

Future Prospects of the Ouranos Ecosystem

IKAI Yuji

Director for Digital Strategy & International Affairs, Commerce and Information Policy Bureau

Data sharing and utilizing across borders among enterprises, industries, and national boundaries

Data Free Flow with Trust (DFFT)

Ensure the free flow of data across borders

In January 2019, at the World Economic Forum Annual Meeting, the concept of "Data Free Flow with Trust (DFFT)" was proposed, based on the idea that ensuring the free flow of data across borders is essential for accelerating innovation through the utilization of data.



Ouranos Ecosystem

Actions aimed at strengthening corporate and industrial competitiveness through public-private sector collaboration by promoting concrete data, system, and business linkage and by promoting the use of data across companies and industries by linking multiple systems to realize DFFT.



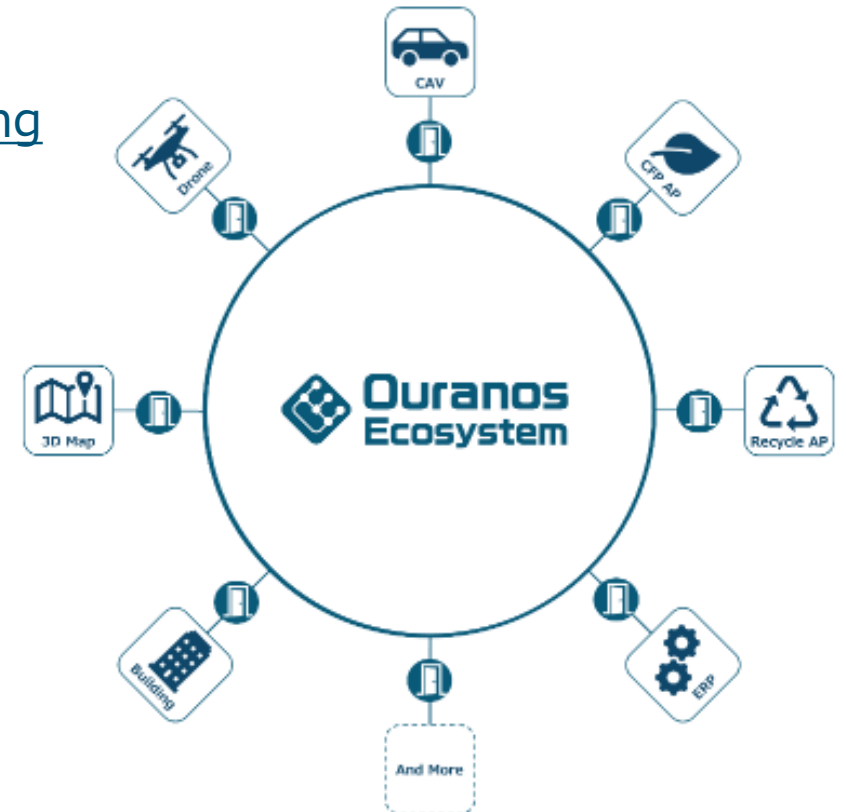
▲ In April 2023, in conjunction with the G7 Gunma Takasaki Digital and Technology Ministers' Meeting, the Ouranos Ecosystem was launched.

Ouranos Ecosystem – Cross-Industry and Cross-Border Data Sharing

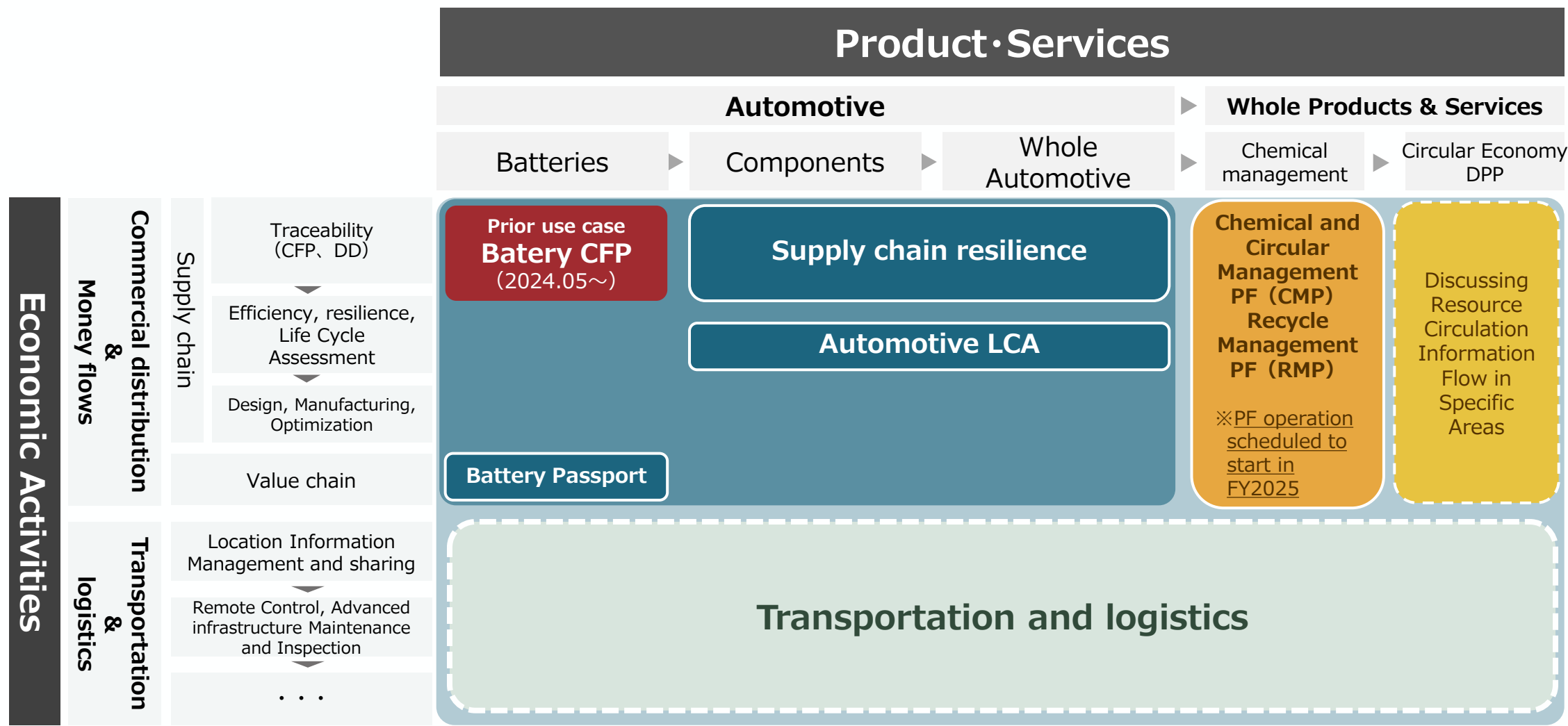
- To realize DFFT, the Ouranos Ecosystem promotes the interconnection of multiple systems to enable seamless data utilization across companies, industries, and borders. This initiative aims to foster collaboration among data, systems, and businesses, thereby enhancing industrial competitiveness through public-private partnerships.

