
- Involvement of the entire industry by the security of public interest

Value of the data space

Proliferation of ways Standardized rules to share data Uncertain credibility Common way to utilize trust services Catalogue and utilization of variety of data planes

The Role of NTT DATA as a Pioneer in Data Collaboration Infrastructure

Even before the concept of data spaces became widespread, NTT DATA has been implementing and operating infrastructure for data collaboration across companies and organizations worldwide.

As companies transform their business systems to be data-driven on a societal scale, NTT DATA will realize and operate data spaces and inter-company data collaboration mechanisms rooted in the thinking and practices of each region.

Data Collaboration Infrastructure by NTT DATA



Health Care

ehCOS is NTT DATA's patientcentered solution by sharing their information between the different organizations that make up the healthcare ecosystem.



Finance

NTT DATA has developed and operated the Zengin System, a inter-bank transaction system connected by almost all banks in Japan.



Operating data spaces and inter-company data collaboration mechanisms

Our Role



Smart City

NTT DATA is promoting smart city projects in collaboration with municipalities in Japan, Europe, North America, and South America.



Logistics

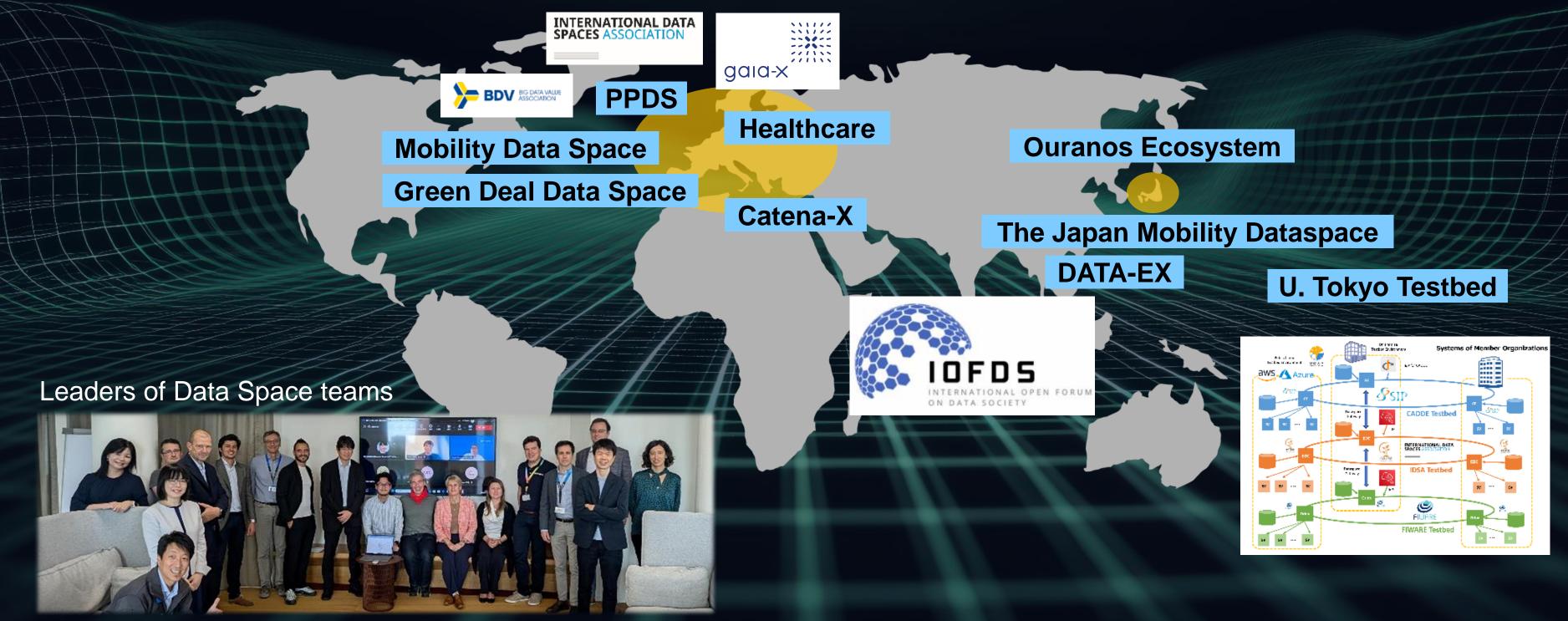
loTrace is a traceability solution provided by NTT DATA. This system is designed to record and track the movements and history of goods and components throughout the entire supply chain.

Best practices for data collaboration across organizations

Supporting industry groups and public institutions in creating data connection mechanisms.

NTT DATA leads actions related to Data Spaces collaborating with international initiatives as the global company

NTT DATA is a global company that collaborates with international initiatives, contributes to technology development, and supports projects in Japan, Europe, and elsewhere.



Recently News: our data spaces activities

Forbes Japan

Insightful article on Forbes about NTT DATA's data spaces activity.



NTT DATA's News Site

Created NTT DATA's global team for data space cooperation and new business creation that transcends countries and regions.

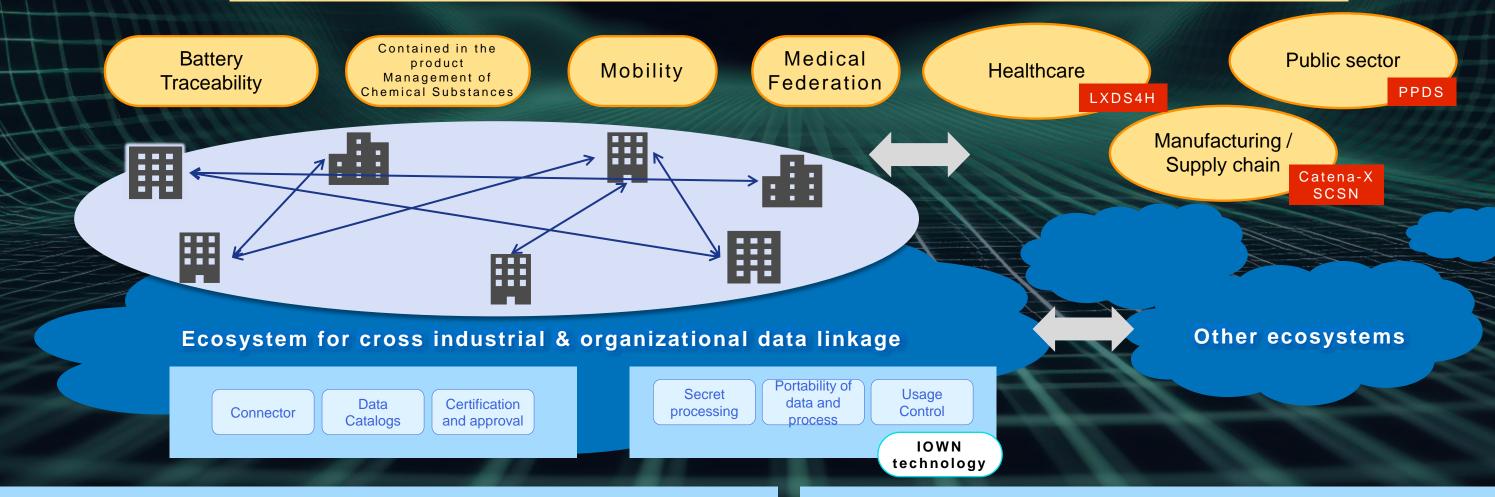


https://www.nttdata.com/global/ja/news/topics/2025/031001/

NTT DATA is realizing Data Spaces ecosystems as the social infrastructure not only in Japan but also in the world

We have developed and contributed to realize the common technologies required for data spaces in multiple projects in each region. By adding applied technology and cooperation, we realize a society where more user companies can distribute data globally.

