March 2026
Reported by Isamu Yamada, IOFDS Secretary

Report on the 7th IOFDS roundtable meeting (member meeting)

Introduction / Summary

The 7th IOFDS Roundtable Meeting was held on March 3–4, 2026, at the University of Luxembourg, co-organized by NTT DATA and IOFDS. The open event held on March 5 will be reported separately.

The meeting gathered approximately 32–33 participants each day, bringing together key stakeholders from industry, academia, and government to discuss recent developments and future directions of data spaces and trusted data transactions.

The program consisted of four keynote speeches, twenty-two status reports, and two structured discussion sessions. The keynote speeches provided strategic perspectives from academia, industry, and international organizations, highlighting the evolving role of data spaces in digital transformation, governance, and economic value creation.

The status reports covered a wide range of ongoing initiatives across regions and organizations, including updates on standardization, policy developments, industrial implementations, and interoperability efforts. These reports demonstrated both the growing global momentum of data spaces and the challenges related to adoption, scalability, and coordination.

Two discussion sessions focused on key cross-cutting themes. The first discussion addressed the impact of AI on data spaces and explored the concept of "Data Spaces 2.0," emphasizing the need for interoperable governance frameworks. The second discussion focused on standardization and alignment, highlighting the importance of coordination among multiple standardization bodies (e.g., ISO, CEN/CENELEC, IEEE) and proposing collaborative approaches to reduce fragmentation and enhance interoperability.

Across the sessions, several key messages were consistently emphasized. First, the need for stronger alignment among standardization efforts was highlighted as critical to avoid fragmentation and ensure interoperability. Second, the emergence of AI is expected to significantly transform data spaces, leading toward a "Data Spaces 2.0" paradigm that requires new governance and architectural approaches. Third, discussions and Q&A also highlighted challenges related to the alignment between legal frameworks and technical implementation, including aspects such as usage rights and control mechanisms. Overall, participants recognized that achieving trusted and scalable data spaces will require not only technical standards but also coordinated governance, policy alignment, and cross-organizational collaboration.

During the closing session, the next IOFDS officers were elected as follows: Chair: Hiroshi Mano; Vice Chair: Masaru Dobashi; Secretary: Isamu Yamada. It was also confirmed that the next roundtable meeting will be hosted by the University of Tokyo, with the venue and date to be determined.

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1 Day 1 Tuesday, 3 March

1.1 Attendees

32(in-person: 21, online: 11)

1.2 Welcome & Logistics, Marta Duponselle(NTT Data)

Marta Duponselle welcomed participants to Luxembourg and expressed pride in hosting a gathering of thinkers, innovators, and technology leaders working to advance technologies that contribute to societal well-being. She noted that the meeting marks the start of Data Spaces Week, during which participants will exchange ideas, collaborate, and advance the organization's agenda.

She explained that the organizers decided to include a public event (Open Door Day) during the week in order to share the energy and ideas generated by the community with the wider Luxembourg business community, as well as policymakers and decision makers in the public sector. The week features numerous sessions covering different topics and industry verticals, with the goal of strengthening collaboration among countries, enterprises, and public institutions.

Marta encouraged participants to make the most of the opportunity to work together during the week and to further advance international collaboration in the data space ecosystem. She also announced an informal dinner in Luxembourg City, providing an opportunity for participants to meet and exchange ideas in a relaxed setting.

She thanked the University of Luxembourg and its research centre SnT for hosting the event, and briefly introduced herself as the Dissemination Stream Leader of Data Space for Health / Data Space Luxembourg, an initiative aimed at leveraging data and AI to improve the lives of citizens.

1.3 Keynote Speech, Carlo Duprel(University of Luxembourg)

Carlo Duprel, Head of Administration at the Interdisciplinary Centre for Security, Reliability and Trust (SnT) at the University of Luxembourg, welcomed participants and introduced Luxembourg's research and innovation ecosystem.

Luxembourg is a small but highly international country located between France, Germany, and Belgium. With around 670,000 inhabitants—about half of whom are foreign nationals—and many cross-border commuters, it has developed a multilingual and multicultural society where people speak on average more than three languages. The country hosts several major European institutions and offers a strong economic environment with high productivity and quality of life.

Carlo described Luxembourg's economic transition from steel production in the 19th and 20th centuries to financial services in the 1980s, and more recently to digital technologies and the data economy. Today, over 80% of the economy is service-based, with finance, automotive technologies, and space-related industries playing important roles. Luxembourg is also home to one of the world's largest satellite operators and is actively developing a space-sector ecosystem.

He then introduced the University of Luxembourg, founded in 2003 and the country's only university. Despite its relatively small size of about 7,500 students, it is strongly research-oriented with around 1,000 PhD students. The university focuses on three main areas: health and medicine, sustainable and social development, and digital transformation.

SnT, established in 2009 as the university's IT research center, plays a key role in supporting Luxembourg's digital ecosystem. The center has grown rapidly to around 580 staff members and focuses on four strategic areas aligned with national priorities: cybersecurity, fintech, space systems, and autonomous systems.

A distinctive feature of SnT is its close collaboration with industry. The center works with more than 70 companies on joint research projects that combine fundamental research, applied research, and education. These projects often involve PhD students and aim to develop prototypes addressing real-world challenges.

SnT also operates specialized laboratories and research infrastructures, including facilities for autonomous systems, satellite operations, and quantum communication. The center runs Luxembourg's experimental quantum key distribution network and conducts research in areas such as AI, quantum technologies, and advanced telecommunications.

Duprel concluded by emphasizing that SnT aims not only to achieve scientific excellence but also to strengthen Luxembourg's innovation ecosystem by developing talent, collaborating with industry, and translating research into practical applications.

Q&A

Q: What is the current situation of the data economy in Luxembourg?
Duprel explained that the data economy is a national priority. The government has launched national strategies for AI, quantum technologies, and data. In addition, the Luxembourg National Data Service (LNDS) was established to manage public-sector data and make it accessible to researchers and companies under appropriate legal conditions. These initiatives aim to promote data sharing and support the development of data-driven services.

Q: Are there initiatives related to data sharing ecosystems or data spaces?
Duprel noted that data sharing is an important research topic in Luxembourg. SnT is involved in several initiatives, including a collaborative project with NTT on a health data space. Discussions are also underway to establish a research data platform that would connect with the LNDS and other relevant stakeholders.

Q: How does Luxembourg connect research platforms with broader social infrastructure and society?
Duprel explained that the university collaborates closely with industry and also engages with the wider public through outreach activities and partnerships with schools. In addition, research in areas such as public health is translated into practical applications through cooperation with hospitals and medical institutions, although further progress in this area is still possible.

1.4 Opening Remarks and Call for meeting to order, Hiroshi Mano (Chair of IOFDS)

Hiroshi Mano, Chair of IOFDS and representative of the Data Society Alliance, welcomed participants to Luxembourg and called the seventh IOFDS Roundtable meeting to order. He noted that the roundtable series began three years ago and expressed his pleasure in bringing the community together again. Mano reiterated IOFDS's transparency policy, stating that meeting statements, presentations, materials, and minutes would be shared with the participants' mailing list unless exceptional circumstances and unanimous agreement required restricted disclosure.