Key initiatives

- Development of specifications and standards for data sharing
 - Publication of the *Ouranos Ecosystem Dataspaces Reference Architecture Model* (ODS-RAM)
 - Release of guidelines for individual use cases
- Development of data collaboration systems
 - Creation of shared components and release as OSS
 - Implementation of individual use cases
- Institutional and policy development
 - Establishment of The Ouranos Ecosystem Trust Study Group
 - Formulation of model agreements for data sharing
 - Certification system for public digital platform operators
 - Project Certification of Ouranos Ecosystem

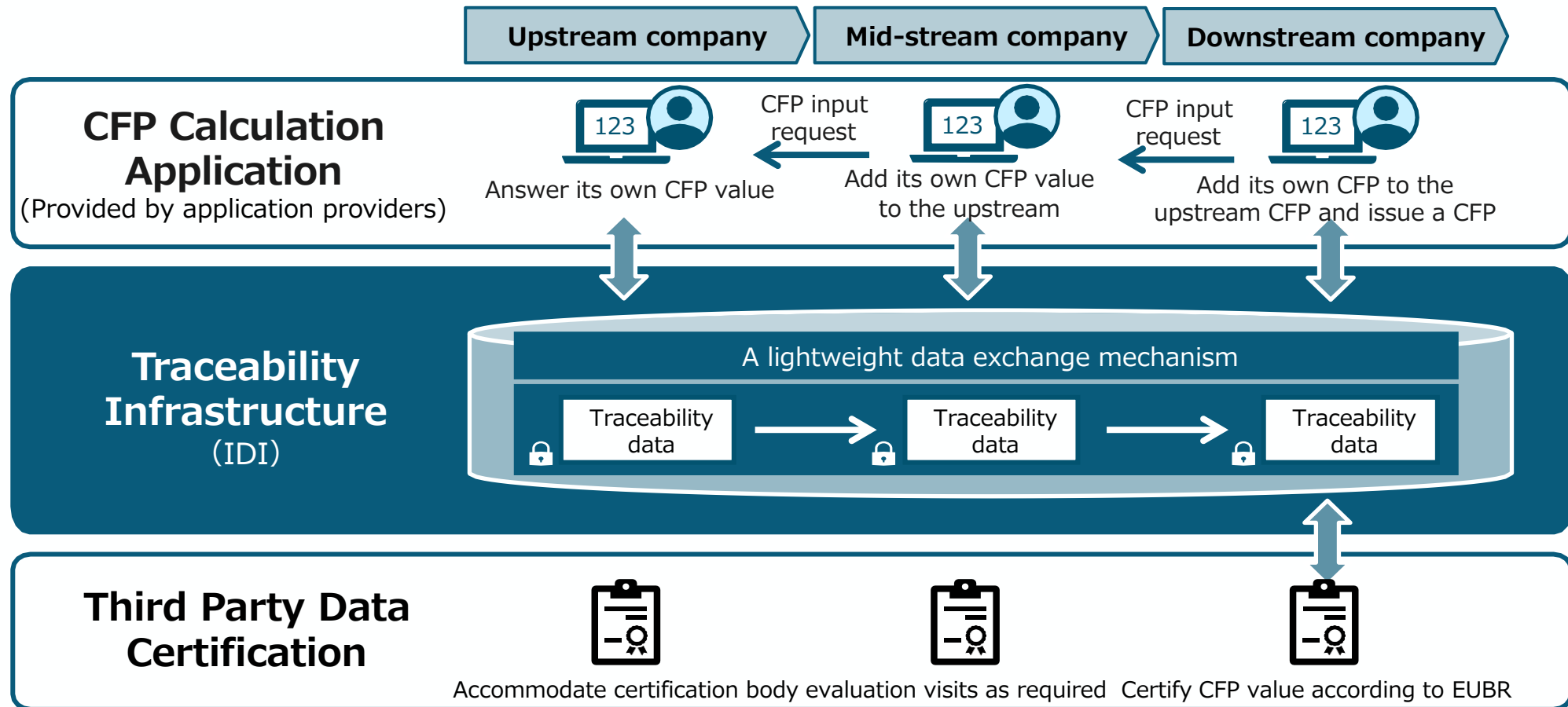


Use case expansion; toward covering overall economic activity



Data Sharing Across the Automotive and Battery Industries

- First, an interoperable data infrastructure was established to enable the sharing and utilization of carbon footprint (CFP) data for batteries across companies in the supply chain, while **ensuring the protection of each company's trade secrets and the management of access rights**.



