Second Proposal Towards the Construction of Industrial Data Spaces

<Tentative Translation>

13th May 2025
Keidanren

0. Introduction

In its previous proposal, *"Towards the Construction of Industrial Data Spaces"* (published in October 2024), Keidanren outlined the actions that both the public and private sectors should take to construct industrial data spaces that contribute to strengthening industrial competitiveness, addressing global-scale challenges, facilitating information disclosure, and complying with regulations.

In a data-driven AI society, industrial data spaces serve as an essential foundation for companies to leverage diverse data[1] in decision-making and innovation. However, while efforts for data linkage and utilisation are underway across ministries and private organisations, cross-sectoral cooperation beyond administrative jurisdictions and business sectors remains limited. Moreover, a unified view has yet to be established—not only regarding international collaboration but also on the necessary functional requirements.

Against this backdrop, intensive discussions including the necessity of a new legal framework are underway at the Meeting on Digital Administrative and Fiscal Reform of the Cabinet Secretariat, based on the Prime Minister's directive, to formulate a basic policy on data utilisation systems by June this year.

In light of the current situation, this proposal outlines the fundamental ideas to realise a digital ecosystem[2] through the construction of internationally interoperable industrial data spaces.

1. Presentation of the Overall Picture, Strategy, and Roadmap for Industrial Data Spaces

The Digital Agency, serving as the control tower[3] for the construction of industrial data spaces aimed at realising a digital ecosystem, should collaborate with the Meeting on Digital Administrative and Fiscal Reform, the Ministry of Economy, Trade and Industry (METI), the Ministry of Internal Affairs and Communications (MIC), and other relevant government bodies to organise ongoing efforts in data linkage and utilisation,

[1] Industrial data spaces encompass not only textual data but also mathematical data such as sensor data used for data transfer, access, and sharing.

[2] A networked system that creates value through collaboration among diverse stakeholders—including businesses, governments, and consumers—centred around digital technologies.

[3] The Digital Agency, which should serve as the control tower, currently operates under a "lump-sum budget" heavily skewed towards information systems, with very limited funding allocated to policy initiatives. It is necessary to reform this budget structure and increase policy-related expenditure.

and present an overall picture for industrial data spaces.

Furthermore, the government should promptly formulate a unified national strategy and roadmap for industrial data spaces. This strategy should clearly define the overarching direction of creating new value from data via the digital ecosystem, as well as key governance functions such as rules on data sovereignty and data sharing and policies for the protection of sensitive information.

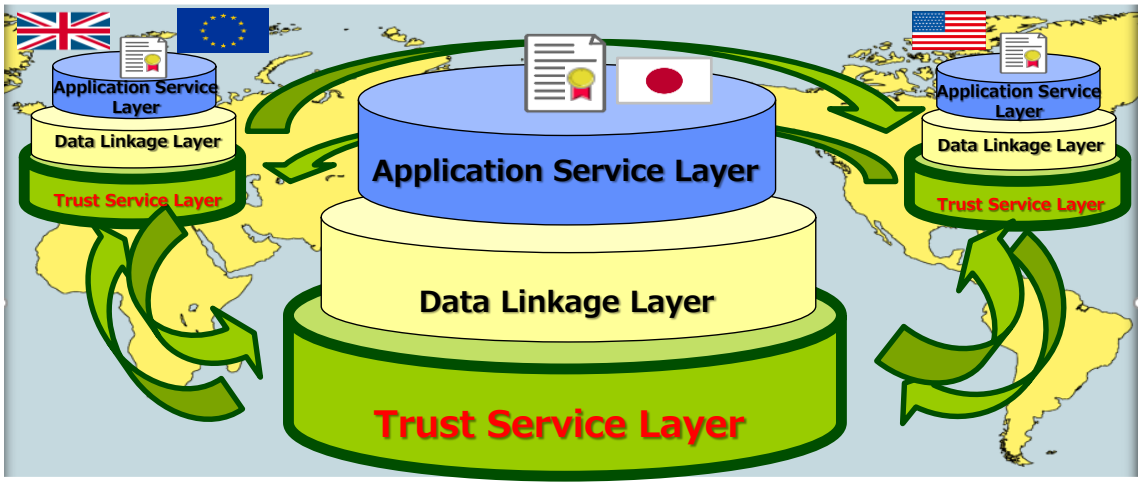
The Digital Agency and relevant ministries should swiftly implement the necessary measures in accordance with the strategy and roadmap. In parallel, the industrial sector will work closely with the government to proactively promote the discovery of use cases and the establishment of international standards—thereby accelerating the social implementation of industrial data spaces.

2. Development of a Common Framework

To construct industrial data spaces that contribute to the realisation of a digital ecosystem, it is first necessary to foster a common understanding of the basic structure of industrial data spaces. From the perspective of "functions and services for data linkage", industrial data spaces can be structured into the following three layers. It is essential to ensure proper interfaces between these layers:

① **Application Service Layer:** Provides various services and functions that create value through data linkage and utilisation by user companies and organisations.
② **Data Linkage Layer:** Offers safe and secure data linkage functions among user companies and organisations.
③ **Trust Service Layer:** Provides trust service functions to prevent spoofing and tampering, thereby enhancing trustworthiness.

Figure 1: Conceptual Image of the Three-Layer Structure of Industrial Data Spaces



Source: Materials by Satoru Tezuka, Representative Director of JDTF (Japan Digital Trust Forum) / Project Professor, Keio University

The Digital Agency, in close cooperation with the industrial sector, should advance the development of a common framework for industrial data spaces, with due consideration to the overall picture and the three-layer structure. This common framework should be grounded in a clear distinction between the requirements to be commonly established regardless of use cases, and those that should be considered individually depending on each specific use case.