The meeting agenda, prepared by Masaru Dobashi and circulated in advance, was approved as follows:
Motion:
Move to approve the meeting agenda contained in the file AgendaClosedDoor_2026-03-01_00.xlsx

- Moved: Isamu Yamada
- Seconded: Christoph Merterns

Approved by unanimous consent.

Mano also briefly reviewed recent roundtable activities, including meetings held in Brussels (2023) and during Data Spaces Week in Tokyo (2025), where the group approved the creation of a Project Authorization Request (PAR) for the IEEE standard on the Data Space Discovery Protocol.

Finally, he noted that, in accordance with IOFDS procedures, the Chair and Secretary positions would be elected at the end of the meeting. Nominations were opened for members wishing to nominate candidates or themselves ahead of the election scheduled for the final day.

1.5 Status Reports

1.5.1 Data Space in Japan and DSA, Hiroshi Mano (DSA)

Using the presentation slides "D1_1320_Mano_Data Spaces in Japan and the DSA.pdf," Hiroshi Mano provided an overview of data space initiatives in Japan and the activities of the Data Society Alliance (DSA).

He began by explaining the key challenges facing Japan's data economy. Data remains fragmented across organizational silos, and small and medium-sized enterprises (SMEs) are often disadvantaged in data transactions due to unequal bargaining power, high contract negotiation costs, and uncertainty regarding the value and future use of shared data. These factors create significant barriers to data circulation and limit SME participation in data-driven innovation.

To address these challenges, Mano introduced the concept of **Data Usage Rights (DUR)**. Rather than treating data as an owned asset, the approach separates the dataset from the rights to use it. DUR represents a bundle of usage rights—such as access, reproduction, processing, redistribution, and derivative use—that can be combined and restricted by conditions such as purpose, time, or location. This modular structure enables standardized data transactions while allowing flexible usage policies.

These rights are issued as **Data Usage Rights Certificates,** which link a dataset with its associated usage rights and explanatory information. The certificates can be traded as digital assets, enabling data usage rights to be bought, sold, or resold in a market environment similar to financial securities.

Mano further described a **data trading market model inspired by securities exchanges**, in which standardized data usage rights are listed and traded under market governance. The ecosystem involves actors such as market operators, data brokers, data providers, users, and clearing institutions. Pricing is determined through a bookbuilding process that gathers market demand before listing, enabling fair value discovery for data whose economic value varies by context.

To support trust in the system, Mano introduced the concept of a **Data Credit Guarantee Organization** (DCGO), which would function as a neutral trust anchor. DCGO would verify the identity of participants, guarantee data authenticity using cryptographic methods such as blockchain and digital signatures, record ownership of usage rights, and help enforce contractual conditions.

Finally, he noted that the initiative aims to empower SMEs by reducing legal costs and enabling new business opportunities such as data-backed financing and "data IPO" models. The work is also aligned with international standardization, including the **IEEE 3800 series on Data Trading Systems**, which aims to support interoperable global data markets.

Q&A

Q: When will the new project begin?
A(Hiroshi Mano): The new project is expected to start in April. Work on the international

standardization continues within IEEE, where IEEE 3800-2024 has already been published and additional work such as P3800.2 is now underway.

Q: Which regions are actively working on similar initiatives, particularly in Europe?
A (Hiroshi Mano): Europe is very active in the development of data spaces. However, many current initiatives assume that contractual relationships already exist between participants. The Japanese approach aims to enable more automated and flexible data transactions without relying heavily on pre-established bilateral contracts.
Comment: Contracts in data spaces can also be lightweight and implicit, similar to everyday transactions such as purchasing goods. Usage control mechanisms already exist within data space architectures, and the proposed model was considered an interesting approach that could complement these concepts.
Response (Hiroshi Mano): The rights associated with data usage are relatively simple—such as reading, storing, processing, or redistributing data. By standardizing these rights and adding optional restrictions, the system aims to make data transactions easier and more transparent.

1.5.2 DTS (Data Trading System) Demo, Hiroshi Mano (DSA)

Hiroshi Mano presented a short live demonstration of the Data Usage Rights trading system using a prototype marketplace interface. The system displayed datasets available for trading together with the associated usage rights, prices, and buy/sell orders. As an example, he showed a dataset on Kyoto tourism flow and spending, including its detailed description, sample data, and the conditions attached to its usage rights.

The demonstration illustrated how data providers define and publish usage rights, specifying permissions such as access or processing as well as restrictions on usage. Mano also executed a simple transaction in the marketplace, showing how usage rights can be bought and sold and how the order book updates immediately, similar to a stock exchange. At the time of the demonstration, the pilot system involved around eight companies and approximately twenty-four datasets participating in trial trading.

Q&A
Q: Can additional usage rights be issued after the initial issuance?
A (Hiroshi Mano): This depends on the conditions defined for the original rights. Issuing additional rights later may affect their value, so appropriate rules and governance are necessary.

Q: Does wider access to the same dataset reduce its value compared with financial markets?
A (Hiroshi Mano): The value of data depends on how it is used. It may increase when new applications are discovered, but it may also decrease if the data becomes widely available.

Q: Can data usage rights be resold in a secondary market?
A (Hiroshi Mano): That depends on the provider's conditions. Some datasets allow resale, while others restrict transactions to one-to-one transfers.

1.5.3 Koshizuka-Lab, Kazuma Hatano (U. Tokyo)

Kazuma Hatano presented an update from the Koshizuka Laboratory using the slides D1_1430_SR2_Title_Tokyo U_Hatano.pdf.

He first reported on Data Spaces Week 2025, a four-day event held in Makuhari in October 2025 with around 600 participants. The program included the IEEE Data Trading System Working Group meeting, the IOFDS Round Table, the Asia Open Data Partnership Summit, and the IDSA Data Spaces

Discovery Day Tokyo. Hatano highlighted that the participation of several Japanese government bodies—including the Digital Agency, METI, and MIC—demonstrates increasing national support for data space initiatives.

He also introduced collaborative work between the University of Tokyo and NEXCO East on the use of expressway-related data, such as traffic monitoring and infrastructure information, to explore new services and cross-industry data utilization.

Hatano further outlined the planned xIPF (cross Integrated Platform) Consortium, scheduled to launch on April 1, 2026. The initiative aims to combine data spaces and AI infrastructure to support new digital services and provide test-bed environments for validating use cases.

Finally, he reported academic and international collaboration activities, including a special session on data spaces and Data Free Flow with Trust (DFFT) at IEEE BigData 2025, a joint research MoU between the University of Tokyo and the GATE Institute of Sofia University, and an upcoming EU–Japan Hackathon as part of EU–Japan Digital Week 2026.

1.5.4 IDSA Japan Hub/ ITDT, Hirotsugu Seike (U. Tokyo)

Hirotsugu Seike presented a status report using the slides D1_1450_SR3_IDSA Japan Hub and ITDT_Seike.pdf.

He first introduced the activities of the **IDSA Japan Hub**, which aims to promote trusted data spaces and a sustainable data economy in cooperation with the Data Society Alliance. Recent activities include business and technical workshops, educational seminars on data spaces, and hands-on training programs for engineers. Several sessions were held at the University of Tokyo with participation from industry partners such as NTT DATA and OMRON, providing practical experience with data space connectors and industrial data integration.