Interconnection Verification between Catena-X and the Ouranos Ecosystem

- In April 2024, **IPA** and **Catena-X Automotive Network e.V.** signed a **Memorandum of Understanding (MOU)** to achieve interoperability of respective automotive data sharing system.
- The two organizations conducted mutual understanding of the design and operation of **Catena-X** and the **Battery Traceability Platform** (operated by ABtC). They clarified technical issues related to "authentication," "protocol," and "data model," while respecting each other's governance rules, systems, technologies, and operations. By establishing an intermediate layer, they confirmed the feasibility of exchanging data without impacting each other's architectures. **In March 2025, they announced the completion of a PoC for interoperability between the two independent data spaces.**

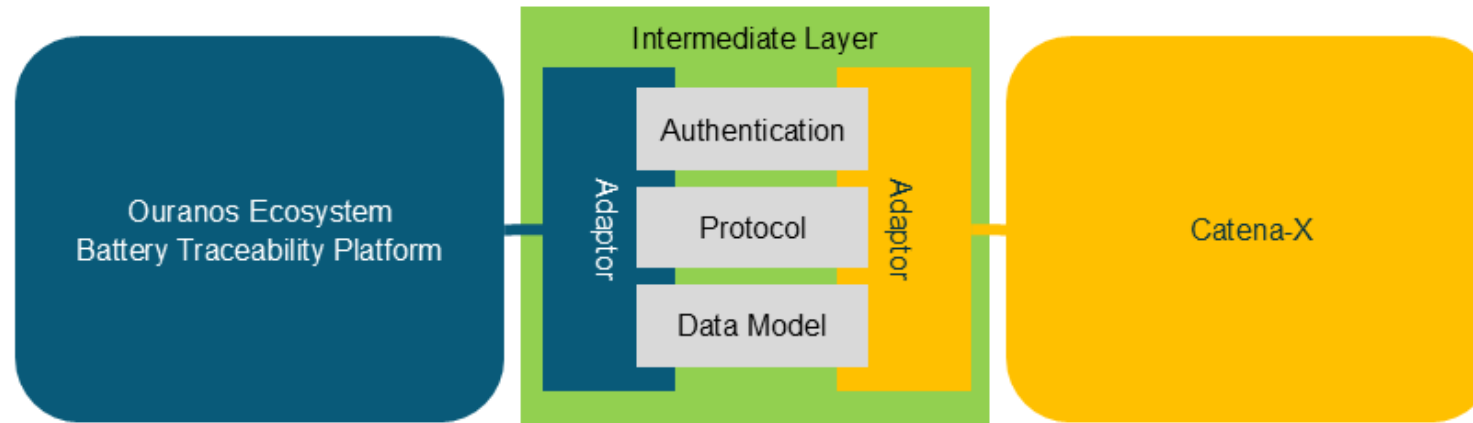
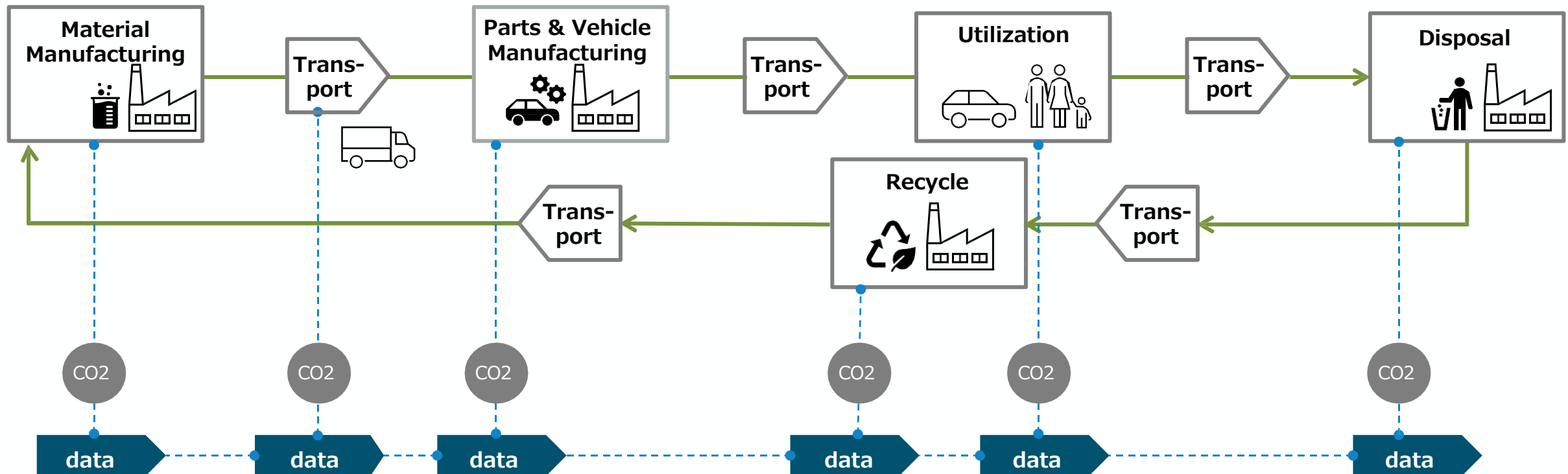