Development and operation of Data Spaces

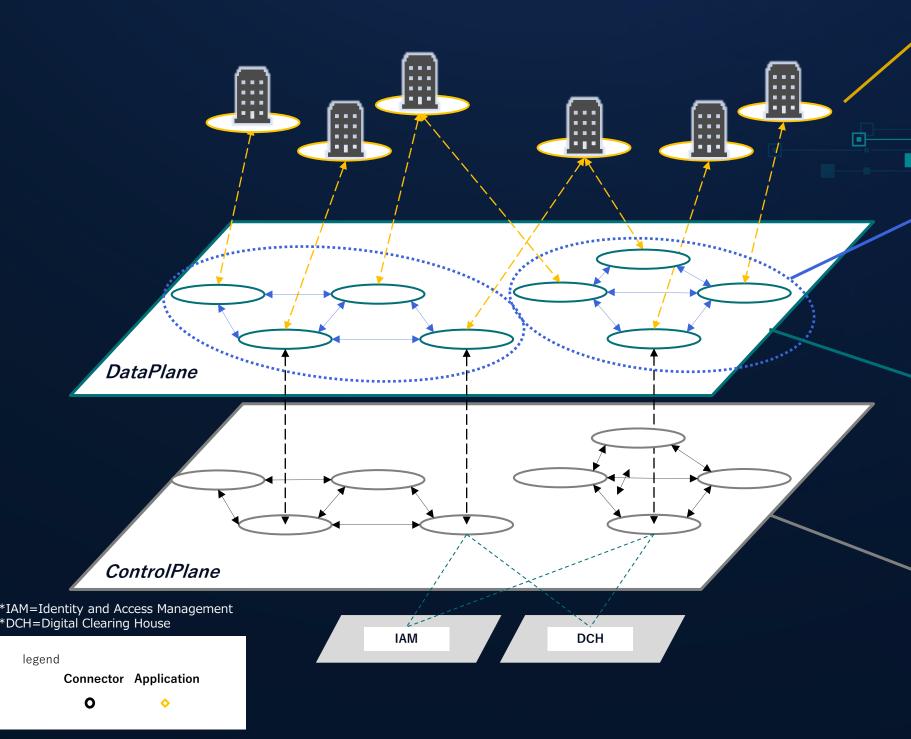


Provide common functions via our enablement service and framework

Lead evolving of Data Space features

NTT DATA provide cross-area solutions for inter-company data integration.

To address the challenges of inter-company data integration and ensure reliability and interoperability, we concentrate on four key areas. Users benefit from our comprehensive cross-area solution, 'Flexible & Trusted Data Collaboration (Draft) × 1', which provides < something>.



4 Applications and Business services

This domain enables safe and seamless data integration, promoting the creation of new services.

We provide system integration and SaaS services, supporting the formation of our clients' business ecosystems.

③ Industry and Business Platform (e.g. Data Space)

This domain enables improved efficiency of data integration. We offer mechanisms to address common issues across industries and different sectors, realizing purpose-specific cross-industry systems and common systems.

②Common Components and Digital Public Goods

This domain enable rapid deployment of systems and reduce operational costs.

We provide reliable open-source common components, offering standardized solutions to our clients.

4 Control Plane and Digital Public Infra.

This domain enables seamless integration and enhanced reliability between systems.

We contribute to the formation of social infrastructure that achieves integration and interconnection with public trust services.

NTT DATA Global Data Spaces Solutions

Applications and Business services

Business Consulting

Enterprise Application

SaaS

Industry and
Business Platform

Data Space
Building Consult

Data Enrichment
(Data processing, Analysis)

Managed Service

Common
Components and
Digital Public
Goods

Connectivity (Connector, Interoperability)

Digital Trust (ID management)

Data Governance

(Usage Control ,Catalog)

Control Plane and Digital Public Infra.

Privacy Enhancing Technology

Infra Service Technology

Example of Activities to Improve Confidentiality to Leverage the Effects of Data Spaces Connectivity

While connecting with partners is vital in our digital age, protecting communication privacy remains our core commitment. This ensures stakeholders can trust systems with each other completely.

Video



Examples of use cases



[Japan] Ouranos Ecosystems

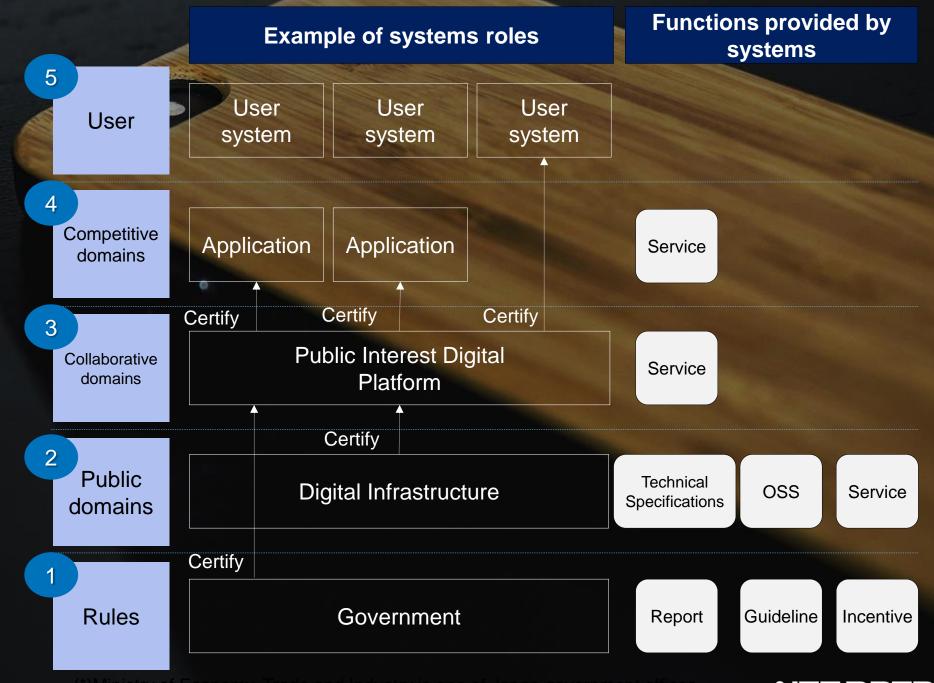
- ✓ Ouranos Ecosystem is an industry-government-academia joint initiative led by the Ministry of Economy, Trade and Industry(*) that aims to realize data distribution and utilization across companies, industries, and overseas. The goal is to realize "Society 5.0" and ensure interoperability regarding data distribution with other countries.
- Regarding a system ecosystem design, roles and functions of systems are defined at each layer, with a clear distinction between competitive and cooperative domains. The government certifies systems, so that systems can be interconnected with each other while ensuring safety, reliability, and interoperability.

Data distribution and utilization

→ : Data flow 3D Maps Drones cars And More **ERP** Buildings Recycle AP

Reference: Guidelines for Data Linkage in the Supply Chain Alpha Edition (CFP and DD related to storage batteries)
May 2023 the Ministry of Economy, Trade and Industry & Digital Architecture Design Center (DADC)

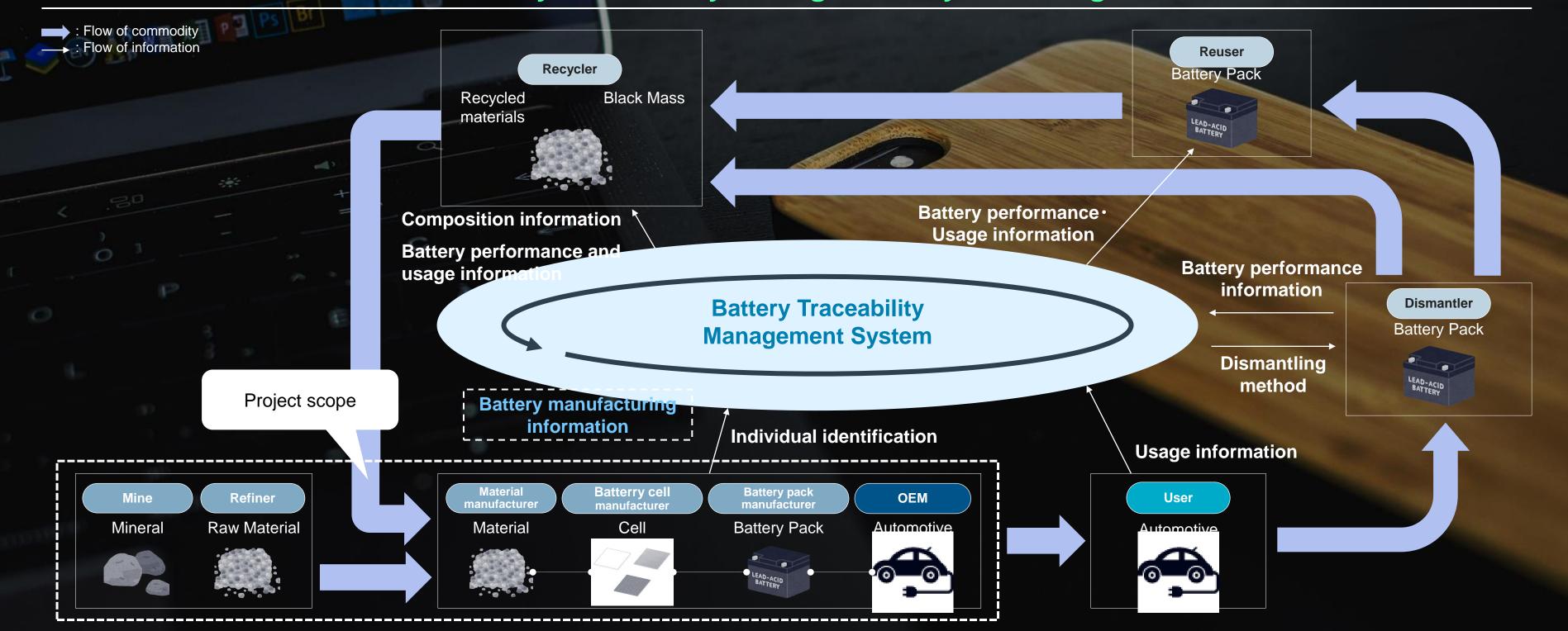
Ecosystem structure



[Japan] The lighthouse project of Ouranos Ecosystem: Battery Traceability Management System

The system shares necessary information to realize a circular economy while ensuring data sovereignty among companies related to battery production and reuse.