Seike also reported on the **International Testbed of Data Space Technology (ITDT)** initiative. The testbed provides a neutral environment for collaborative experimentation with data space technologies and interoperability. It offers a distributed testing infrastructure based on a VPN network, enabling participants to deploy and test data space components and connectors in a shared environment.

In addition, he introduced ongoing collaborations with companies and research organizations to demonstrate secure data sharing between operational technology (OT) and IT environments. The testbed is also being used to explore future topics such as AI integration with data spaces, including concepts such as federated RAG and AI agents that utilize distributed data resources.

1.5.5 Data quality for AI, Kenji Hiramoto (IPA: IT Promotion Agency)

Kenji Hiramoto, Director General of the Digital Infrastructure Center at the Information-technology Promotion Agency (IPA) and Deputy Executive Director of the Japan AI Safety Institute (AISI), presented Japan's initiatives on **AI-ready data, trustworthy AI, and data quality management.**

He explained that while companies have traditionally focused on **AI models and services,** attention is now shifting toward the importance of **high-quality, well-structured data ("AI-ready data")** as a prerequisite for effective AI adoption. AI-ready data requires appropriate metadata, data quality management, provenance tracking, and licensing conditions to enable reliable AI use.

Hiramoto emphasized that achieving **trustworthy AI** requires a comprehensive approach covering not only AI models but also governance structures, infrastructure, stakeholders, and the reliability of the underlying data.

To address this, IPA and AISI are promoting several initiatives, including **AI Guidelines for Business, Generative AI and Machine Learning Quality Management Guidelines,** and a **Data Quality Management Guidebook**. In addition, Japan's **Government Interoperability Framework (GIF)** provides national guidance on rules, data models, and technical components for interoperable data sharing.

He also highlighted the importance of **human resource development for data management**. While Japan has many data scientists, there is a shortage of data managers and engineers. To address this gap, IPA plans to introduce training programs and a **national certification program for Data Managers**.

Finally, Hiramoto pointed to emerging challenges such as AI-agent-based data pipelines, increasing use of unstructured data, integration of knowledge graphs with RAG, and the need for continuous monitoring of data quality ("data health").

Q&A
Comment: Christoph commented on the historical fluctuations in Japan's data ecosystem and emphasized the importance of sustained initiatives.
Response (Hiramoto): He noted that the team has recently been strengthened and expressed confidence that further progress can be expected.

1.5.6 Japanese Policy Update on Data and AI, Takafumi Ochiai (Atsumi & Sakai / DSA)

Takafumi Ochiai presented an overview of Japan's data and AI policy using the slides D1_1530_SR5_AtsumiSakai_Ochiai_Japans-Digital-Frontier-Next-Generation.pdf.

He explained that Japan is strengthening its policy and legal framework for data utilization and AI while learning from European initiatives such as the Data Governance Act and Data Act. The Digital Agency is expected to serve as the "command tower" for national data strategy, promoting public–private data collaboration, governance standards, and secure data-sharing environments.

Ochiai introduced a business plan certification system for data-sharing initiatives, in which the Digital Agency and the Personal Information Protection Commission review governance and security aspects of proposed projects. Strategic use cases include autonomous driving and infrastructure data linkage, AI-based construction safety monitoring, and business partner verification using government-held data.

He also described planned revisions to the Personal Information Protection Act (PIPA) aimed at balancing innovation and privacy protection. The revisions include stronger governance and sanctions, while introducing an exception allowing personal data to be used for AI development and statistical purposes without individual consent when individuals cannot be identified.

In addition, Ochiai highlighted key infrastructure initiatives supporting Japan's data ecosystem, including the My Number Card digital identity system, expansion of financial open APIs, nationwide electronic health record data sharing, and the development of base registries to enable reliable data linkage across sectors.

Finally, he noted that Japan's AI governance approach emphasizes agile governance and soft-law

mechanisms, alongside investment in AI infrastructure and promotion of international initiatives such as the Hiroshima AI Process and Data Free Flow with Trust (DFFT).

Q&A
Q: Are Japanese regulations evolving in a way that both protects domestic industries and promotes a healthy data market?
A (Ochiai): Japan is pursuing a balanced approach that strengthens governance while encouraging companies to utilize data more actively.

Q (Comment): Japan's approach could provide useful models for countries in the Global South.
A (Ochiai): He agreed, emphasizing the importance of developing frameworks that support international data governance and cooperation.

1.5.7 Activity of IEEE DTS WG, Hiroshi Mano (Chair of IEEE SA DTSWG)

Hiroshi Mano explained the IEEE 3800 series using the slides D1_1620-01_Standardization of Data-Trading Systems: An Overview of the IEEE 3800 Series.pdf and D1_1620-02_Overview of P3800.2.pdf

He noted that as data has become a strategic asset in the digital economy, mechanisms for secure, fair, and interoperable data exchange are increasingly important. In response, the IEEE 3800 series aims to provide a domain-independent international framework for data-trading systems.

The first standard, IEEE Std 3800-2024, establishes the foundation by defining the reference model, terminology, architecture, stakeholders, and standardized objects used in data trading. The ongoing project P3800.1 specifies the protocols and object frameworks required to implement this model in practice.

He also introduced P3800.2, which focuses on interoperability across heterogeneous data spaces by defining a Data Space Advertisement and Discovery Protocol. This would allow operators to discover relevant data spaces, identify participation requirements, and connect through a unified method rather than ad-hoc gateways.

Mano emphasized that this approach supports interoperability across different sectors and regions and invited participants to contribute ideas to the ongoing P3800.2 discussions.

1.5.8 NTT DATA & Value Transfer Protocol, Masaru Dobashi (NTT DATA Group), Kento Yamada and Yoshiharu Akahane (NTT DATA JP)

Masaru Dobashi (NTT DATA Group) presented a status report on the company's global activities related to data spaces using the slides D1_1640_SR7_Status Report_NTTD_Dobashi.pdf

He explained that NTT DATA is involved in numerous data space initiatives worldwide across sectors such as public services, energy, mobility, finance, and healthcare, aiming to promote cross-organizational data collaboration.

Dobashi also noted that NTT DATA recently joined, as a founding member, a consortium promoting

the social implementation of Privacy Enhancing Technologies (PETs) in Japan. By combining PETs with data space technologies, the company aims to enable secure utilization of confidential data without exposing raw data.

Another initiative introduced was a collaboration with Mizuho Bank to create a platform for distributing environmental value related to Sustainable Aviation Fuel (SAF), supporting transparent and traceable circulation of environmental value across supply chains.

He also highlighted collaboration with the University of Tokyo on data space research and social implementation, including an international testbed with around 30 participating organizations, cross-border data exchange between Japan and Europe, and joint academic research.

Yoshiharu Akahane then introduced NTT DATA's work on next-generation financial infrastructure. He outlined a concept for a value transfer protocol designed to connect different data spaces and enable trusted value exchange alongside data sharing. The proposed architecture embeds trust within transferable tokens using cryptographic signatures, allowing value to move securely across organizational systems, enterprise wallets, AI agents, and IoT devices without being confined to a single ledger.

Q&A
Christoph Mertens commented that enabling value transfer across data spaces could create additional network effects by linking data sharing with economic value exchange. No further questions were raised.