Figure: PoC Interoperability Mechanism

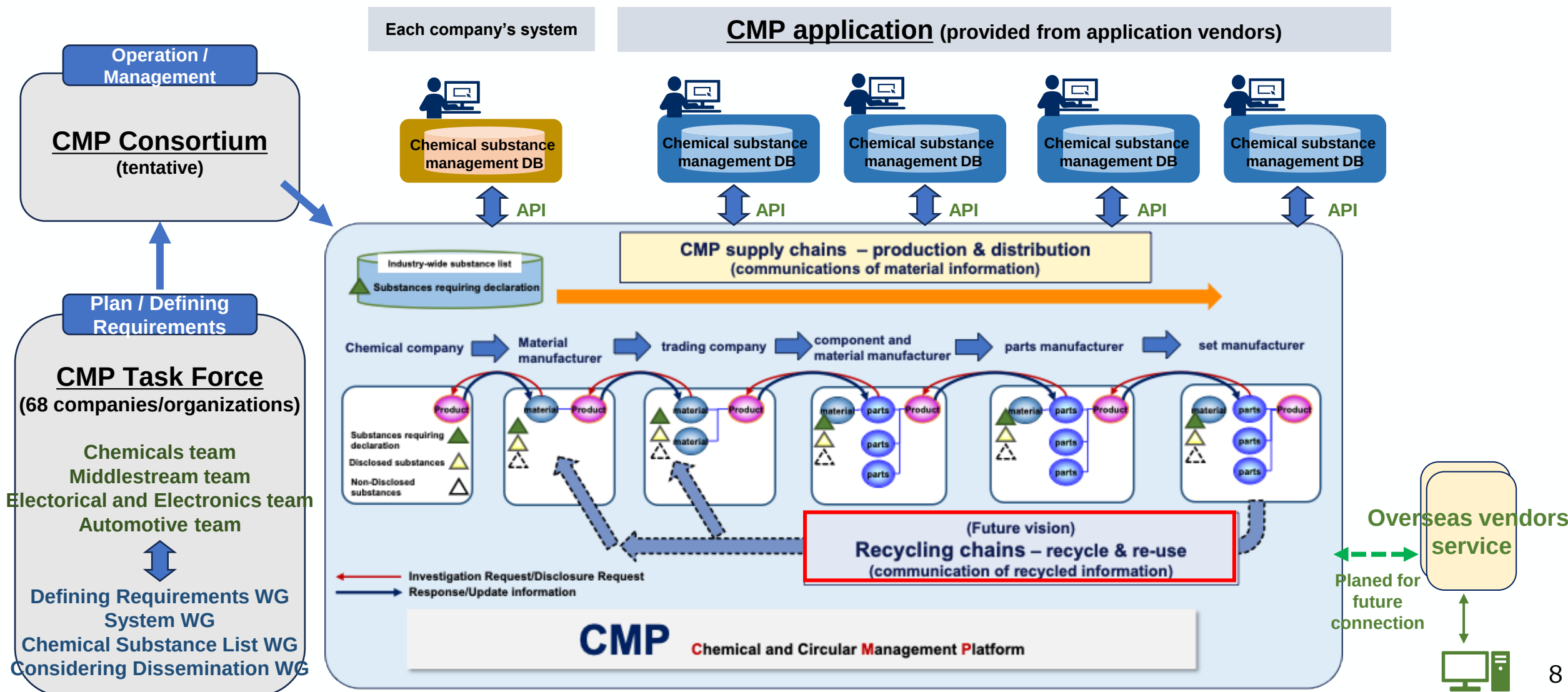
LCA Visualization

- In Europe, initiatives are focusing on product-level carbon emissions, such as battery regulations, to enhance environmental value and inform investment decisions related to GX and sustainability.
- In Japan, efforts are underway to establish a data collaboration platform to visualize decarbonization in the automotive supply chain. This fiscal year (April, 2025- March, 2026), data collaboration demonstrations for automotive LCA (life cycle assessment) have begun, alongside the battery CFP (carbon footprint).



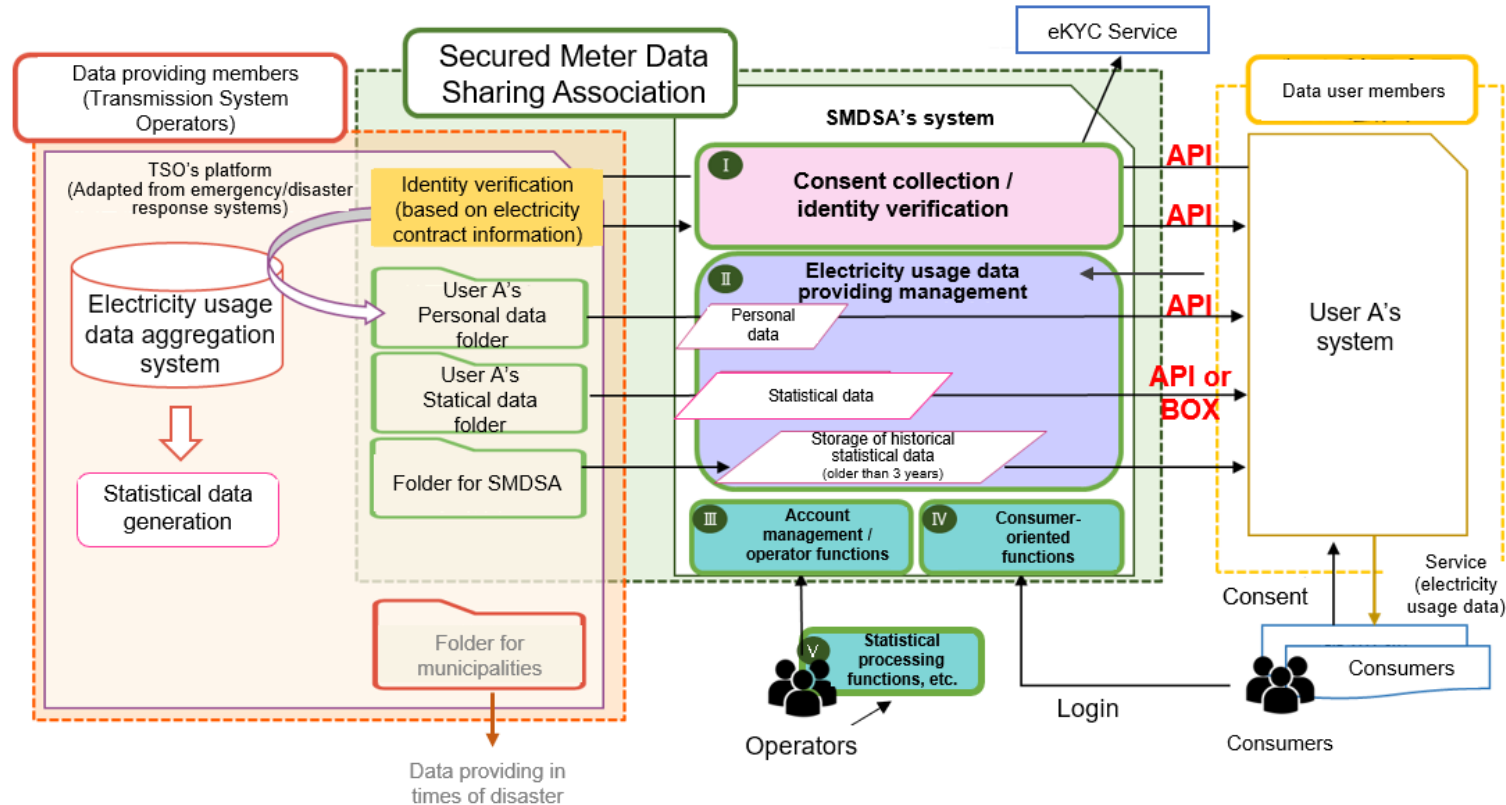
Chemical and Circular Management Platform (CMP)

