

# Towards the Construction of Industrial Data Spaces

(Tentative Translation)

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Keidanren

## 1. Introduction: Current Status and Challenges

### (1) Trends regarding Industrial Data Spaces in the EU

In recent years, environmental, social, and governance (ESG) investments have been expanding both domestically and internationally. Particularly in the environmental area, the introduction of the Carbon Border Adjustment Mechanism (CBAM) and the mandatory implementation of Digital Product Passports (DPP) in the EU highlight the strengthening of efforts to address climate change and develop a circular economy. Against this backdrop, there is an increasing need for companies to disclose information related to CO<sub>2</sub> emissions and raw materials in their global supply chains.

Furthermore, as the demand for environmentally friendly products grows, consumers are increasingly calling upon companies to provide transparent and reliable product information. Additionally, with the rise in data misuse and counterfeit products, consumers' concerns over product quality are also increasing.

In this context, the EU is steadily progressing with the social implementation of "data spaces". Data spaces are a standardised mechanism for linking large volumes and varieties of trustworthy data among different countries, industries and organisations, and are built on the premise of 'data sovereignty', which allows data providers to determine the scope and use of data disclosure, and on a 'trust framework'<sup>1</sup> that certifies the identity and data authenticity of the communication partners.

In the EU, industrial data spaces, such as "Manufacturing-X", which aims to enhance the efficiency of the entire manufacturing sector, and its subproject for the automotive industry, "Catena-X", have been launched based on a trust framework that complies with the architecture and rules set by GAIA-X.<sup>2</sup> These initiatives are accelerating cross-border data linkage efforts.

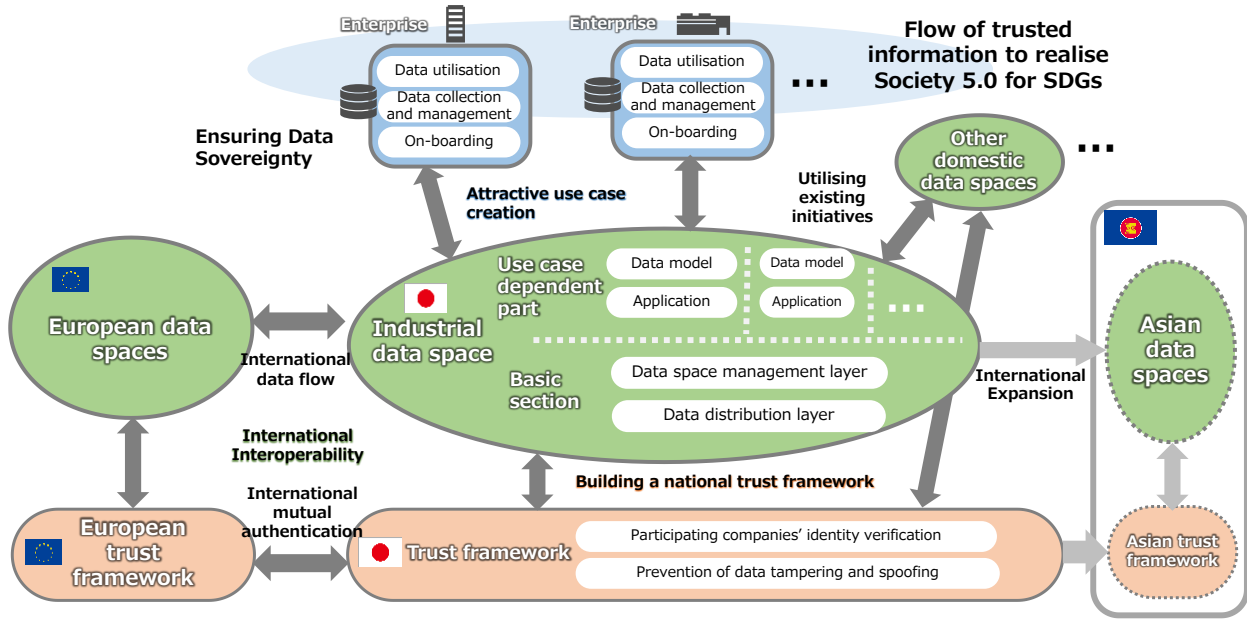
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<sup>1</sup> An ICT infrastructure that enables companies to securely and safely distribute data across industries and borders. To prevent data tampering and spoofing of the sender during data transmission, it possesses functions such as identity verification of companies and employees based on international agreements, and the issuance of digital certificates accordingly. In the EU, it is used in conjunction with trust services (such as electronic signatures, eSeal, and eTimestamp) based on regulations such as the electronic Identification and Authentication Service (eIDAS) Regulation, which governs the use of electronic authentication and trust services within the EU.