1.5.9 Latest developments in adoption of data spaces Christoph Mertens (IDSA)

Christoph Mertens reported on recent developments in the International Data Spaces Association (IDSA) using the slides D1_1700_SR8_Latest developments in adoption_IDSA_Christoph.pdf.

He noted that IDSA celebrated its 10th anniversary in February, continuing its work on data sovereignty and data space development through initiatives such as the Reference Architecture Model, Rulebook, certification framework, Data Space Protocol, and knowledge sharing through the Body of Knowledge.

Mertens explained that although many data space initiatives now exist worldwide, adoption remains in an early stage. To improve interoperability and scalability, IDSA is contributing to standardization efforts, including the forthcoming ISO/IEC 20151 standard on data space concepts and characteristics, as well as the Data Space Protocol and Decentralized Claims Protocol.

He also highlighted the Data Spaces Symposium, which gathered over 1,000 participants from 34 countries and demonstrated the growing global community around data spaces. Examples such as Catena-X and the inclusion of data spaces in the Gartner Hype Cycle for Manufacturing illustrate increasing industrial interest.

Finally, he introduced the newly launched Data Spaces Adoption Forum, which aims to accelerate adoption by addressing challenges such as high onboarding costs, complexity, and slow uptake, particularly for SMEs. The initiative brings together cloud providers, technology developers, and data space operators to develop connector-as-a-service solutions, standardized onboarding processes, and scalable approaches to expand participation in data spaces.

1.5.10 Gaia-X - The start of Data Spaces Season 2.0, Ulrich Ahle (Gaia-X)

Ulrich Ahle (CEO of Gaia-X European Association for Data and Cloud) delivered a status report using the slides Gaia-X Status Report: The start of Data Spaces Season 2.0.pdf

He introduced Gaia-X as a global member-driven initiative aimed at enabling trusted decentralized digital ecosystems through federated data infrastructures based on common specifications, rules, and verification frameworks.

A key message of the report was the transition to "**Season 2.0**" of data spaces, shifting the focus from technology pilots toward industry adoption, sustainable business models, and large-scale deployment. The Gaia-X Governmental Advisory Board, consisting of representatives from European ministries and the European Commission, has recommended developing maturity assessments and demonstrating the economic viability of data spaces.

Ahle also highlighted ecosystem developments, including the expansion of lighthouse data space projects across sectors such as manufacturing, agriculture, mobility, health, and smart cities, with nine new projects endorsed in 2025. He reported on the European Digital Sovereignty Summit (Berlin, November 2025) and the Gaia-X Summit 2025 in Porto, where updates to the "Danube" architecture and compliance framework were introduced, enabling automated compliance and flexible governance through the "Bring Your Own Rules" approach.

He further noted the growing catalogue of Gaia-X compliant services, currently listing around 600 services from 15 providers, with several achieving the highest Label Level 3 certification. The international ecosystem is also expanding through new Gaia-X hubs in Brazil, Canada, Korea, and the Caribbean, while cooperation with CEN/CENELEC JTC 25 and other initiatives is advancing terminology harmonization and standardization. Ahle also emphasized the importance of trusted data infrastructures for Europe's AI ecosystem, referring to initiatives such as IPCEI-AI.

He concluded by announcing upcoming events including the Gaia-X Tech-X & Hackathon in Athens (May 2026) and the Gaia-X Summit 2026 in Vienna (November 2026).

Q&A
No substantive questions were raised following the presentation. It was noted that the Gaia-X hackathon will award prizes of €5,000 for first place, €3,000 for second place, and €1,500 for third place.

1.5.11 DAWEX: Data Exchange Platform Updates, Didier Navez (DAWEX)

Didier Navez reported on recent activities at Dawex using the slides D1_1800_SR11_StatusR_Dawex_Didier.pdf.

He explained that Dawex, now approaching its 11th year, provides solutions for secure, trusted, and compliant data sharing and exchange across organizations, data spaces, and data ecosystems. The platform supports several types of implementations, including corporate data hubs, data marketplaces, and industry data spaces, and is used across more than 15 industry sectors.

Navez presented two recent examples. The first was Data for Nuclear X, a data space initiative in the nuclear energy sector involving a supply chain of more than 2,500 companies. The project aims to modernize information exchange through data standardization, digitalized workflows, and secure document sharing, supporting reactor construction, maintenance operations, and supply chain

coordination. The system is expected to process around 30 million data transactions annually by 2030, with further growth anticipated.

The second example was Chem-X, an initiative between France and South Korea combining AI technologies with a data space infrastructure. The project addresses regulatory requirements in the chemical industry while enabling secure and sovereign data exchange. AI models can utilize shared data to support applications such as identifying alternative materials in manufacturing.

Navez emphasized that data spaces are becoming an important foundation for trusted data sharing and AI applications, particularly in regulated industrial sectors.

Q&A
Q : How can highly sensitive data related to critical infrastructure such as nuclear power plants be handled securely in data spaces?
Response (Navez): Industries such as nuclear energy require extremely high security standards. Data space implementations therefore incorporate multiple security layers and strict technical controls. He also emphasized the importance of sovereign solutions and the growing demand for highly secure data-sharing infrastructures.

1.5.12 Dataspaces for Alternative Medicine, Gopal Tadepalli (Mahindra University)

Dr. Gopal Tadepalli presented the concept of data spaces for alternative medicine using the slides D1_1740_SR10__Report10_3Mar2026_Gopal.pdf.

He noted that the WHO defines health as a state of physical, mental, and social well-being, not merely the absence of disease, suggesting that health data should include broader aspects such as symptoms, functionality, and quality of life.

Gopal explained that traditional or alternative medicine differs significantly from modern medicine in areas such as regulation, testing, dosage, consultation practices, and training, making its data difficult to capture within current health information systems.

To address this challenge, he proposed a medical cybernetics framework to integrate heterogeneous health data and support the development of data spaces for alternative medicine. He emphasized the need to consider multiple healthcare quality indicators, including accessibility, effectiveness, safety, sustainability, and patient-centeredness.

He also highlighted that traditional medicine data is often structurally under-captured in electronic health records and insurance systems, and that differences in terminology and coding across countries hinder interoperability.

Finally, he referred to ICD-11 developments, particularly Chapter 26, which introduces a supplementary classification for traditional medicine diagnoses. He suggested that data spaces could help integrate Western and Eastern medical approaches, supporting a global framework for integrative medicine.

1.5.13 Atos: Data Spaces Initiatives, Klaus Ottradovetz (Atos)

Klaus Ottradovetz reported on recent activities at Atos using the slides D1_1820_SR12_Status Report_Atos_Klaus Ottradovetz.pdf.

He explained that Atos is actively involved in numerous data space initiatives across domains such as manufacturing, finance, public sector, agriculture, energy, mobility, and healthcare, and participates in major European initiatives including Catena-X, Manufacturing-X, Energy-Data-X, and the European Health Data Space.

Ottradovetz noted that although more than 200 data spaces have been identified globally, the landscape remains highly fragmented, with different reference architectures, operating models, and technology implementations. He emphasized that large-scale industrial use cases—such as global supply chains spanning multiple regions and industries—require interoperability across geographies, domains, and regulatory environments.

To address this challenge, he proposed establishing a common foundational layer consisting of shared protocols, trust frameworks, and standards that can interoperate with domain-specific rules and regional regulations. Such a base layer would allow different data spaces to connect while respecting existing standards and governance frameworks.