- Through the Chemical and Circular Management Platform (CMP), material and chemical substance information is transmitted as part of Digital Product Passport (DPP) data. Additionally, reverse supply chain information is fed back to material manufacturers. This data enables and encourages the use of recycled materials instead of virgin materials.



Utilization of electricity data

- An association certified under the Electricity Business Act collects electricity usage data generated every 30 minutes by about 80 million smart meters nationwide from transmission system operators (data provider members) and provides it to the association's data user members. The data collected and provided in this process includes electricity consumption data, electricity feed-in records, and foundational data used in electricity trading.



Project Certification of Ouranos Ecosystem

- METI has established the Project Certification of Ouranos Ecosystem for outstanding initiatives that can serve as models for expanding business participation in cross-sectoral data sharing and for developing new cross-sectoral data sharing initiatives (May 2025).

Evaluation Criteria ►

Clarification of Services

Assurance of
Data Sovereignty

Ensuring Openness

Active Collaboration
with Stakeholders

Ouranos Ecosystem Leading Project

for initiatives that already provide data sharing functions as production services

- Data sharing project on carbon footprint and due diligence across automotive and battery supply chains (2025/5/9)
- Electricity usage data sharing project (2025/5/9)
- One-stop Moving Procedures Project (2025/10/10)

Ouranos Ecosystem Challenge Project

for initiatives aiming to provide such functions as services in the future

- Chemical and Circular Management Platform Project (2025/7/23)
- Automotive LCA Platform Project (2025/7/23)

Establishment of the Japan Digital Ecosystem Partnership (JDEP)

(June 20, 2025 – Digital Agency & Japan Business Federation)

The Digital Agency and the Japan Business Federation (Keidanren) have jointly established the Japan Digital Ecosystem Partnership to accelerate the creation of a digital ecosystem that promotes data sharing and utilization through public-private cooperation.

1. Purpose of Establishment

In an increasingly digital society, data is a key driver of innovation and value creation. Its effective use and sharing are essential for achieving sustainability and enhancing industrial competitiveness. While the importance of data sharing is widely recognized, the development of concrete use cases remains a challenge.

