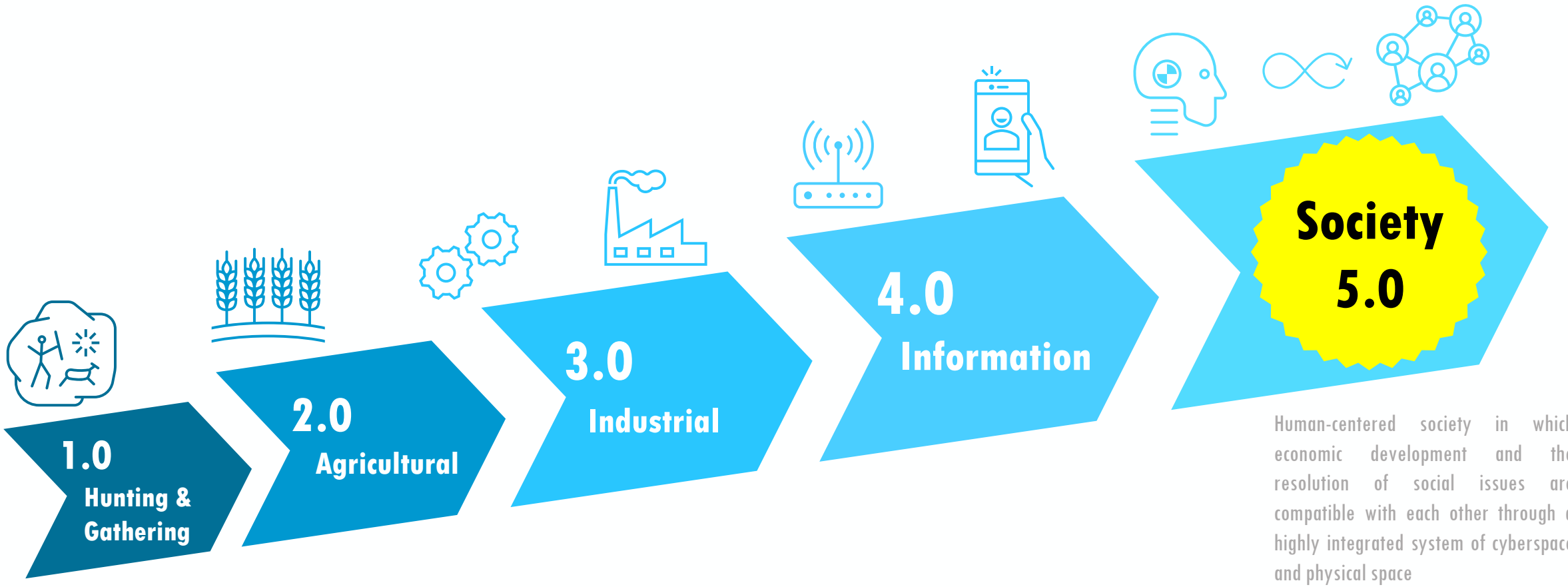
Data Spaces in Japan

Ouranos Ecosystem - Japan's Initiatives for Interoperable Data Infrastructures

April 3, 2025

Yuki SAKAMOTO, METI



Human-centered society in which economic development and the resolution of social issues are compatible with each other through a highly integrated system of cyberspace and physical space