Battery Traceability Management System image



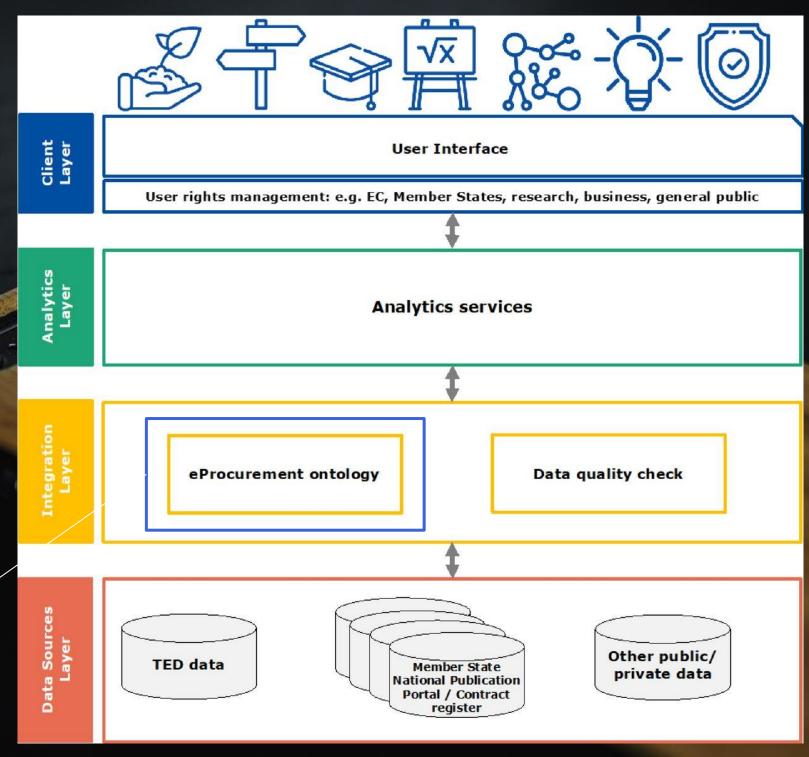
[Europe] Public Procurement Data Space

Highlights:

- ✓ Interoperability ecosystem for the whole EU, every Member State Procurement Data
- First European Data Space delivered June 2024
- Strong business cases over PP data analytics
- Great governance and technical challenges overcome
- Interoperable with SIMPL and in SIMPL Live roadmap for onboarding

NTT DATA's Role: Full – E2E Data Space lifecycle

Procurement data is stored as the ontology.
Users can query various data via User Interface.



Ref) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52023XC0316%2802%29&qid=1678976891382

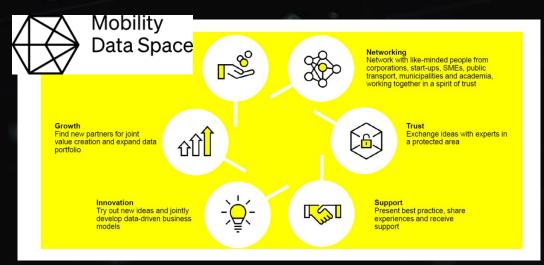


[Europe & Asia] Mobility-domain Data Spaces in the world

Europe



supports policymaking by enabling data sharing and reuse for efficient multimodal mobility and traffic management, as well as for measuring progress of sustainable **urban mobility** across Europe.

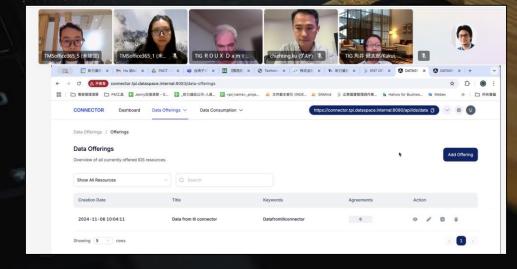


"I am delighted by the fruitful collaboration with NTT DATA. We share the enthusiasm for data spaces and believe in the power of utilising valuable data." (Moritz Stober, Director Business Development at Mobility Data Space)

Taiwan







III of Taiwan and U. Tokyo succeeded a trial to connect two regions using Dataspace Connector.
NTT DATA contributed from the technical aspect.

Japan

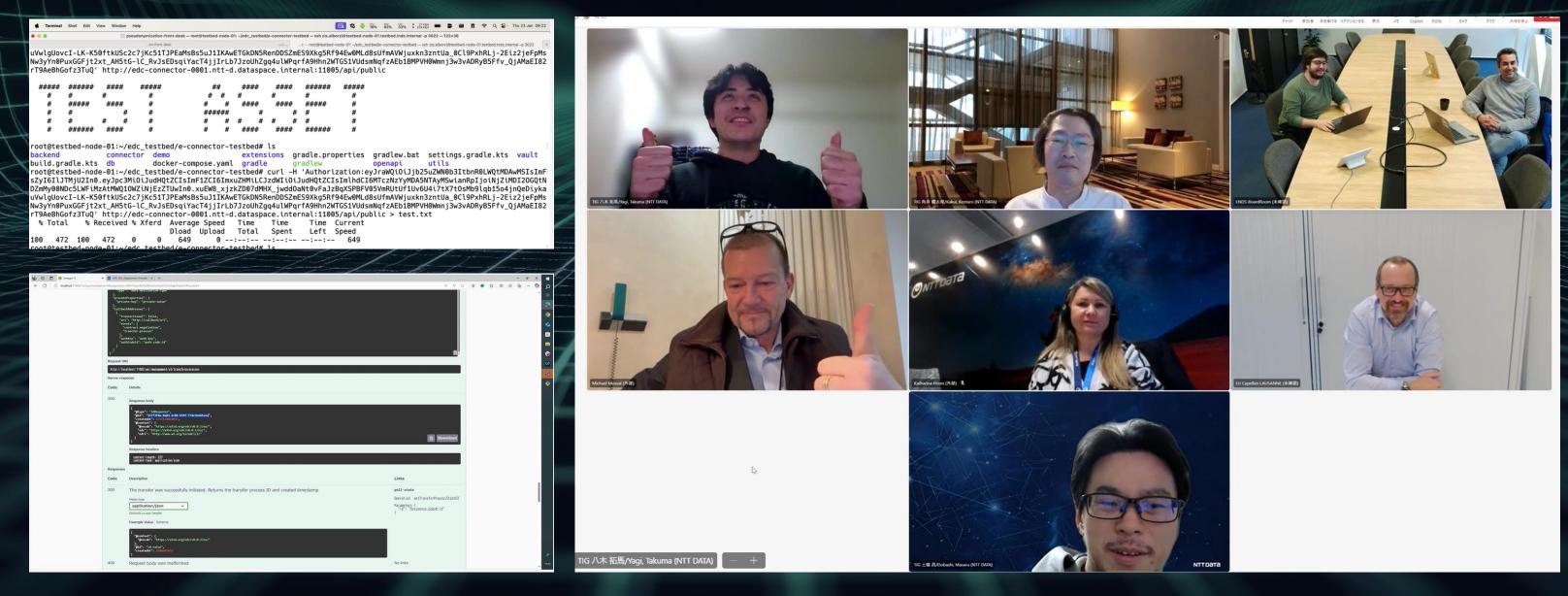


Ill of Taiwan and U. Tokyo succeeded a trial to connect two regions using Dataspace Connector.
NTT DATA contributed from the technical aspect.