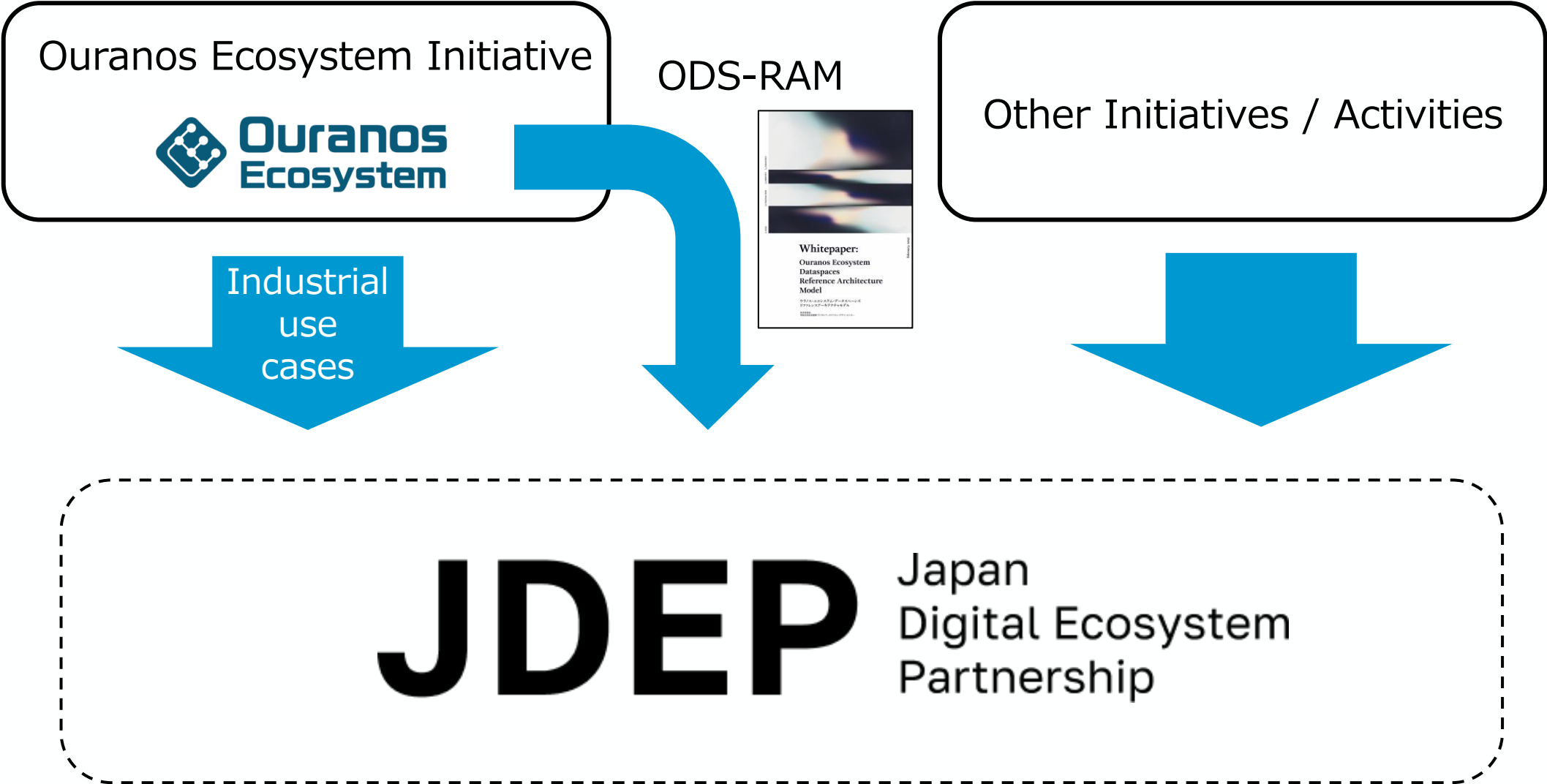
In May 2025, Keidanren released a proposal outlining fundamental concepts for realizing a digital ecosystem (Second Proposal for Building Industrial Data Spaces). Based on the government's strategic plans—"Grand Design and Action Plan for New Form of Capitalism 2025 Revised Version" and "Priority Plan for Realizing a Digital Society" (both approved by Cabinet on June 13, 2025)—the Digital Agency and Keidanren officially established the Partnership.

The Partnership aims to foster the development of a data sharing ecosystem through public-private cooperation. To generate a wide range of use cases, it supports various initiatives by sharing best practices, providing expert insights, and identifying promising projects. In addition, the Partnership works to improve the data sharing environment and conducts research, analysis, and information dissemination on domestic and international trends. To further promote momentum for data sharing and utilization, it also plans to organize public-private forums.

2. Secretariat

Digital Agency, Japan Business Federation (Keidanren) , Information-technology Promotion Agency (IPA)

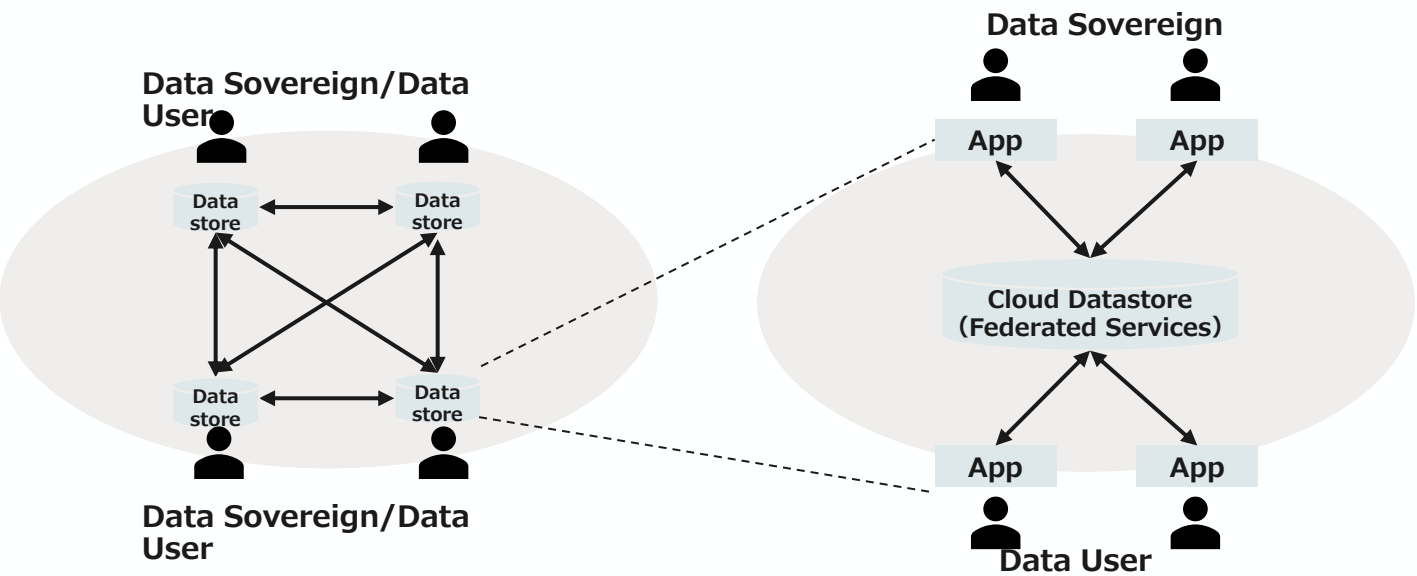
Digital Ecosystem Activity in Japan



Ouranos Ecosystem Dataspaces promote hybrid service ecosystem with a variety of service interfaces while ensuring data sovereignty.