<sup>2</sup> A plan to build cloud service infrastructure to support data sharing and utilisation on an EU-wide scale (announced by the German and French governments on 29 October 2019). It includes a technical

Additionally, all EU member states plan to introduce a "Digital ID Wallet", a trust framework to verify the identity of citizens and companies within the EU's borders, by 2026. As a result, the utilisation of industrial data spaces in the EU is expected to expand further in the coming years.

**Figure: Image of Industrial Data Spaces to be Built**



Source: Robot Revolution & Industrial IoT Initiative (RRI)

**(2) Challenges in Constructing Industrial Data Spaces**

In contrast to the EU's pioneering movements, Japan has also made some progress in building data linkage platforms and expanding their use cases (specific scenarios for social implementation) through public-private partnerships, including initiatives such as the "Ouranos Ecosystem",<sup>3</sup> which promotes data sharing and collaboration across companies and industries.

However, the establishment of a public trust framework to guarantee the existence of companies by the government (a prerequisite for internationally reliable industrial data spaces) is still under consideration, and no industrial data space with interoperability with the EU's data spaces has yet

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framework that controls access to data based on trust and contractual procedures, protecting data sovereignty while ensuring interoperability with various cloud services.

<sup>3</sup> A mechanism for linking multiple information processing systems. The Ministry of Economy, Trade and Industry (METI), in collaboration with relevant ministries and agencies, as well as the Digital Architecture Design Center (DADC) of the Information-technology Promotion Agency (IPA), is working on expanding use cases, including data linkage in the battery supply chain.

been developed in Japan. Currently, Japanese companies are unable to verify their authenticity within Japan and are forced to rely on the trust framework of overseas data spaces.

In the future, there is a risk that the use of industrial data spaces may become mandatory for international business transactions. If the current situation is left unaddressed, it could hinder cross-border data linkage and utilisation, obstruct the creation of new value by companies, and seriously impact the competitiveness of Japan's industries.

It is essential for companies to drive transformation, including changes to business models, through data linkage and utilisation, from the perspective of strengthening Japan's industrial competitiveness and, ultimately, contributing to the realisation of Society 5.0 for SDGs, a vision long advocated by Keidanren.<sup>4</sup> To realise Society 5.0 for SDGs and lead international discussions on the implementation of Data Free Flow with Trust (DFFT),<sup>5</sup> there is an urgent need for the government to strategically develop a trust framework and establish internationally interoperable industrial data spaces (see Figure above).

## **2. The Significance of Constructing Industrial Data Spaces**

Constructing industrial data spaces equipped with a trust framework is expected to greatly contribute to realising the following values:

### **(1) Strengthening Industrial Competitiveness**

In the creation of new value through digital transformation (DX), it is important to promote data linkage across companies and industries in cooperative areas, while generating unique value in competitive areas. By leveraging industrial data spaces, companies, including small and medium-sized enterprises (SMEs), can expand and enhance data linkage, use the data obtained to develop their own analyses and business strategies, and create new value and services. This will ultimately strengthen their competitiveness<sup>6</sup> and contribute to enhancing the overall industrial competitiveness of Japan.

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<sup>4</sup> Keidanren's proposal "Creating New Value through Utilization and Linkage of Data" (October 2023) outlines the future vision aimed at by Society 5.0 for SDGs, as well as actions required from the government and companies. It also presents the necessary data and measures to achieve this vision.

<sup>5</sup> The "Priority Policy Program for Realizing Digital Society 2024" (approved by the Cabinet on 21 June 2024), emphasises the construction of data spaces and the promotion of DFFT.

<sup>6</sup> Keidanren's proposal "Supply Chains in the Era of Society 5.0" (September 2020) raised the need for an environment for the promotion of data linkage between companies and the design of the overall architecture for data linkage in the supply chain, in order to create new value and services through data sharing and analysis at manufacturing sites. The proposal raised the need for the design of the overall architecture of data linkage in the supply chain, etc.

## **(2) Addressing Global Challenges**

As an example of addressing global challenges, to realise green transformation (GX) and a circular economy (CE), it is essential to establish a reliable data linkage system that transcends the boundaries of individual companies and industries through interoperable industrial data spaces. By facilitating the sharing and visualisation of necessary information, this approach can contribute to reducing environmental impact across the entire value chain.<sup>7</sup>

## **(3) Responding to Disclosure and Regulations**

By leveraging industrial data spaces, companies can meet the disclosure needs of ESG investors and consumers, which contributes to enhancing corporate value. Moreover, it enables smooth and reliable compliance with environmental regulations such as CBAM and DPP.