Example of international collaboration: Luxembourg and Japan

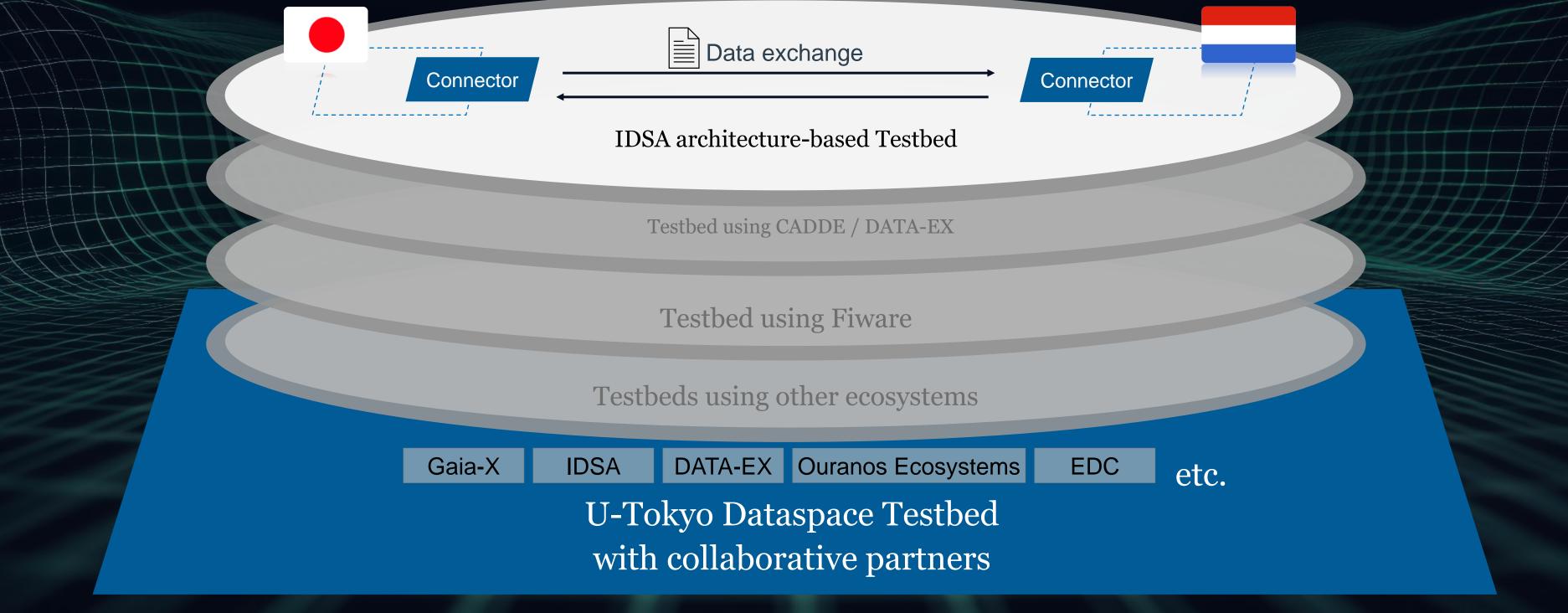
NTT DATA is actively contributing to international collaboration. For instance, we have successfully connected various testbeds in Japan, Luxembourg, and Taiwan using the Connector as a foundation for use cases. This effort is a collaborative activity with research institutes and universities in each region. e.g. LNDS and U. Tokyo.

Example: International experiments connecting two regions and environments using the Connector (Luxembourg and Japan)



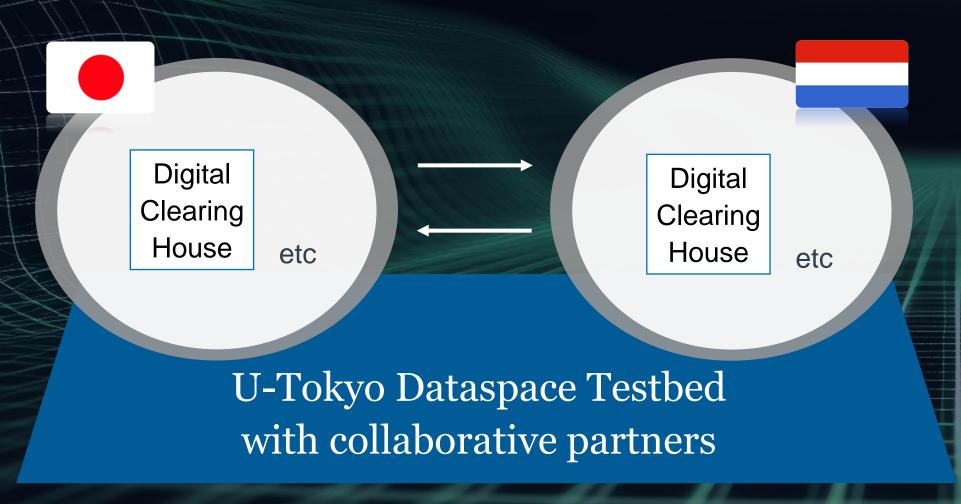
Example of international collaboration: Luxembourg and Japan

This testbed network is established through the collaboration of multiple organizations and has deployed several ecosystems. One of these ecosystems is based on the IDSA architecture and is conducting experiments using Dataspace Protocol.



Experiments about Trust Frameworks

 Combine Data Space Connectors with Trust mechanisms such as Gaia-X Digital Clearing House and etc.



• Implementing GXDCH on U-Tokyo Testbed with Gaia-X members





NTT DATA's Foresight



Davos 2025

Yutaka Sasaki (President and CEO of NTT DATA Group and NTT DATA Japan) participated in a panel discussion at Davos2025, where he shared iYutaka Sasaki (President and CEO of NTT DATA Group and NTT DATA Japan) participated in a panel discussion at Davos2025, where he shared insights on data sharing initiatives in Japan and globally.

- Japan appears to be one of the leading countries actively promoting international collaboration on trusted data sharing.
- In the session, Sasaki CEO introduced a monitoring case of health care related data, cooperation between the Ouranos ecosystem and Catena-X, and a secret processing technology that promotes cooperation of confidential data
- He also talked about the fact that NTTDATA has been developing infrastructure for multiple companies in Japan and global for a long time

FORUM

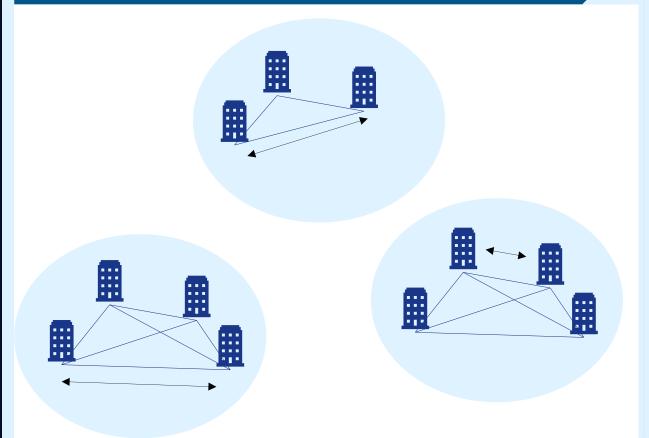
Catch the full session video here: https://lnkd.in/eGaAGwaZ

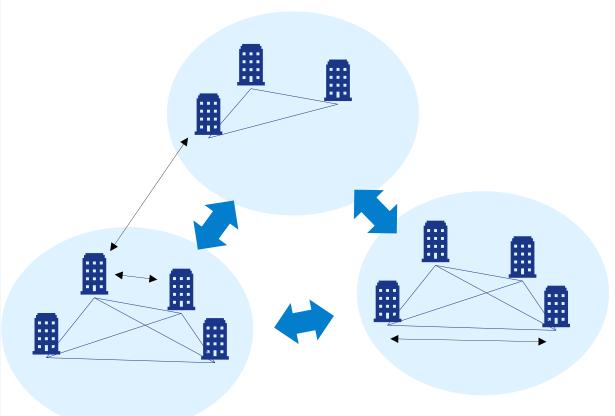
Foresight: Toward a common specification for interworking among IT systems

Connectors and trust infrastructure are expected to become the standard for interconnection between IT systems. By building a track record in this area ahead of others and being involved in the formulation of technical specifications, we will take a more leading role in the interconnection between IT systems and social change.