Cyber Space

Physical Space

Cyber Space

Big Data

AI

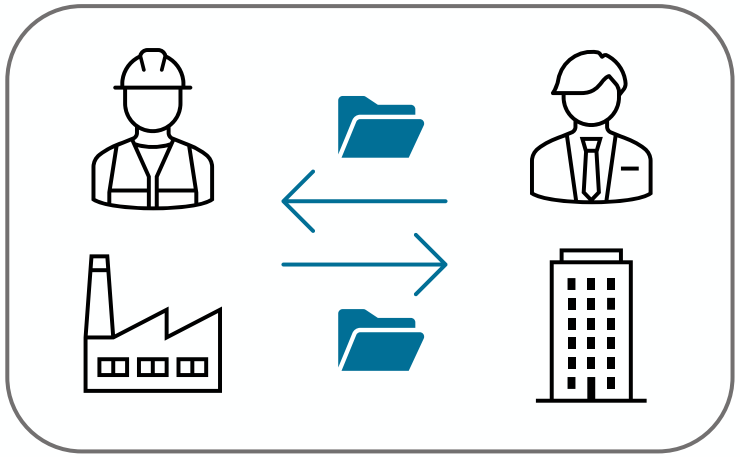
Physical Space

Labor Shortages

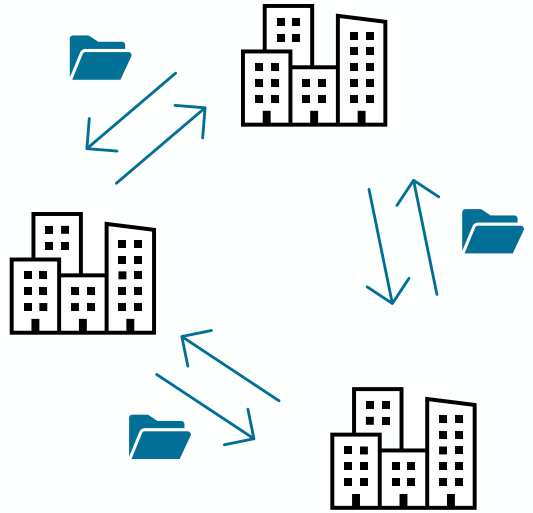
Intensifying
Natural Disasters

Decarbonization

Digitalization



Internal Data Sharing



External Data Sharing

Data Free Flow with Trust

aims to promote the free flow of data while ensuring trust in privacy, security, and intellectual property rights

- January 2019 World Economic Forum Annual Meeting
  ⇒ 2019 G20 Osaka Summit

Data sharing and utilizing

across borders among enterprises, industries, and national boundaries

Declared of launch of Ouranos Ecosystem
- April 2023 G7 Gunma Takasaki Summit

METI IPA Digital Architecture Design Center NEDO

Ouranos Ecosystem Dataspaces promote hybrid service ecosystem

with a variety of service interfaces while ensuring data sovereignty.