He also presented a federated trust approach, where identities, services, and connectors can be validated using verifiable credentials and mutually recognized trust service providers. This approach enables different ecosystems to accept each other's identities, catalogs, and services while maintaining decentralized governance.

Finally, he emphasized that scalable interoperability and trusted infrastructure are essential for supporting global supply chains and emerging technologies such as AI-driven industrial applications, which rely on trusted data and services across multiple data spaces.

Q&A
Q: Is a data catalog different from the actual dataset instance being transferred?
Response (Ottradovetz):Yes. A catalog provides a description of available datasets or services, while the actual dataset is accessed separately through the service using specific parameters. He also noted that clearer definitions are still needed across communities.

1.6 Closing of Day1

Masaru Dobashi closed the first day of the meeting by thanking participants for their contributions and noting that the discussions had concluded on schedule. He expressed appreciation for the active participation and invited attendees to continue informal exchanges during the evening dinner.

2 Day 2 Wednesday, 4 March

2.1 Attendees

33(in-person: 23, online: 1)

2.2 Keynote Speech: Latest European AI Ecosystem Activities, Marco Schuldt (BMWE)

Marco Schuldt (BMWE) presented the latest developments and strategic direction of the European AI ecosystem, emphasizing AI as a critical infrastructure for societal resilience and industrial competitiveness. He highlighted the urgency for Europe to strengthen its AI sovereignty amid global

competition, while addressing structural challenges such as fragmentation, limited interoperability, and scalability across member states.

A key focus was the distinction between **industrial AI** and general AI. Industrial AI requires smaller, specialized, secure, and certifiable models tailored to sector-specific use cases, with strict requirements on reliability, low latency, and minimal hallucination. This necessitates access to sensitive industrial data, making data spaces a crucial enabler for secure and structured data sharing across value chains.

Schuldt outlined a vision for a **federated and open industrial AI ecosystem**, built on four main components:
(1) secure AI infrastructure (cloud/edge and compute),
(2) access to industrial data ecosystems,
(3) development of sector-specific foundation models, and
(4) orchestration and operation of the overall ecosystem.
Open-source approaches and interoperability were emphasized as key drivers.

He also introduced several European initiatives, including Catena-X, Manufacturing-X, mobility data ecosystems, and new projects such as the open-source reasoning model "SOPHIA." In addition, Europe is advancing concepts such as AI Gigafactories, federated cloud-edge infrastructures, and shared compute resources to support scalable AI deployment.

Finally, he stressed the importance of standardization, model interoperability, and international collaboration. While EU funding mechanisms are region-focused, he expressed strong interest in collaboration with partners such as Japan to jointly develop standards, technologies, and data-sharing frameworks.

2.3 Status Reports

2.3.1 Industry Testimonial: Business services based on data space and AI, Ingo Sawilla (TRUMPF)

Ingo Sawilla, TRUMPF, delivered his status report using the presentation "D2_0925_SR11_20260302_TW509sa_MX_IOFDS_Luxemburg_TRUMPF_Ingo.pdf." Based on this presentation, he emphasized that discussions on data spaces and AI should be reframed from a technology-centric view to a business-driven perspective, where data exchange and AI serve as means to solve concrete industrial challenges.

He introduced TRUMPF's global manufacturing footprint and noted that future production environments will evolve into interconnected ecosystems of smart products, factories, and services. At the same time, regulatory frameworks in Europe (e.g., GDPR, Data Act, AI Act) are increasingly shaping data usage and digital service design.

A key issue is that current shop-floor architectures are still based on legacy standards that do not incorporate data management or AI. Therefore, industrial architecture needs to be updated, and interoperability must be achieved through harmonized standards such as AAS and Manufacturing-X. He also highlighted the importance of aligning existing standards rather than creating further fragmentation.

He further pointed to the growing relevance of the circular economy, where lifecycle data sharing and digital twins will be essential to support sustainability, compliance, and efficient decision-making across value chains.

Concrete examples, such as remote machine operation and AI-assisted process optimization, were

introduced to illustrate how data spaces and AI can enable new service models and improve production processes.

He concluded that the primary objective is to achieve business impact—including improved quality, efficiency, and flexibility—while data spaces, standards, digital twins, and AI function as key enablers.

Q&A
Q: Which approach creates the most value?
Response: The greatest value comes from autonomous operations at the factory level, where AI is embedded across processes and knowledge is digitized and reused, rather than from isolated AI functions.

Q: What are the latency requirements for remote operation?
Response: Real-time ultra-low latency is not required; around 100–200 ms is sufficient. Distributed operation centers and edge computing improve responsiveness.

Q: What about standardization bodies and architecture layers?
Response: This remains open. Existing models (e.g., automation pyramid, RAMI) may need revision, and organizations such as IEC could play a role. Collaboration is essential to define future standards.

2.3.2 Industry Testimonial: Future of manufacturing automation with AI, Sebastian Schneider (DMG MORI)

Sebastian Schneider presented his report based on the presentation "D2_0945_SR12_ Future of manufacturing automation _DMG MORI_Sebastian.pdf."

He described the shift from Industry 4.0 to Manufacturing-X, moving from single-machine optimization to data sharing across multiple stakeholders (machine builders, suppliers, and operators).

He highlighted three key value areas enabled by data exchange and AI:
(1) easier operation through automation,
(2) improved machine utilization via condition monitoring, and
(3) increased energy efficiency through optimized processes.

Use cases such as remote operation, predictive maintenance, and energy optimization illustrated how data-driven approaches can reduce downtime, improve efficiency, and lower energy consumption.

He also outlined future AI applications, including automated process preparation, image-based monitoring, data-driven condition analysis, and AI-assisted user support.

He concluded that data sharing ecosystems combined with AI are essential for enabling more efficient and autonomous manufacturing.

2.3.3 International Manufacturing-X: status and activities, Dr Dominik Rohrmus (LNI 4.0)

Dominik Rohrmus presented his report using the slides "D2_1005_SR13_IMXC-2026-Update_Dominik_Rohrmus-FINAL.pdf."

He emphasized that the manufacturing domain is now moving from discussion to execution and operationalization of data spaces, with concrete industrial adoption already underway. However, he

noted key challenges, particularly the heterogeneity of IT environments across manufacturing companies, which makes standardization and interoperability more complex than in other sectors.

He introduced International Manufacturing-X (IMX) as a global initiative to build a federated, decentralized, and collaborative data ecosystem for manufacturing, aligned with FAIR data principles. The initiative aims to enhance resilience, sustainability, and competitiveness through data-driven value chains and new business models.

IMX brings together manufacturing initiatives, infrastructure efforts (e.g., Gaia-X, IDSA), and standards (e.g., OPC UA, AAS), with the IMX Council coordinating international collaboration and standardization activities. The initiative has expanded globally, involving multiple countries and progressing through a series of international milestones.

A shared foundational framework was presented, covering strategic goals, business models, cross-industry use cases, and a common technical and regulatory base. Example use cases include autonomous factories, supply chain transparency, energy management, and circular economy.

He also highlighted ongoing efforts to align IMX with Japan's Open Data Space (ODS) Reference Architecture, noting that implementations such as the MX port can serve as practical realizations of this architecture.