Data linkage for each individual purpose (- FY2025)

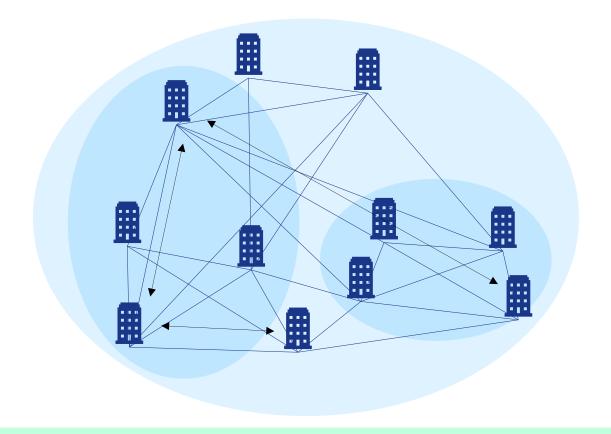






- Companies form industry groups for data sharing by purpose and region, and create their own rules.
- Groups based on local culture and business practices form a large number of data spaces in the world.
- Depending on the use case, the data spaces are interconnected. Some companies belong to multiple data spaces.
- Absorb differences in concepts and specifications between interconnected data spaces.

Flat Business Data Hub for Inter-IT Systems (FY2028 -)



- Specifications for connection between IT systems are unified, and IT systems are connected safely and freely.
- Divisions are dynamically constructed in the world, and business groups are formed more freely.

World based on Inter-IT Systems

World based on data space

NTT Data

Access to data made easy Enabling data spaces and providing infrastructures

Data Spaces Symposium 2025



Rutger Borst









Meggo allout

to connect everyone in the Netherlands to a sustainable future



Activities in data spaces

Innovation gives meaning to technology.

Innovation has characterized us for more than 145 years. Every day, we are looking at what new role our technology can play in the social themes of today and tomorrow such as.

Provide access to data

We are facilitating access to data with Data Services Hub. Secure, at scale, to multiple parties. The data owner decides who gets access.

Host your dataspace

We host the Smart Connected Supplier Network (SCSN). We make sure the services are reliable. In case of emergency, you can call us.

Data Act compliancy

We are developing functionality based on the iSHARE trust framework to process consent to 3rd party data consumers.





EHerkenning E-/3/4/



Providing access to data

Data Services Hub facilitates secure data processing

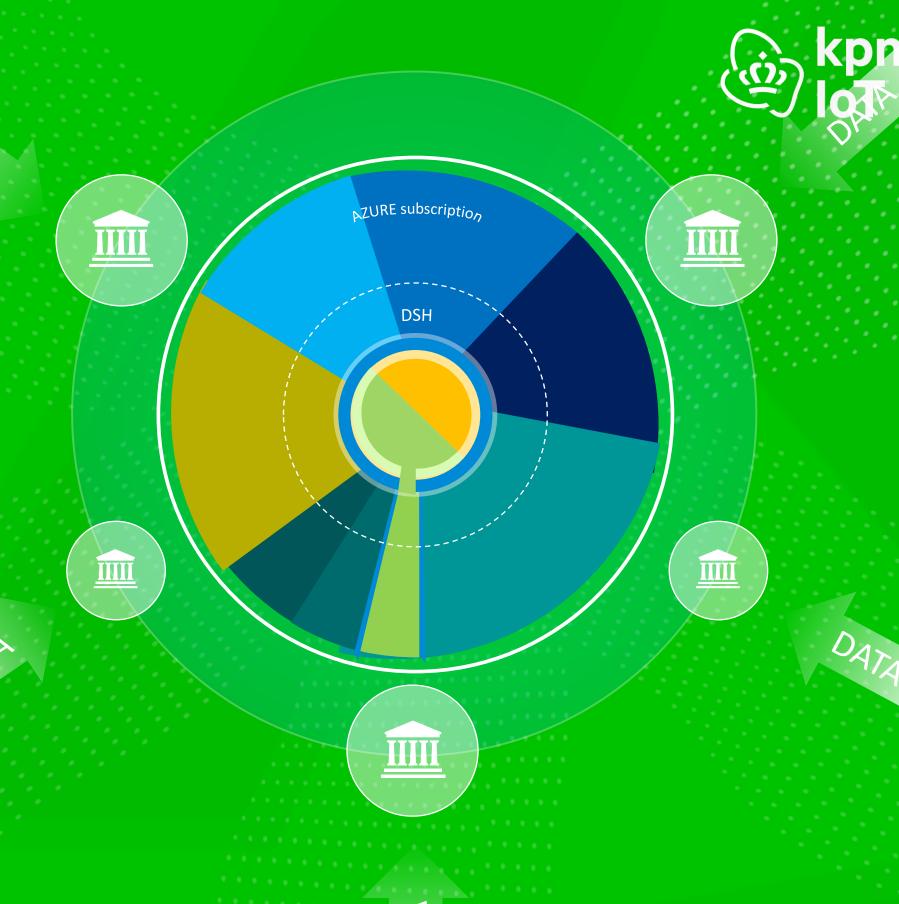


Shared components

De components of the Smart City Data Platform become **shared** between all users of the platform.

This makes sure that a good balance between cost and performance is possible

The system can be horizontally scaled to ensure good performance



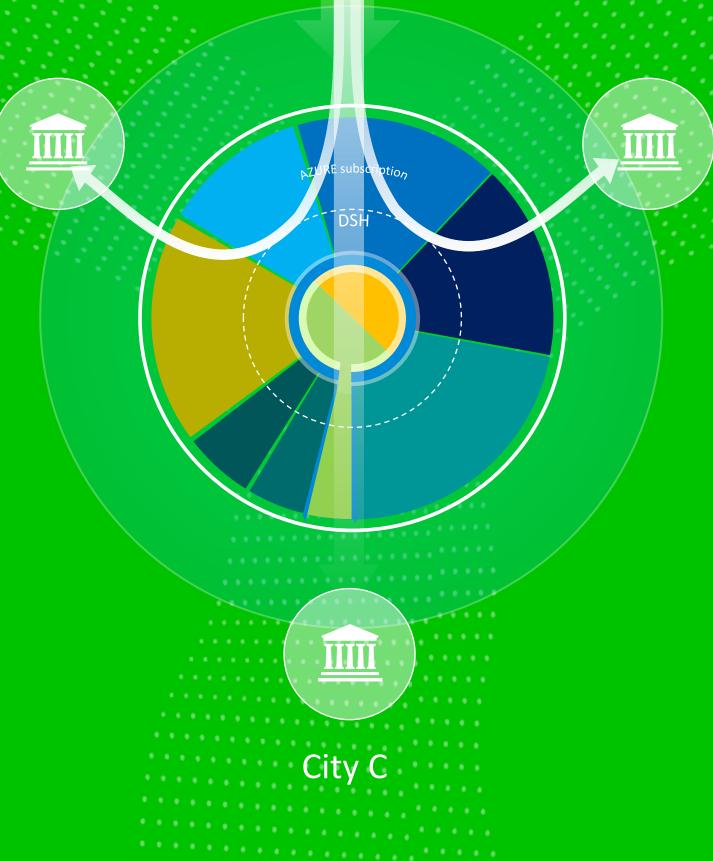


City B

City A

Shared data streams

The data platform makes it possible for a data stream (IoT sensors) to be onboarded only once and make it available for the respective cities