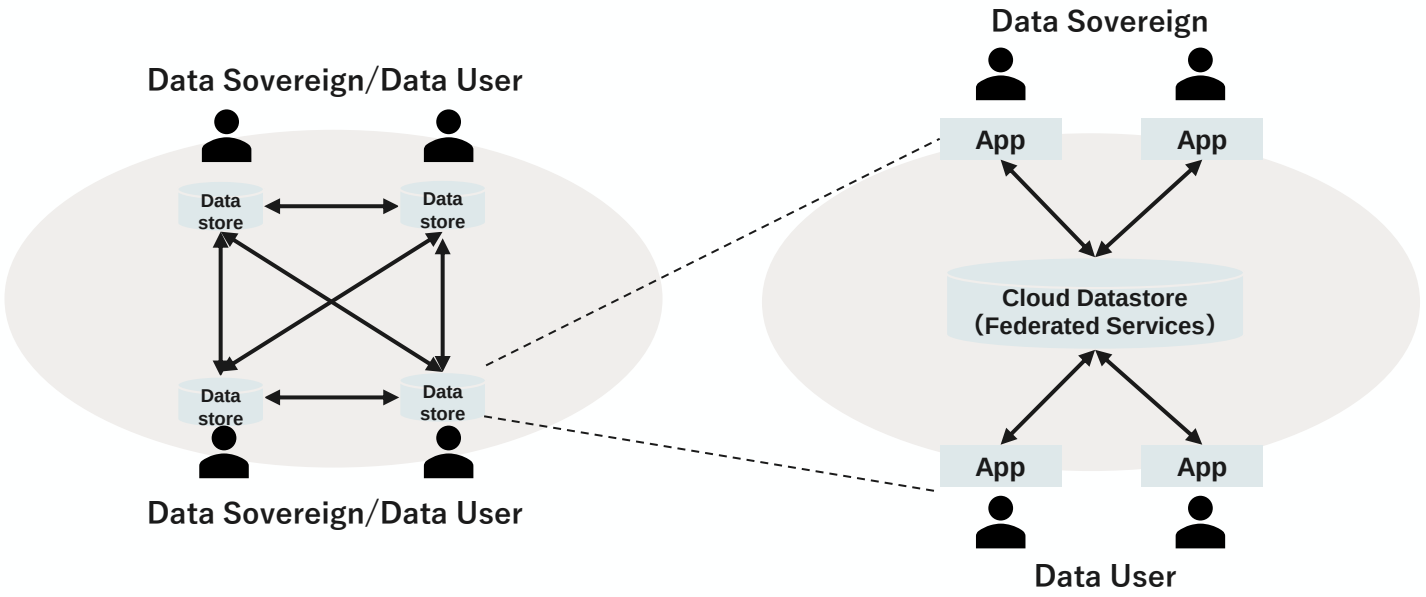
Principle: Distributed Service Model

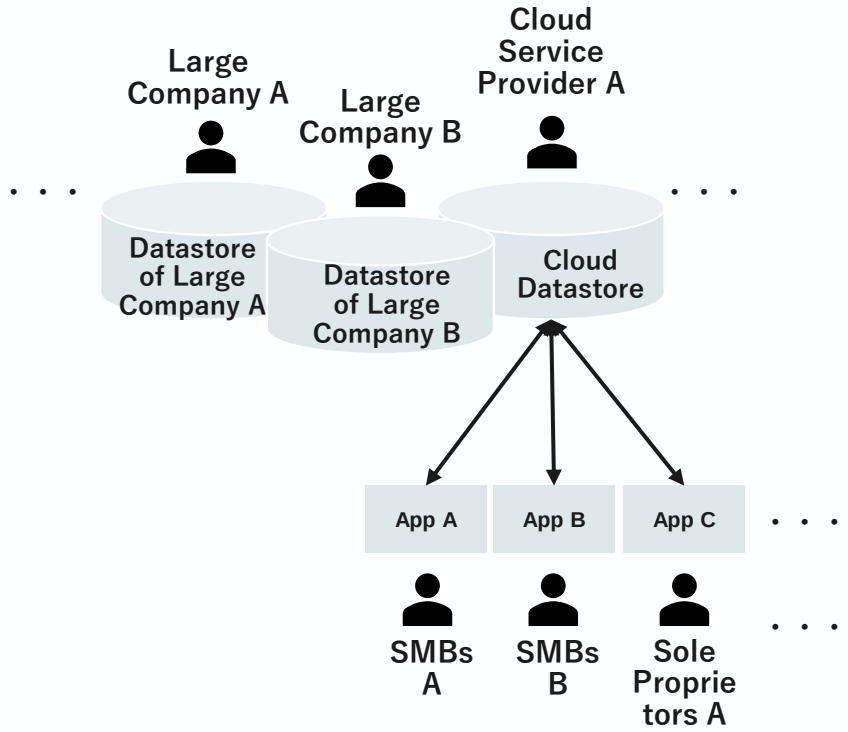
Assuming cases where dataspace participants can independently develop and operate their own systems.

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.