Looking ahead, the IMX Council will showcase concrete implementations at Hannover Messe, including use cases such as digital product passports, edge/AI management, and international trust federation. He stressed the importance of global alignment on standards while avoiding excessive politicization.

Finally, he underlined that the established data infrastructure—ensuring identity, trust, and interoperability—provides the necessary foundation for the next phase: industrial AI deployment.

Q&A
Q: Among the various initiatives, how should alignment with architectures such as ODS be advanced?
A (Dominik): Aligning implementations such as the MX port with ODS provides clear, practical architecture for the market. Moving forward, joint discussions (e.g., regular meetings) and concrete execution will be key to establishing a de facto standard direction.

2.3.4 RRI status update, Kazuo Nakashima (RRI)

Kazuo Nakashima presented his report using the slides "D2_1025_SR14_RRI_Nakashima.pdf." He reported on recent progress in advancing manufacturing data spaces in Japan through both domestic and international collaboration.

Internationally, RRI has been engaged in discussions with Germany on ODS and MX Port, confirming their compatibility and moving toward closer cooperation. Domestically, key developments include the establishment of the Japan Digital Ecosystem Partnership (JDEP) and the formation of the Japan Data Space Alliance (JDSA) to promote implementation and coordination of data space initiatives.

RRI also continues internal activities such as use case development and semantic interoperability studies. The ODS concept was emphasized as an open and globally applicable framework supporting international collaboration. The October 2025 RRI symposium was highlighted as a milestone, bringing together stakeholders from Japan, Europe, and the U.S. to discuss digital ecosystems and industrial sustainability.

Looking ahead, RRI will present ODS architecture and use cases at Hannover Messe in collaboration with partners such as IPA and NEDO.

He concluded that data spaces should be seen as a means for business transformation, with user readiness, standardization, and international collaboration remaining key challenges.

Q&A
Q: Does RRI also focus on AI applications?
A (Nakashima): Yes. AI is essential, but challenges remain in data sharing and industry mindset, which need to be addressed alongside technical development.

2.3.5 Progress of ISO/IEC 25005 Series on data use in smart cities, Xiaomi An (Renmin University of China)

Xiaomi An presented an update on the ISO/IEC 25005 series, a set of standards on data use in smart cities developed under ISO/IEC JTC 1 WG11.

The series consists of three parts.

Part 1 defines a data use framework and principles, emphasizing citizen-centric value creation and aspects such as data availability, trust, connectivity, and responsibility. It is currently in the final stage toward publication.

Part 2, already published, provides methods for use case collection and analysis, deriving common considerations from international case studies.

Part 3, under development, focuses on measurement, evaluation, and reporting, introducing indicators and schemes to make data use assessment more practical and actionable.

Across the series, a common framework is applied based on multiple dimensions, including data value, quality, usability, security, and innovation, supported by a data value chain perspective. The work reflects international collaboration and inputs from multiple regions. As a next step, the group is planning further standardization work on data use considerations for AI applications, based on case studies and alignment with related standards.

Q&A
Q: Are data governance aspects sufficiently covered?
A (Xiaomi An): Governance is addressed across multiple dimensions—policy, quality, interoperability, and security—embedded within the overall data use framework rather than as a standalone element.

Q: How will this relate to other standards (e.g., IEEE)?
A: Alignment is expected to progress under a new joint ISO/IEC committee structure, enabling closer collaboration with related standardization efforts.

2.3.6 Status report from Fujitsu, Taka Matsutsuka (Fujitsu)

Taka Matsutsuka presented his report using the slides "D2_1135_SR16_IOFDS-COCN-Fujitsu_Taka.pdf." He introduced the activities of COCN (Council on Competitiveness Nippon), an industry-led, multi-stakeholder organization that develops policy recommendations to strengthen Japan's industrial competitiveness and bridges industry, academia, and government.

He highlighted the current project "Sustainable Engineering Enabled by Generative AI," which aims to transform the engineering value chain—from design to manufacturing and supply chains—by leveraging generative AI, while also addressing institutional and human factors.

The initiative responds to challenges such as declining competitiveness of Japanese manufacturing and the need for more resilient, data-driven supply chains. It emphasizes the use of real-world data and AI technologies, including AI agents, and points to the importance of cross-company collaboration

supported by data integration and data space initiatives.

Looking ahead, the outcomes will be further developed through collaboration with industry and government, aiming at practical implementation and demonstration.

Q&A
Q: Is AI-based supply chain management linked to Digital Product Passport (DPP)?
A (Matsutsuka): While DPP is still at an early stage in Japan, it is expected to become relevant, and integration with AI agent-based supply chains is likely.

2.3.7 IMXC Showcase: Status Federated Trust & Federated Catalogue (Discovery), Klaus Ottradovetz (Atos)

Klaus Ottradovetz presented the IMXC Showcase using the slides "D2_1155_SR17_IMXC Showcase_Klaus_Ottradovetz.pdf." The showcase aims to demonstrate that data spaces, AI, and industrial systems can be integrated across domains and geographies in a practical, working environment. It focuses on end-to-end use cases spanning global supply chains, production, and product lifecycle management.

A central example is the Digital Product Passport (DPP)—particularly a battery passport—where data from multiple stakeholders is continuously updated across the lifecycle, enabling applications such as recycling strategies and product optimization. The approach relies on common data models and interoperability technologies such as Dataspace Protocol, AAS, and OPC UA.

The showcase emphasizes decentralized architecture, where multiple participants exchange data and services without a central authority, supported by standardized connectors and interoperable components . It also highlights the role of AI (including AI agents) in automating coordination across supply chains and systems.

A key feature is the implementation of federated trust, where identities, services, and data are validated using mechanisms such as verifiable credentials, ensuring compliance with agreed standards and enabling trusted collaboration across ecosystems.

Overall, the showcase demonstrates how existing standards and technologies can be combined to realize interoperable, cross-border data ecosystems and to support business-relevant use cases.

Q&A
Q1: In data spaces, how should "transactions" be understood compared to strict transaction mechanisms in distributed systems (e.g., two-phase commit)?
A (Klaus): The term "transaction" is used differently. In data spaces, it does not imply strict algorithmic consistency, but rather a rule-based exchange. Before any data exchange, parties validate identities, compliance with agreed standards, and usage rules. Only after these checks are satisfied is the interaction allowed.

Q2: What is meant by "standards" in this context? In practice, multiple layers of standards (protocols, semantics, etc.) are required.
A (Klaus): Standards are not predefined by the data space itself, but are agreed upon by participating parties. These may include protocols, data models, and semantics. The key is that the applicable standards are explicitly defined and that compliance with them is validated before interaction.

Q3: How are completeness and rigor ensured, such as normative references, conformance testing, and binding agreements between parties?
A (Klaus): Data spaces do not define all standards themselves. Instead, they:

- reference existing standards (e.g., ISO, OPC UA, etc.),
- validate that participants conform to those standards, and
- ensure that applications and services operate within agreed frameworks.

The role of the data space is therefore to link, verify, and enforce consistency across existing standards, rather than replace them.

Q4: Is there a need for clearer mechanisms (e.g., state machines, conformance frameworks) to avoid misunderstanding in implementation?
A (Klaus): Yes. For each use case, the applicable standards and rules should be clearly defined and validated in advance. Only compliant participants and systems are allowed to interact, ensuring trusted operation.