Sharing of data

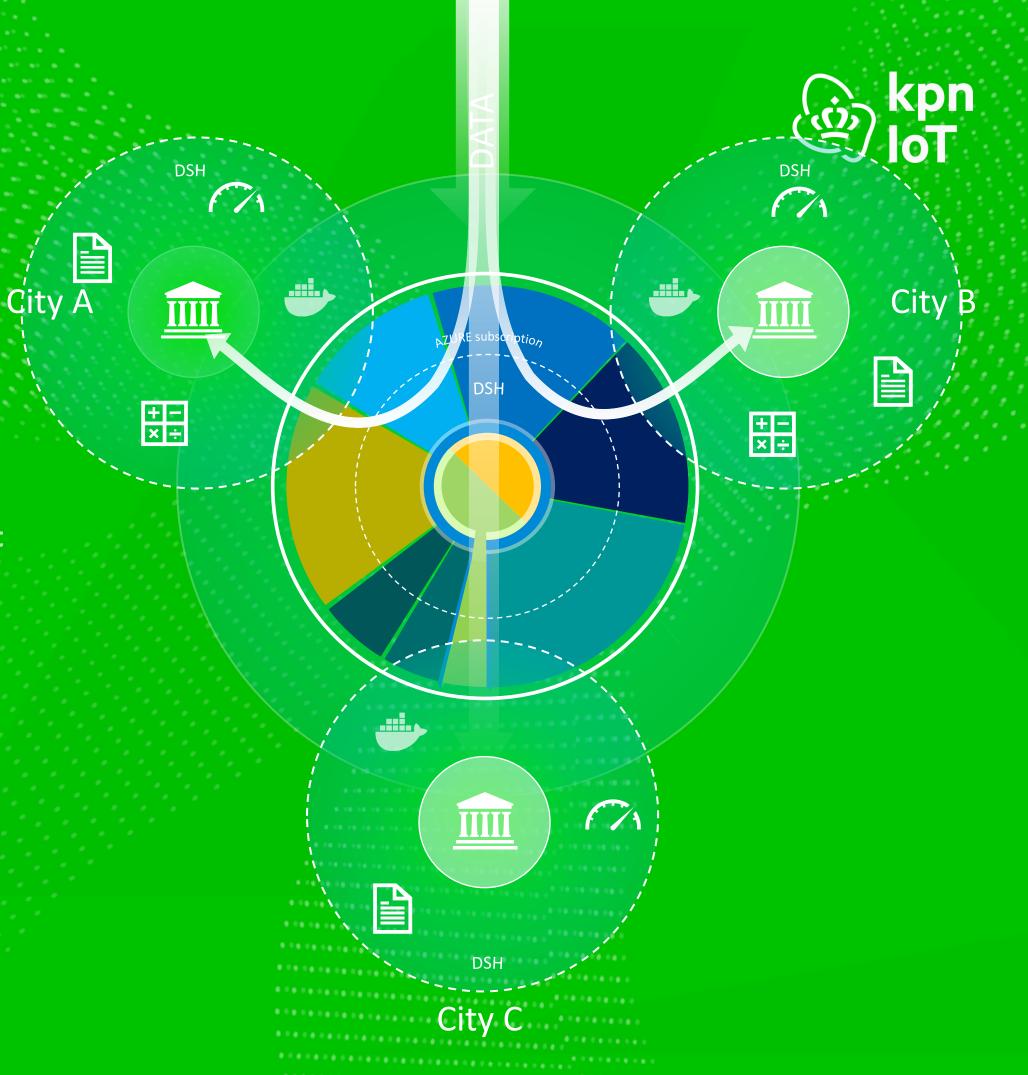
A city can choose to make a **data stream available** for other parties (like cities, high schools, universities, companies,...)

This data can then be used to **manipulate and aggregate** so it can be given back to the city to be
(for example) visualized



Data Services Hub Multitenancy

Each city has the possibility to have **its own tenant** to manage their own applications within Docker containers.



Host your data space

Rely on a trusted service provider to take care of the basics



Providing reliable service to data initiatives

Supporting the Smart Connected Supplier Network

- Hosting central components
- Developing data space as a service
- Supporting new use cases