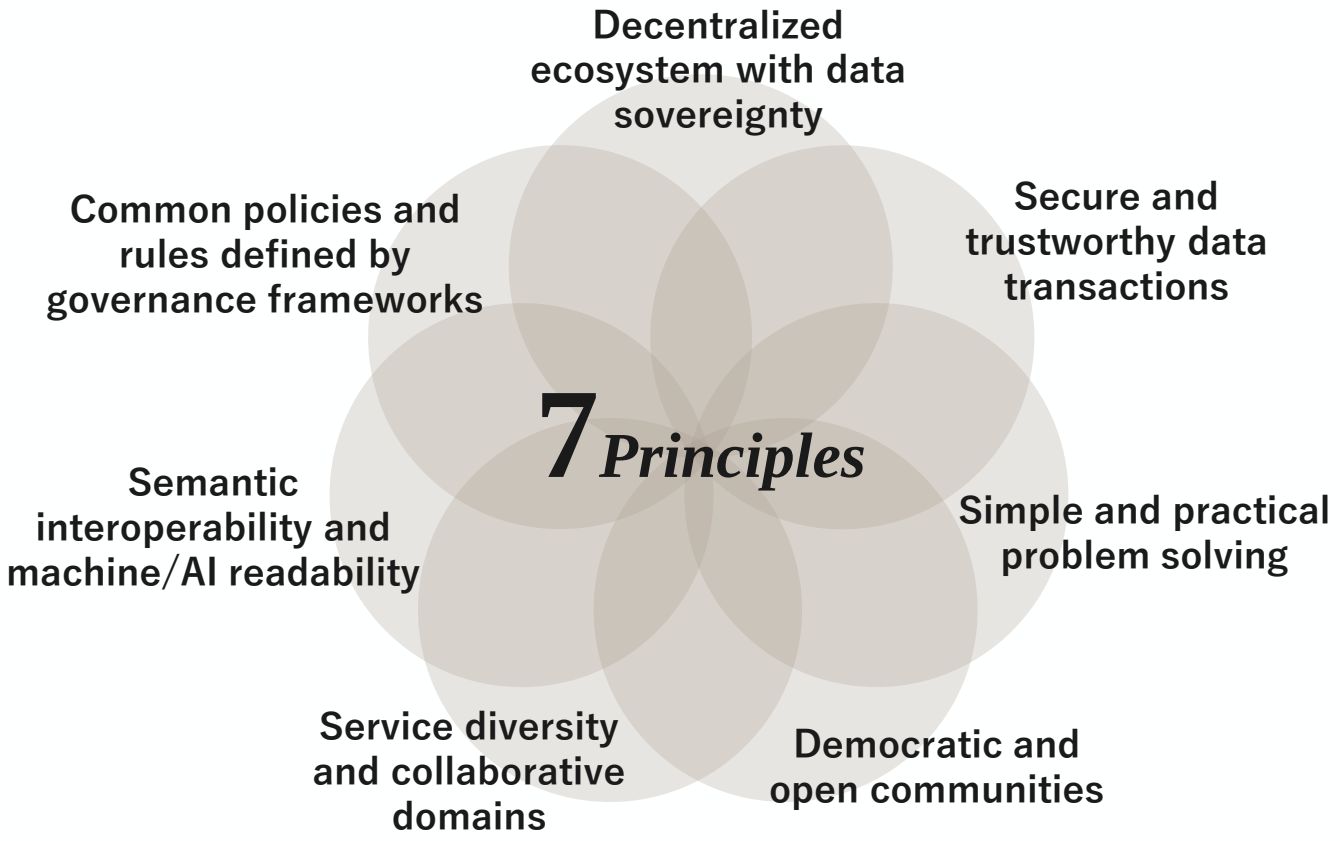
Hybrid Service Ecosystem



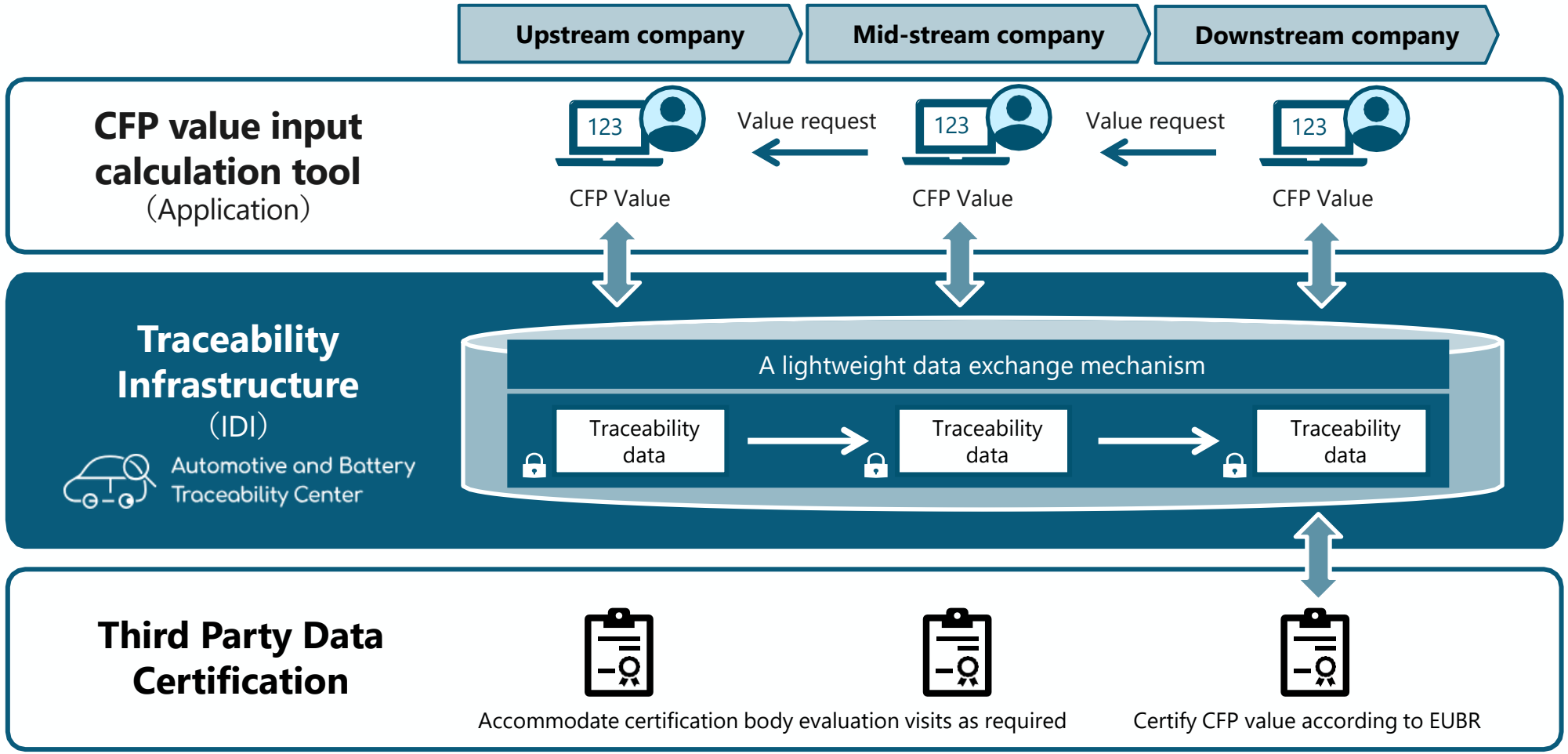


7 Principles of Ouranos Ecosystem Dataspaces