When developing the common framework, proactive efforts towards international standardisation are necessary—ranging from organising data to its practical application—while keeping international collaboration in view.

3. Development of Trust Frameworks

Establishing trust within industrial data spaces is essential to achieving both the *Society 5.0 for SDGs* long advocated by Keidanren and *DFFT (Data Free Flow with Trust)*. To this end, under close public-private partnerships, it is necessary to build a mechanism that enables the verification of trust in accordance with the nature and level of risk, based on risk analysis conducted within each industrial data space.

Particularly for the Trust Service Layer, it is critical to ensure interfaces with the other two layers and to establish a foundational infrastructure that can verify the authenticity and existence of entities across the various industrial data spaces. For individuals, the Digital Agency already operates the *Public Individual Authentication Service*. For corporations, however, it is important to utilise the *GBizID* identification system to accommodate cases requiring official corporate verification.

Moreover, the assurance levels of each service are required to appropriately define and visualise in the Trust Service Layer. While institutional frameworks such as the certification system for certification authorities under the Act on Electronic Signatures and Certification Business and those for timestamp and e-seal authorities based on notices from MIC are being developed, these frameworks have not yet been fully systematised. As a result, it remains difficult for each industrial data space to reliably select the appropriate trust services.

In recent years, international use of technologies such as Verifiable Credentials (VCs) and eDelivery (a secure data transmission mechanism) has also been advancing in data spaces. Taking these technical developments into account, the Digital Agency, in cooperation with relevant ministries and agencies, should systematically organise the concept of trust services within industrial data spaces with the following steps:

1. Clarify the trust functions required for industrial data linkage and develop a framework.
2. List the trust services that provide those functions under the framework.
3. Analyse and evaluate the listed trust services.
4. Propose appropriate combinations of trust services tailored to the nature of each

use case.

After this organisation is completed, it will be important to supplement any missing trust services and improve institutional, technical, and operational aspects so that existing services can fulfill their intended trust functions.

Furthermore, on the basis of this organisation, it is necessary to accelerate intergovernmental consultations concerning trust services that require international interoperability for cross-border data flows and linkage. In particular, Japan should deepen discussions with the EU, where the eIDAS regulation (a legal framework for electronic identification and trust services) has promoted the systematisation of trust services, based on concrete needs. To proceed strategically, it is important to identify these needs in reverse from the timeline of such international consultations.

The industrial sector will also actively support these government efforts by extracting and widely presenting practical needs from the business frontlines.

4. **Creation of Use Cases**

In the EU, the social implementation of industrial data spaces—such as Manufacturing-X and Catena-X—is progressing, driven in part by the tightening of environmental regulations such as CBAM (Carbon Border Adjustment Mechanism) and DPP (Digital Product Passport).

Taking into account the overall picture for data spaces, Japan, for its part, should approach the creation and implementation of use cases not only from the passive perspective of responding to regulation, but also from a proactive standpoint that emphasises business growth and opportunity creation. Priority should be given to developing and deploying cross-border use cases in areas of strong societal demand such as the environment, mobility, and finance.

However, several challenges have been pointed out regarding participation in industrial data spaces by user companies and organisations, including small and medium-sized enterprises (SMEs), such as participation costs and a lack of incentives for data linkage.

To address this, Japan should begin by swiftly developing initial use cases in the environmental field, where there is strong international demand, based on existing initiatives[4]. These prototypes should aim to realise international interoperability, including trust frameworks, and generate successful examples.

To that end, it is strategically important for the Digital Agency—working closely with METI—to promote the international deployment of such use cases, engaging not

[4] Examples include: (1) initiatives for automotive life cycle assessment and (2) efforts to achieve supply chain traceability for chemical substances contained in products—both being advanced within the Ouranos Ecosystem—and (3) the cross-industry initiative led by JEITA (Japan Electronics and Information Technology Industries Association) under the “Green x Digital Consortium,” which aims to visualise CO_2 data across entire supply chains. (https://www.gxdc.jp/).

only the EU but also like-minded countries and regions such as the ASEAN.

5. Establishment of a Public–Private Promotion Framework

To realise a digital ecosystem through the construction of industrial data spaces, it is essential to establish a promotion framework based on close collaboration and coordination between the public and private sectors.

In this context, Keidanren will also work in partnership with the Digital Agency, which serves as the central coordinating body, to concretely advance discussions towards establishing a "Public–Private Council for the Digital Ecosystem" (tentative name) within fiscal year 2025. The Digital Agency, in close cooperation with METI, must ensure the necessary budgetary arrangements to support this initiative[5].

A conceptual image of the council is shown in the figure below.

Figure 2: Conceptual Image of the "Public–Private Council for the Digital Ecosystem" (Tentative Name)

[5] It is essential to allocate focused budgetary resources to IPA (Information-technology Promotion Agency), which is expected to undertake the practical implementation of these activities under the Digital Agency and METI, and to expand its organisational capacity.

6. Conclusion

The construction of industrial data spaces in Japan is an urgent issue that cannot be delayed. Keidanren strongly urges the government to incorporate the contents of this proposal into key national strategies such as the "Report on Digital Administrative and Fiscal Reform 2025," the "Priority Plan for the Realization of a Digital Society," and the "Basic Policy on Economic and Fiscal Management and Reform," all of which are scheduled for formulation this summer.

At the same time, the government should deepen its consideration of whether new legal frameworks are necessary and take the required measures—including securing sufficient budgets and personnel.

In addition, Keidanren requests the government and relevant organisations to collaborate and cooperate in building the public–private promotion framework.