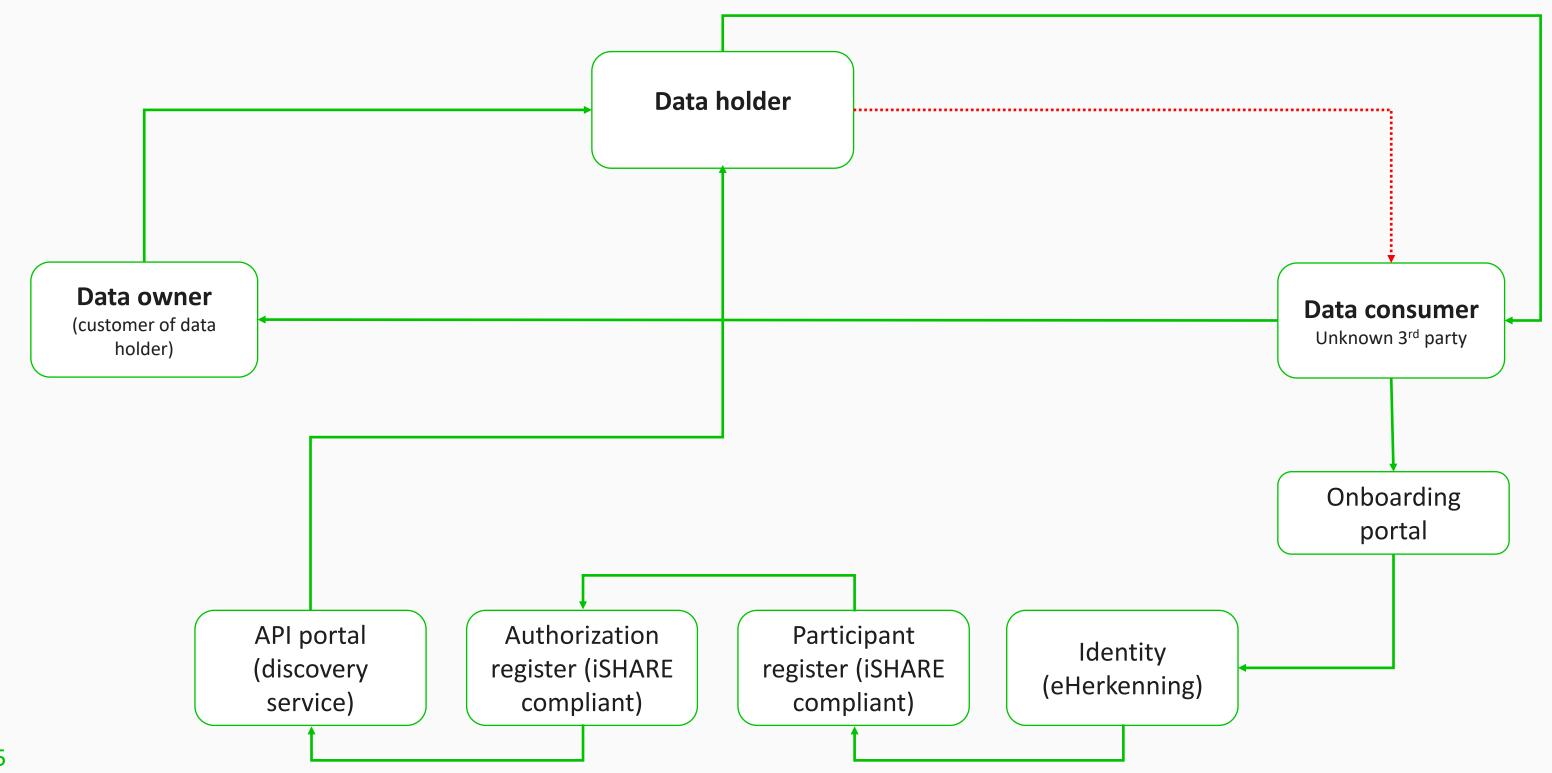


Provide Data Act compliancy

Federated Identity & Access Management



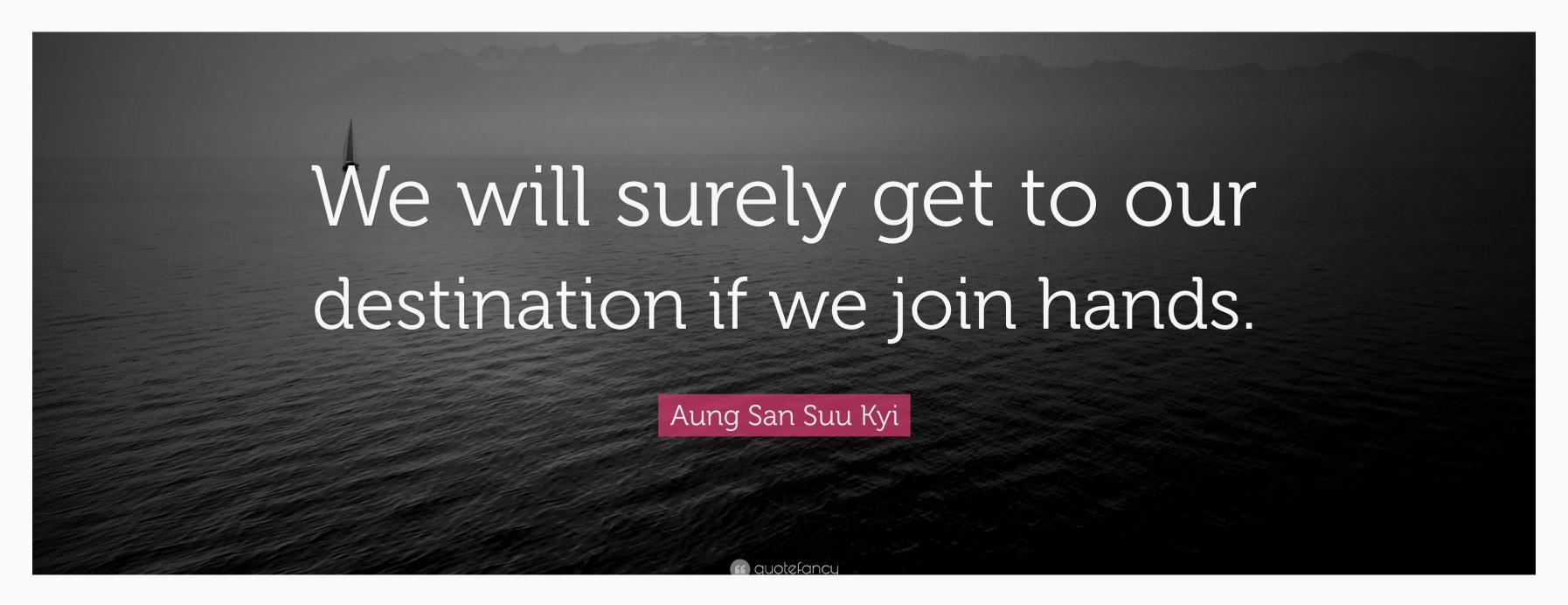
KPN Federated Identity & Access Management (FIAM) New service in development at KPN to support Data Act compliance





Our destination is dataspace as a service

Making access to data as easy as getting a mobile telephony service





Thank you for listening.

Please contact me for more information.



Rutger Borst

Rutger.borst@kpn.com

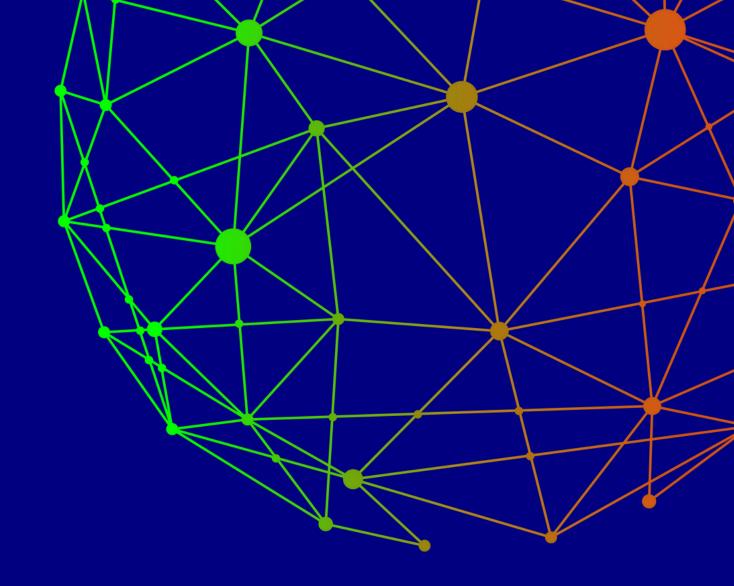


Data Spaces Symposium

Share data. Unlock value. Boost impact.

12th March 2025 | 13.30 - 15.00 pm | Track #1

Panel discussion | Key role of telcos as data space infrastucture enablers





Christoph MertensIDSA



Sven Löffler T-Systems



Masaru Dobashi NTT DATA



Rutger Borst KPN

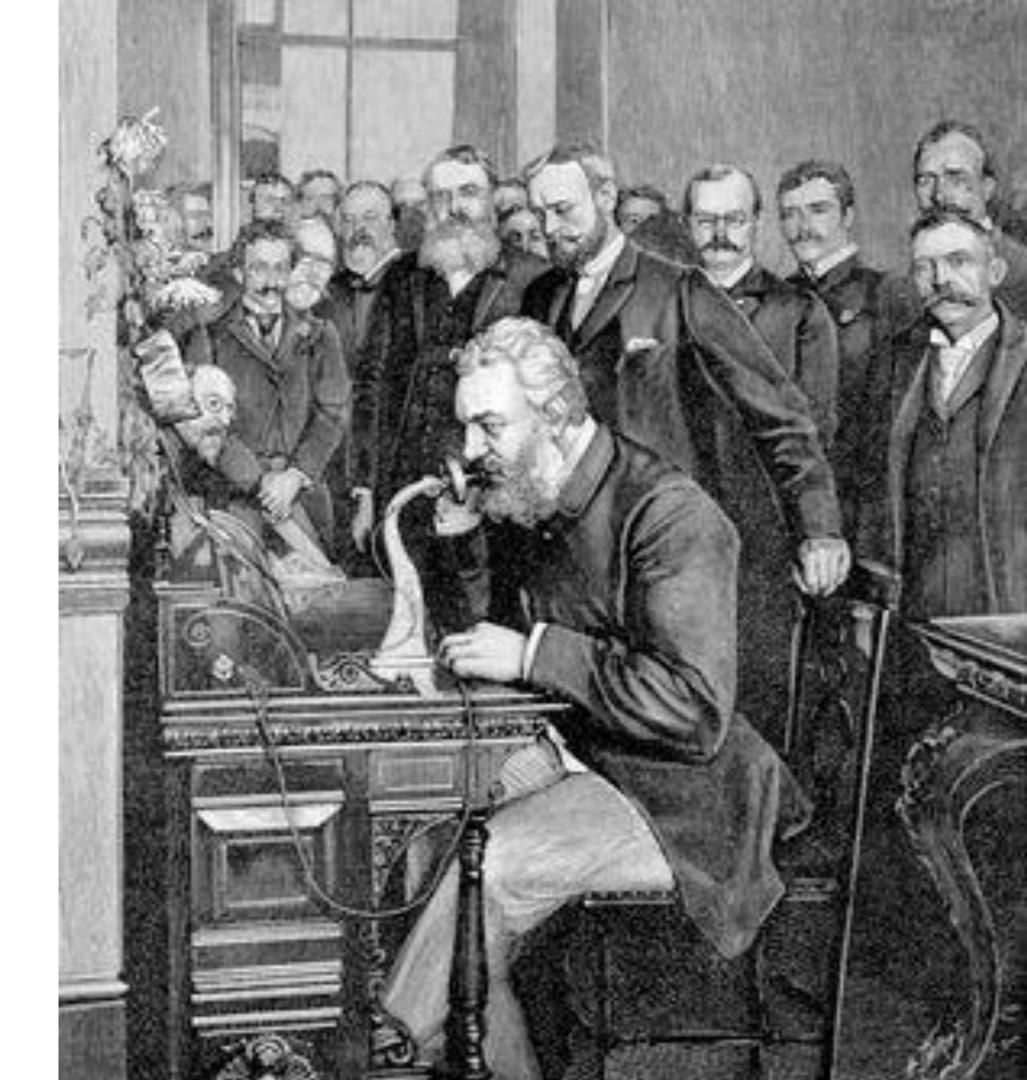


Andrzej Dulka PIIT



Start small – scale fast

- It took almost 150 years from patenting the telephone in 1876 to get to the user experience we are all familiar with nowadays
- With more and more people using the phone, the infrastructure was improved to meet the needs of the user