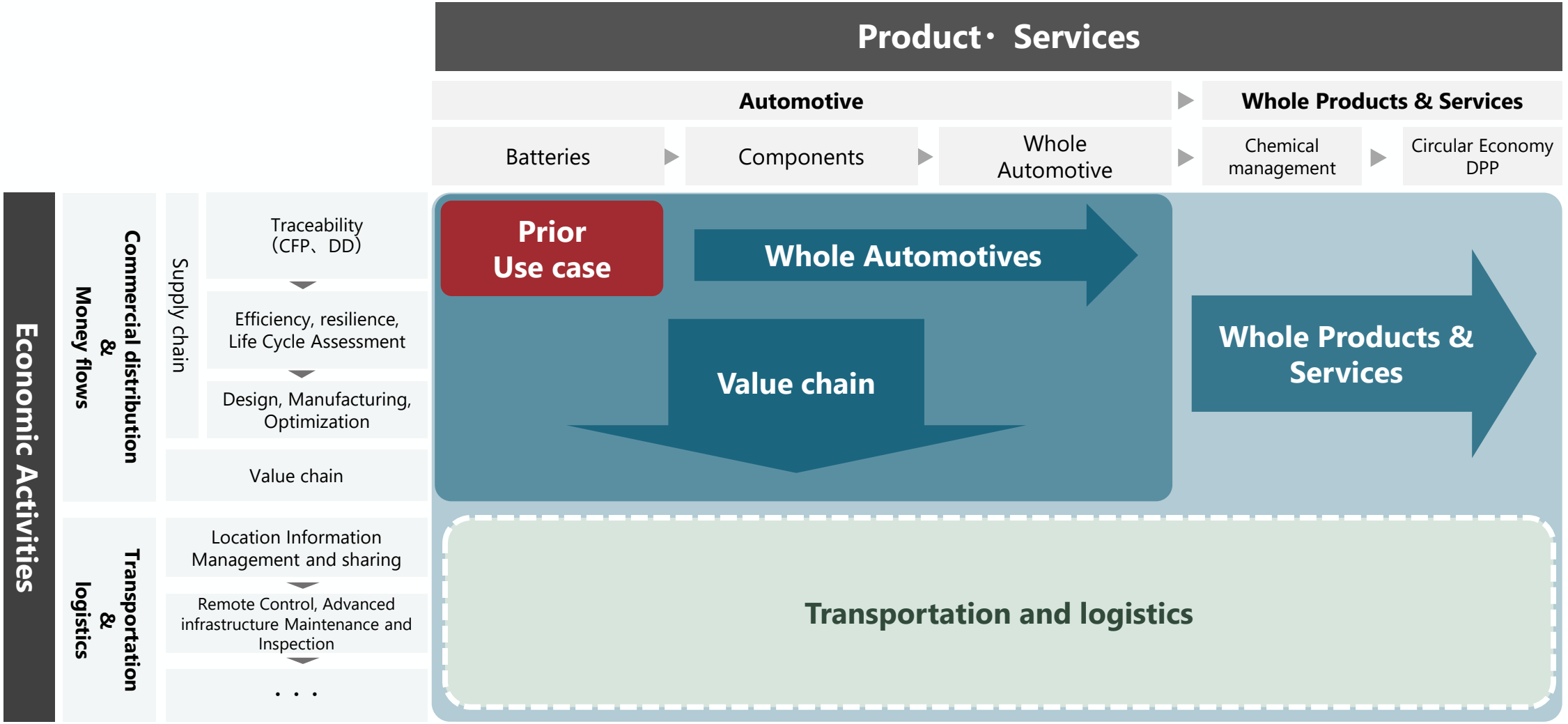
enables data interoperation and utilization that accommodates diverse service models and data while ensuring data sovereignty.