2.3.8 Status Report from T-Systems, Chris Schlueter Langdon(T-Systems)

Chris Schlueter Langdon presented the report using the slides "D2_1215_SR18_2026-03-04_IOFDS_TSI_Status_Report_T-Systems_Chris_Langdon.pdf." He outlined a major strategic shift at T-Systems toward a "**customer-first, technology-second**" approach, accompanied by an organizational change merging data space activities with AI into a new **AI & Data business unit**. This enables an expanded end-to-end stack covering infrastructure, data services, and AI capabilities.

The focus is on **commercialization and productization** of data space technologies, with particular emphasis on ecosystems such as Catena-X, where concrete use cases and deployable solutions are emerging. T-Systems is actively supporting global expansion through regional hubs and local partnerships, including activities in North America, Europe, and Asia .

To drive adoption, the company follows a **market activation approach** (**AIDA: awareness, interest, desire, action**), leveraging events, partnerships, and key customers to scale business globally. This includes adapting solutions to local regulatory and infrastructure requirements, such as providing local hosting environments in regions like China.

On the technology side, T-Systems continues to **advance data space interoperability**, particularly at the network layer. A notable example is the **federated identity and trust anchor pilot** conducted with NTT, Fujitsu, and others, demonstrating cross-border trusted data exchange. Further developments, including application-layer integration, are planned for upcoming demonstrations.

Overall, the presentation emphasized that m**arket-driven adoption and customer engagement are now critical,** with technology development positioned as an enabler rather than the starting point.

Q&A
Q: What should telecommunications companies focus on over the next year?
A (Chris): The priority is to activate real customers and markets, rather than focusing solely on technology. Future directions should be driven by market demand across sectors (e.g., automotive, raw materials, energy), rather than predefined technical investments.

Q: What are the main barriers to data space adoption beyond regulatory-driven use cases?
A (Chris): The key issue is an unfavorable risk–return balance for companies. To accelerate adoption, it is essential to:

- bring viable products to market quickly
- reduce complexity (including regulatory and AI-related factors)
- focus on real business value rather than subsidies

Market-driven success is ultimately required for sustainable adoption.

2.3.9 CEN JTC 25 Trusted Data Transactions harmonised European standard: Trustworthiness & Interoperability requirements summary, Didier Navez (Dawex representing CEN)

Didier Navez (CEN JTC 25 / Dawex) presented an update on the standardization work of Trusted Data Transactions (TDT) within CEN/CENELEC JTC 25, based on the slides "D2_1435_SR19_JTC25 TDT_update_CEN_Didier.pdf." He began by highlighting the European Commission's policy direction, emphasizing that trust, security, and interoperability are essential for the effective functioning of data spaces, and that these are being addressed through the European Trusted Data Framework. Within this framework, data spaces are structured across governance, service, and protocol layers, supported by standards covering data transactions, catalogues, governance, semantics, and maturity models.

He reported that the standardization request, adopted in mid-2025, is progressing on schedule. The TDT standard is structured into three parts: terminology and concepts (Part 1), trustworthiness requirements (Part 2), and interoperability requirements (Part 3). Part 1 has reached the final stage and is expected to be published ahead of schedule in March–April 2026, while Part 2 is under public enquiry and Part 3 is entering the enquiry phase following completion of expert work.

In addition, a subgroup has been established to align TDT Part 1 with ISO/IEC 20151, and potential further alignment with ISO is under consideration. Several new preliminary work items were also proposed, including an overview of the European Trusted Data Framework architecture, trust frameworks for data spaces, and data quality in data spaces.

He concluded by stressing the importance of alignment across standardization bodies, including CEN/CENELEC, ETSI, ISO, and IEEE, and suggested further discussion within the IOFDS community to ensure consistency and complementarity across initiatives.

2.4 Keynote Speech

2.4.1 Data Free Flow with Trust (DFFT): Placing Data Spaces in the Global Cross-Border Data Flows, Maiko Meguro (OECD)

Maiko Meguro (OECD) presented an overview of Data Free Flow with Trust (DFFT), based on "D2_1525_KS4_250305_IOFDS_new_OECD_Maiko.pdf." She highlighted that technology is increasingly embedded in data governance, with jurisdictions such as the EU, Japan, and G7 integrating technical mechanisms (e.g., PETs) into policy frameworks. DFFT, introduced at the G20 Osaka Summit (2019), aims to enable cross-border data flows while ensuring trust, emphasizing that trust is the condition that enables data flow.

Given the intangible nature of data, governance must go beyond access control to include usage control, supported by an integrated framework of rules, technologies, and organizational measures. OECD is advancing this through multiple workstreams, including the "Trust Integrity / Trust by Design" initiative, which seeks to make trust visible by mapping data flows, identifying gaps, and aligning responses. Data spaces were highlighted as a key implementation environment.

She concluded that current challenges, including perceived overregulation or under-governance, stem from insufficient integration across policy, technology, and organizational dimensions.

Q&A
Q: What does "data free flow" actually mean, and how should it be interpreted (e.g., data vs. information, flow vs. access)?
A (Meguro): The term is a political concept agreed at the G20, where the priority was not strict definition but agreement that data should flow under appropriate conditions. The focus has since shifted to defining those conditions rather than the terminology itself.

Q: Is there a risk of overregulation due to increasing complexity?
A (Meguro): Perceptions of over- or under-regulation vary by stakeholder. OECD's role is to collect evidence across perspectives and identify common problem definitions, potentially bridging gaps through a combination of regulatory and technological approaches.

Q: How should usage control and usage rights be handled?
A (Discussion): Participants emphasized the importance of usage control and the need to clearly distinguish between usage rights (legal/business concepts) and technical control (enforcement mechanisms), noting that clearer definitions and standardization are required.

2.4.2 Data Spaces for the Long Run: Deep Dive into Viability and Scale, Christian Reimsbach Kounatze (OECD)

Christian Reimsbach-Kounatze (OECD) presented an analysis based on the slides "D2_1545_KS5_Data Spaces at a Crossroads - OECD - Christian Reimsbach.pdf," focusing on the sustainability and business models of data spaces.

He noted that the question is no longer whether data spaces work, but whether they can scale and sustain themselves. While the number of data spaces has rapidly increased (from 87 to 235 in three years across 20+ countries), only about 11% have reached operational stage and none are scaling, indicating a major gap between deployment and real impact (p.2–3).

At the same time, significant public funding—approximately €1.7 billion in the EU—has been invested, raising concerns about return on investment and long-term viability (p.4). He highlighted the case of Agdatahub in France, which operated successfully for six years with strong participation but ultimately went bankrupt after public funding ended, illustrating that technical success does not guarantee economic sustainability (p.5).

From an OECD perspective, this challenge is not unique to data spaces but reflects a broader issue of insufficient understanding of data-driven value creation and business models (p.7). He emphasized that data spaces are complex ecosystems, requiring coordination among multiple actors, and often face a collective action problem.

He suggested that government intervention remains necessary, but should shift from pure funding to coordination (e.g., standards, alignment), while the private sector must take greater responsibility in developing viable business models. He concluded that achieving sustainable data ecosystems requires both intentional design and stronger market-driven engagement (p.8).