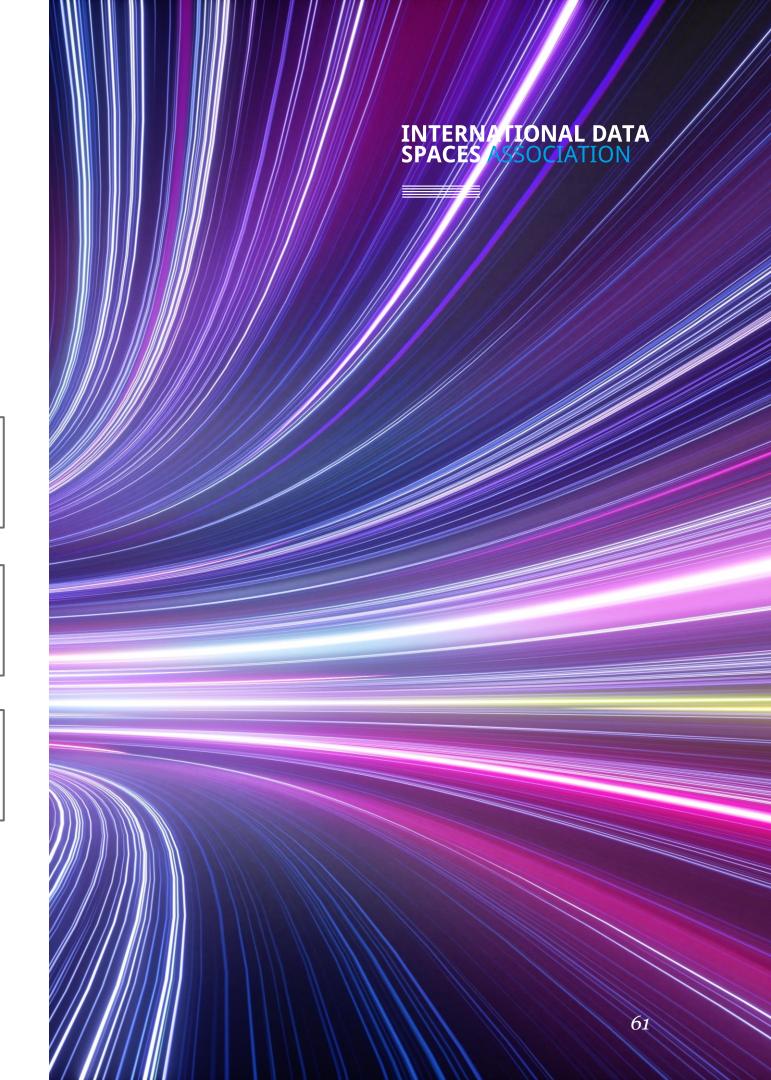


Data space users ...

... **discover** the **partners** that are the best match for their data needs and offering and the data spaces where to meet them

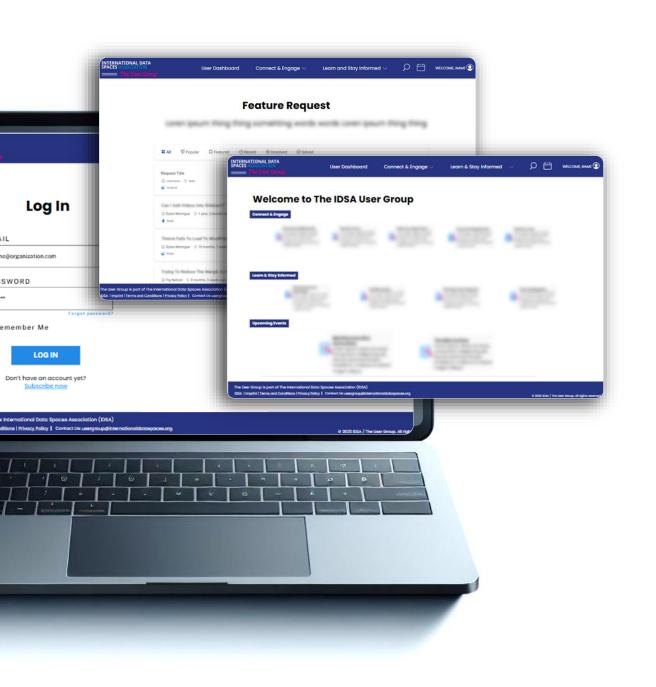
... **understand** data spaces and the **business opportunities** they enable

... **find and use** reliable **software and services** in the data space you are connected to



The User Group activities







- ✓ Weekly Ecosystem Calls to exchange insights with likeminded peers and industry experts
- ✓ A privileged channel to share your requirements and influence IDSA tools, standards and solutions
- ✓ Targeted sessions and unique opportunities for collaboration



- ✓ Monthly "Data Spaces Executive Summary" to discover key trends, latest developments and insights
- ✓ Biannual "Data Spaces Now magazine" - a Deepdive into the key developments shaping the landscape



- ✓ The Solutions Arena A curated showcase of tools, service providers, and implementations
- ✓ The biggest, most comprehensive library for data space insights— expert papers, tools, guides, and exclusive IDSA event recordings.





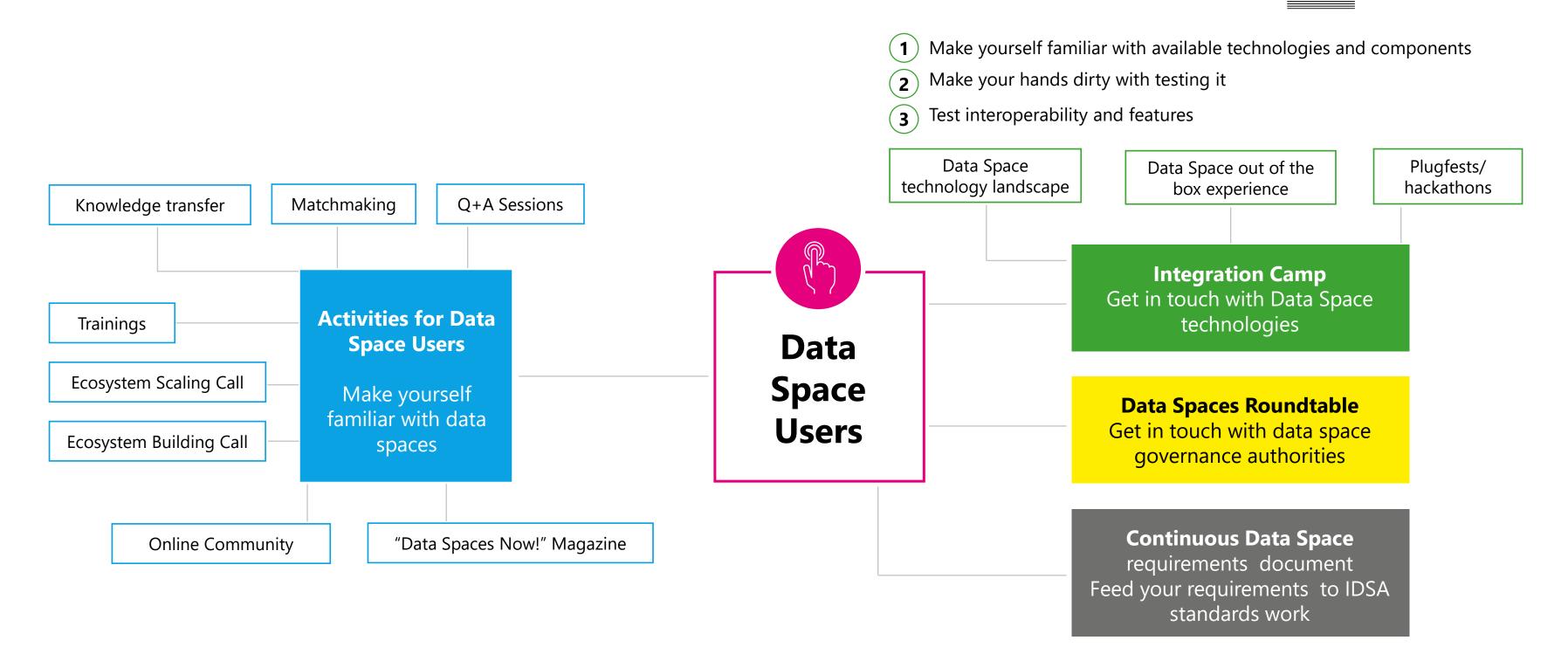




At your fingertips...

IDSA Data Space User Experience



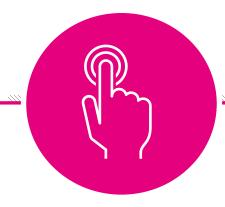


Title of presentation 63

INTERNATIONAL DATA SPACES ASSOCIATION

Choose your path to success

Subscription or membership—Choose what best fits to your needs



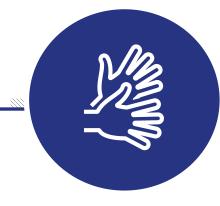


Subscribe to the User Group

Best suited for **data space users** looking for business opportunities, best practices and resources to make the most of participating in data spaces

Includes access to the User Group only

Plans start at €1,800 per year





Become an IDSA Member

Ideal for **data space makers** focused on building data spaces and offering products and services

Full access to all of the Association's activities, including the User Group's

Membership fees are as low as €1,200 / year for startups and non-for-profits and between €3,000 – €42,000 for corporates, depending on turnover



Data Spaces Symposium

15:00

Break & networking

Take a short break and refresh — we'll continue shortly.



