Principle: Distributed Service Model

Assuming cases where dataspace participants can independently develop and operate their own systems.

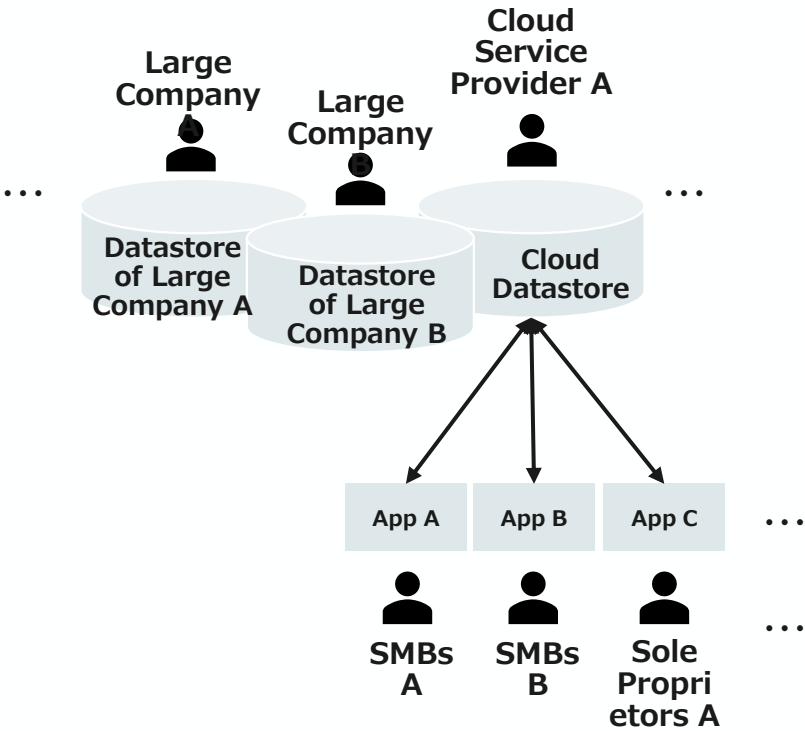


Extension: Federated Service Model

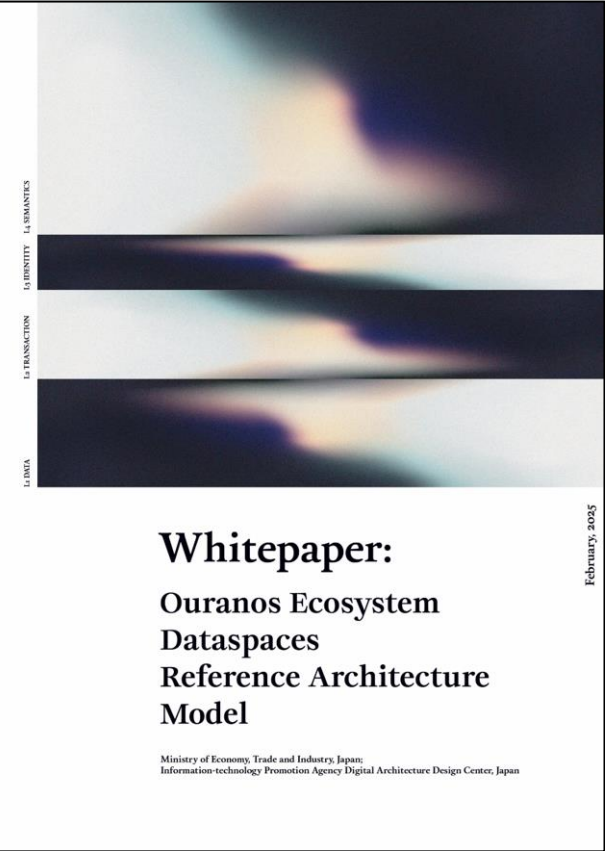
Addressing cases where SMBs, sole proprietors, and other businesses that find it challenging to independently develop and operate their own systems within the dataspace.