## **3. Actions to Be Taken by the Public and Private Sectors**

To ensure the successful construction of industrial data spaces, it is of the utmost importance to swiftly and steadily execute the specific actions outlined below, under close public-private collaboration.

### **(1) Presentation of Strategy and Roadmap**

The Digital Agency should take the lead, in collaboration with METI, to promptly present a government-wide strategy and roadmap for the societal implementation and development of a cross-ministerial, cross-sectoral industrial data space. In doing so, the development of the "Trust Framework", as outlined below, should be prioritised as a matter of the utmost importance.

### **(2) Development of Trust Framework**

Based on the above strategy and roadmap, the Digital Agency should systematically advance the necessary environmental improvements for constructing the trust framework, which is the premise for the reliability and interoperability of industrial data spaces (including the base registry that serves as the foundation for corporate identity verification). Additionally, it is necessary to formulate and steadily implement operational rules to ensure that industries appropriately enjoy the benefits of public interest and reliability.

### **(3) Utilisation of Existing Data Linkage Systems**

When constructing industrial data spaces, efforts to accelerate and expand the use of existing data linkage systems should be pursued through public-private collaboration. For example, a pragmatic approach could involve linking the "Ouranos Ecosystem", which is being implemented under the leadership of METI and includes the practical application of various use cases, with the

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<sup>7</sup> Keidanren's "Proposal for the Realization of a Circular Economy" (February 2023) recommends, among other things, the establishment of an information distribution platform for inter-company collaboration throughout the supply chain, including between arterial and venous industries.

trust framework. This would enhance its international reliability and interoperability, ensuring its seamless integration into the global landscape.

#### **(4) Appropriate Cost Sharing by Public and Private Sectors**

An industrial data space is a social infrastructure that supports the DX of all industries in Japan and can be positioned as a "quasi-public good in the digital society". Therefore, as a public-private joint project, it is appropriate and reasonable for the government to fundamentally expand the budget for the initial stages (development, implementation, connection, etc.) of the establishment of an industrial data space, while the industry, as the main user, bears an appropriate share of the running costs for management and operation from the perspective of the "beneficiaries-pay" principle. However, it is also necessary for the government to provide support measures to encourage the participation of SMEs, which play an important role in capturing supply chain data.

#### **(5) Creation of Attractive Use Cases**

In constructing industrial data spaces, it is essential to promote their wide utilisation by advancing efforts driven by use cases, with METI, vendors, and user companies working together. Specifically, under close public-private collaboration, it is necessary to create attractive use cases that will become successful examples by promptly and appropriately disseminating information, raising awareness, developing human resources, and developing and providing easy-to-use applications, to promote specific benefits of data linkage to a wide range of industries and companies.

Moreover, the business community and companies that utilise industrial data spaces shall also ensure that their own data management and governance systems become "industrial data space-ready".<sup>8</sup>

#### **(6) International Deployment of Industrial Data Space**

With a view to the international development of Japan's industrial data space, it is effective for the public and private sectors to first utilise frameworks such as the Asia Zero Emission Community (AZEC) and to involve like-minded countries and regions in ASEAN, to promote its use as a data linkage platform in Asia. In doing so, it is also necessary to work towards common data calculation and reporting rules (e.g., GHG emissions) from the perspective of facilitating data linkages between different countries and regions.<sup>9</sup>

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<sup>8</sup> One concrete method is to implement explicit guidelines such as Keidanren's "Declaration on Value Creation through Data" (May 2023) and METI's "Digital Governance Code" (revised in September 2024).

<sup>9</sup> Keidanren's "Recommendations for Advancing the AZEC Initiative" (July 2024) proposes the establishment of an Asian data linkage platform and deepening discussions within AZEC aimed at unifying calculation and reporting rules for GHG emissions (Scope 1 and 2).

Furthermore, the Digital Agency should lead international discussions on the formation of international mutual recognition of trust framework and data cross-border management rules, while utilising existing and new international standards to ensure interoperability of the industrial data space. It is also essential for the public and private sectors to promote trials on data linkage and international interoperability.

#### **4. Conclusion**

In this policy proposal, Keidanren has outlined the challenges, significance, and specific actions required from both the public and private sectors for the construction of an industrial data space in Japan. Based on this proposal, we will establish a new public-private council to facilitate its realisation, working closely with the government and relevant institutions. Furthermore, we will continue to disseminate opinions and raise awareness on industrial data spaces in a timely and appropriate manner.