Q&A
Q: Are data spaces truly necessary, given that many problems can still be solved using conventional approaches?
A (Reimsbach-Kounatze): Data spaces may reduce transaction costs and improve efficiency, but if costs remain too high, traditional methods will continue to prevail. Lowering operational costs—potentially through standardization—is therefore critical.

Q: Should data spaces be considered infrastructure?

A (Reimsbach-Kounatze): From an economic perspective, data can be viewed as infrastructure, similar to other network-based systems, though it may be public or private.

Q: How do cost and complexity affect adoption?
A (Discussion): Participants highlighted that compute costs, compliance burdens, and transaction costs remain significant barriers. Without reducing these costs and clearly demonstrating value, large-scale adoption and sustainability will remain difficult.

Q: How can decentralized ecosystems be coordinated effectively?
A (Reimsbach-Kounatze): Coordination requires a clearer understanding of value creation and market mechanisms, as well as alignment among actors. In decentralized systems, markets and incentives play a key role, though governance and coordination are still necessary.

2.5 Discussions

2.5.1 Discussion #1 AI and Data Spaces

Toward an Interoperable Governance Framework for AI-Driven Data Spaces, as presented in the slide "D2_1605&1715_DISCUSS1&2_Moderator_MasaruDobashi.pdf." The discussion explored how the emergence of AI is transforming data spaces and what should define "Data Spaces 2.0." It was moderated by **Masaru Dobashi** and followed position talks by **Yoshiharu Akahane** (NTT Data) and **Ulrich Ahle** (Gaia-X).

Akahane highlighted the growing role of AI agents, noting that their high-speed, autonomous interactions expose limitations in current infrastructures, particularly in financial transactions and settlement mechanisms. He suggested the need for new approaches, such as frictionless, machine-oriented value transfer mechanisms.

Ahle emphasized that, after ten years of development, the main challenge is no longer technology but adoption and real-world usage. While many data space technologies exist, only limited implementations are operational. He stressed the importance of demonstrating business value, sustainable models, and broader deployment as part of "Data Spaces 2.0."

Several participants addressed the relationship between AI and data spaces. **Didier Navez** (Dawex) argued that trustworthy AI requires trusted data-sharing frameworks, and that data spaces can provide this foundation. He also noted that aligning with AI-driven initiatives could create new opportunities and funding for data space adoption.

Hiroshi Mano (IOFDS Chair) outlined multiple roles of AI in data spaces, including AI agents as participants, AI as a tool for optimization, and AI-enabled data usage. He emphasized that the key issue is not only data quality but trustworthiness and assurance, especially given risks such as hallucination and error propagation in AI systems.

Klaus Ottradovetz (Atos) and **others** further discussed agentic AI, highlighting the need for robust access control, usage control, and governance rules to enable secure and autonomous interactions between agents without human intervention.

From a broader perspective, **Christoph Mertens** (IDSA) stressed the importance of data sovereignty and shared values, suggesting that data spaces should continue to provide an alternative to highly centralized AI ecosystems. **Dominik Rohrmus** (Siemens) added that different regions are pursuing diverse models (centralized, decentralized, hybrid), and that the past decade has at least succeeded in raising awareness of data value, semantics, and structured data, even if large-scale adoption remains

limited.

The discussion also touched on the financial domain, where AI-driven transactions may require new infrastructures, and on regulatory developments such as evolving approaches to privacy and data use, including privacy-enhancing technologies.

In conclusion, participants agreed that the **next phase of data spaces must integrate AI, trust, governance, business sustainability, and interoperability,** and that addressing these aspects together is **essential for achieving broader adoption in "Data Spaces 2.0."**

2.5.2 Discussion #2 Standardization

Aligning Standardization Efforts for Trusted and Interoperable Data Spaces, as presented in the slide "D2_1605&1715_DISCUSS1&2_Moderator_MasaruDobashi.pdf." The discussion addressed how ongoing standardization efforts could be better aligned to support trusted and interoperable data spaces. As moderator, Masaru Dobashi introduced them by summarizing the member's inputs into three focal points: alignment and collaboration among standardization bodies, interoperable protocols with trust, and issues beyond technical specifications, including regulatory recognition and compliance frameworks.

Hiroshi Mano then explained the current IEEE standardization activities, especially the IEEE 3800 family, and invited broader participation in the working groups. He described how the IEEE process works and introduced ongoing discussions on data space advertisement and discovery, presenting several possible architectures, including centralized repositories, crawling approaches, peer-to-peer exchange, and hierarchical models. He emphasized that the work is still at an early stage and that the architecture remains open for contribution and discussion.

Christian Reimsbach-Kounatze responded by asking how these discovery concepts relate to existing practices in current data spaces, particularly with regard to scalability, routing, and efficient discovery as the number of data spaces and datasets grows. His intervention helped connect the IEEE discussion to broader implementation concerns.

Didier Navez then took a different perspective and delivered a short position talk based on "D2_1715_IOFDS_Position_Talk__(Standardization)_Dawex.pdf." He highlighted a current convergence moment across three major initiatives: CEN/CENELEC JTC 25 TDT Part 1, ISO/IEC DIS 20151-1, and the IEEE 3800 family, noting that all three addresses closely related needs from different institutional and geographic angles. He emphasized that overlapping concepts and definitions—such as data spaces, data transactions, and actor roles—should be compared more systematically in order to identify complementarity, overlap, or conflict.

Based on this, Didier Navez proposed that IOFDS launch a lightweight comparative analysis workstream. He suggested that such a group could map the scope of the standards, analyze complementarity, register overlaps or conflicts, and recommend possible convergence paths, taking advantage of IOFDS's unique mix of participants across standards bodies, industry, and regions.

Ingo Sawilla supported the idea in principle but cautioned that this type of comparative work is labor-intensive and only useful if there is a realistic path for the results to be accepted and used by the relevant standardization bodies. He stressed the importance of clarifying stakeholder commitment before launching such an effort.

Didier Navez, in response, agreed with the concern and acknowledged that success would depend on both the quality of the group and the existence of viable follow-up paths into formal standardization processes. He nevertheless argued that, without such a comparative effort, fragmentation and divergence would remain difficult to address.

Dominik Rohrmus then supported the proposal and added that IOFDS should not focus only on technical standardization but also keep in view the policy and strategic dimensions, since those are increasingly relevant in public programs and international initiatives.

In conclusion, the discussion showed broad support for greater coordination and comparative analysis across standardization efforts, while also recognizing the practical challenges of resources, adoption, and institutional pathways. IOFDS was seen as a potentially useful forum for advancing such alignment work in a flexible and internationally representative way.

2.6 Closing (Closed-Door Session)

Hiroshi Mano, Chair of IOFDS, closed the meeting by thanking all participants and host organizations for a productive seventh roundtable.

In accordance with IOFDS procedures, the officers for the next term were elected as follows:

- Chair: Hiroshi Mano
- Vice Chair: Masaru Dobashi
- Secretary: Isamu Yamada

He also confirmed that IOFDS will continue to meet approximately every six months. The next meeting is planned as follows:

- Host The University of Tokyo
- Venue TBD
- Date TBD

2.7 Closing (Host Organizations)

Masaru Dobashi, as moderator and representative of the host side, thanked all participants for their active contributions and noted that the discussions had been highly productive and well-timed. He then formally concluded the session.