Hybrid Service Ecosystem

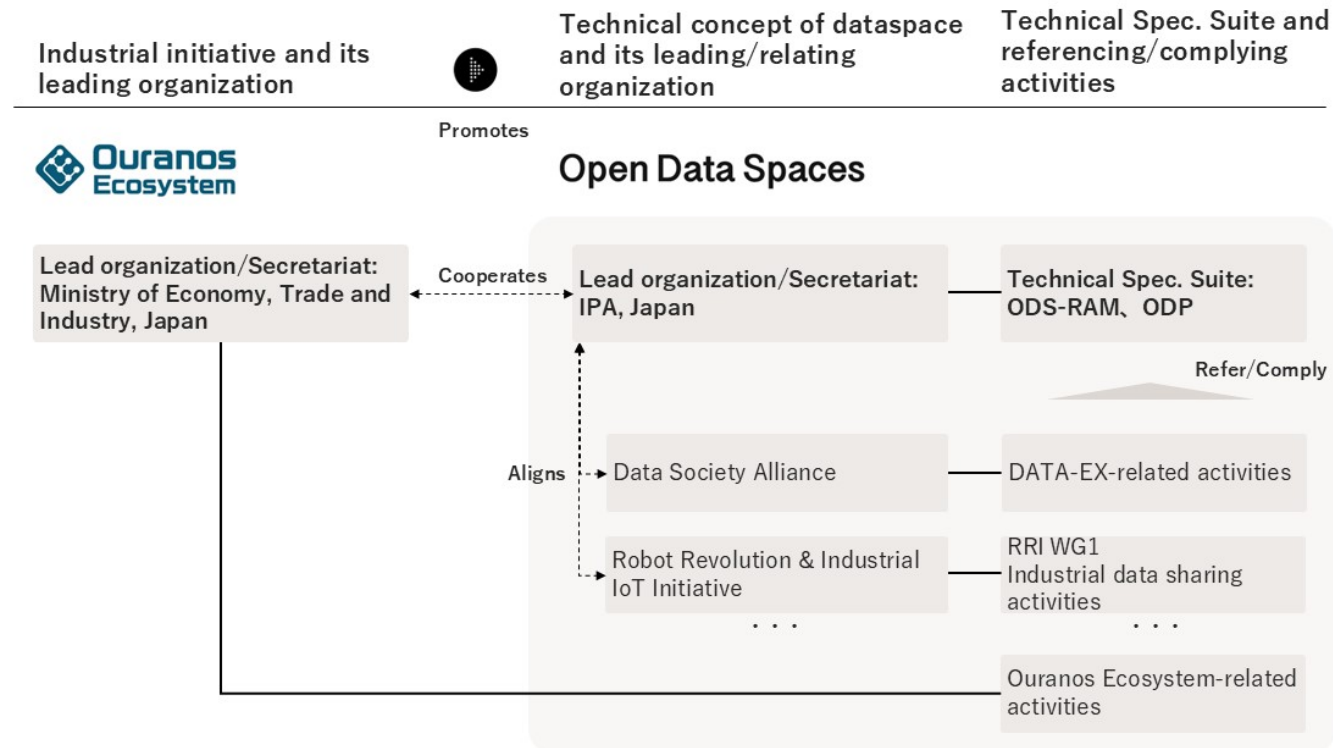


Whitepaper: Ouranos Ecosystem Dataspaces Reference Architecture Model

Cover	Summary	
 Whitepaper: Ouranos Ecosystem Dataspaces Reference Architecture Model Ministry of Economy, Trade and Industry, Japan; Information-technology Promotion Agency Digital Architecture Design Center, Japan February, 2025	About	A reference document presenting the technical paradigm, including the hierarchical structure model of dataspaces, and future perspectives for participants in the Ouranos Ecosystem Dataspaces
	Purpose	Aims to provide an open opportunity for constructing service-driven dataspaces to address societal issues and create value within the Ouranos Ecosystem and establishes a technical paradigm for future system implementations, fostering the participation of various entities while ensuring interoperability
	Readers	Targets a broad spectrum of industries in Japan and abroad that support the Ouranos Ecosystem Initiative, particularly those responsible for designing architectures for data interoperability within the enterprise domain.
	Scope	Covers dataspaces, a key pillar of the Ouranos Ecosystem—an ecosystem that creates value through new industry collaboration by developing and providing business-digital collaborative domains that connect companies, with digitalization as the enabler.
	Publisher & Editor	- Ministry of Economy, Trade and Industry, Japan - Digital Architecture Design Center (DADC), Information-technology Promotion Agency, Japan

Jointly Promote the Dataspace Technical Concept As “Open Data Spaces”

- IPA has reached an agreement with the Data Society Alliance (DSA), Robot Revolution & Industrial IoT Initiative (RRI), and The University of Tokyo (Interfaculty Initiative in Information Studies), **to newly designate “Open Data Spaces” — a technical concept for dataspaces and its accompanying technical-specification suite — as the common specification for dataspace initiatives in Japan and to jointly promote it.**
- IPA will also pursue international cooperation with organizations such as IEEE and the International Open Forum on Data Society (IOFDS), and will work toward international disseminations that references ODS-RAM.



International Expansion of the Oranos Ecosystem

EU – Japan Digital Partnership

- In May 2025, Minister for Digital Transformation Hirai, Vice Minister of Internal Affairs and Communications Adachi, and Parliamentary Vice-Minister of Economy, Trade and Industry Takeuchi held the 3rd Japan-EU Digital Partnership Council with European Commission Executive Vice-President Virkkunen.
- They agreed to promote discussions on improving data sharing between Japan and the EU.



Joint Statement (Excerpt)

On **data governance**, for improved data sharing, both sides began exchanges towards a possible joint working group. The working group will facilitate practical discussions on improved data sharing, including interoperability between common European data spaces and Japanese data spaces, for example in the automotive sector with the involvement of the private sector such as industry associations. Both sides reconfirmed their commitment to advancing the work towards tangible interoperability resulting in increasingly seamless and secure exchange of data, fostering cross-sectoral and cross-country innovation and efficiency. ...

Energy and Industry Dialogue (Kingdom of Thailand)

- In April 2025, Minister of Economy, Trade and Industry Muto launched the “Energy and Industry Dialogue” and held its first meeting with H.E. Deputy Prime Minister and Minister of Finance Pichai (co-chair) and H.E. Minister of Industry Akanat, to discuss a wide range of topics including industrial competitiveness at the ministerial level.
- They agreed to cooperate on data collaboration starting with automotive LCA.



Joint Statement (Excerpt)

Promotion of Multi-Pathway

- (4) ... Both countries confirm to share the importance of promoting Software-Defined Vehicles (SDVs) and to promote cooperation across the entire supply chain and value chain, including data collaboration starting with Life Cycle Assessment (LCA). ...

Promotion of Circular Economy

- (3) Recognizing that utilizing digital technologies to achieve decarbonization and productivity improvements across the entire supply chain is directly linked to securing future competitiveness. Confirming our commitment to continue sharing challenges and countermeasures in both countries towards these initiatives.



日本語



English



https://www.meti.go.jp/policy/mono_info_service/digital_architecture/ouranos.html