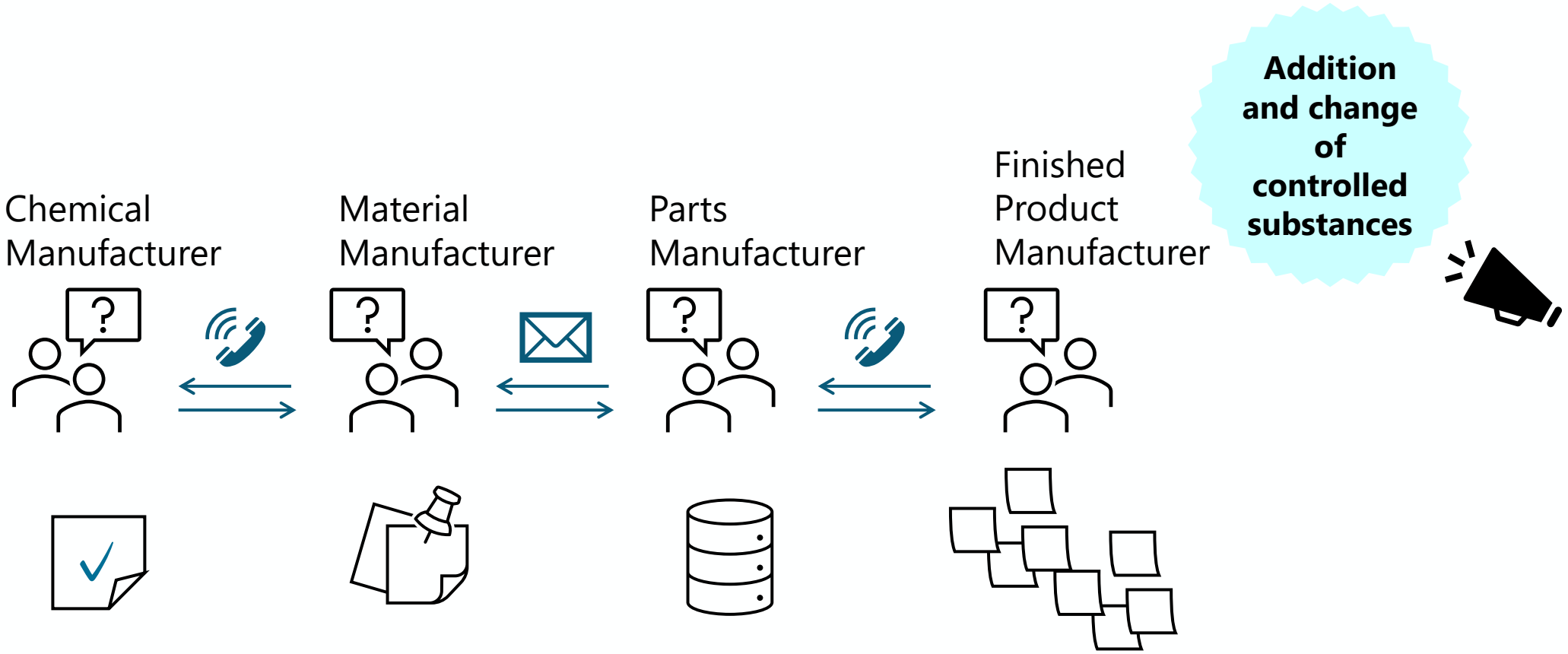
Supply-chain data-sharing across the automotive and battery industries



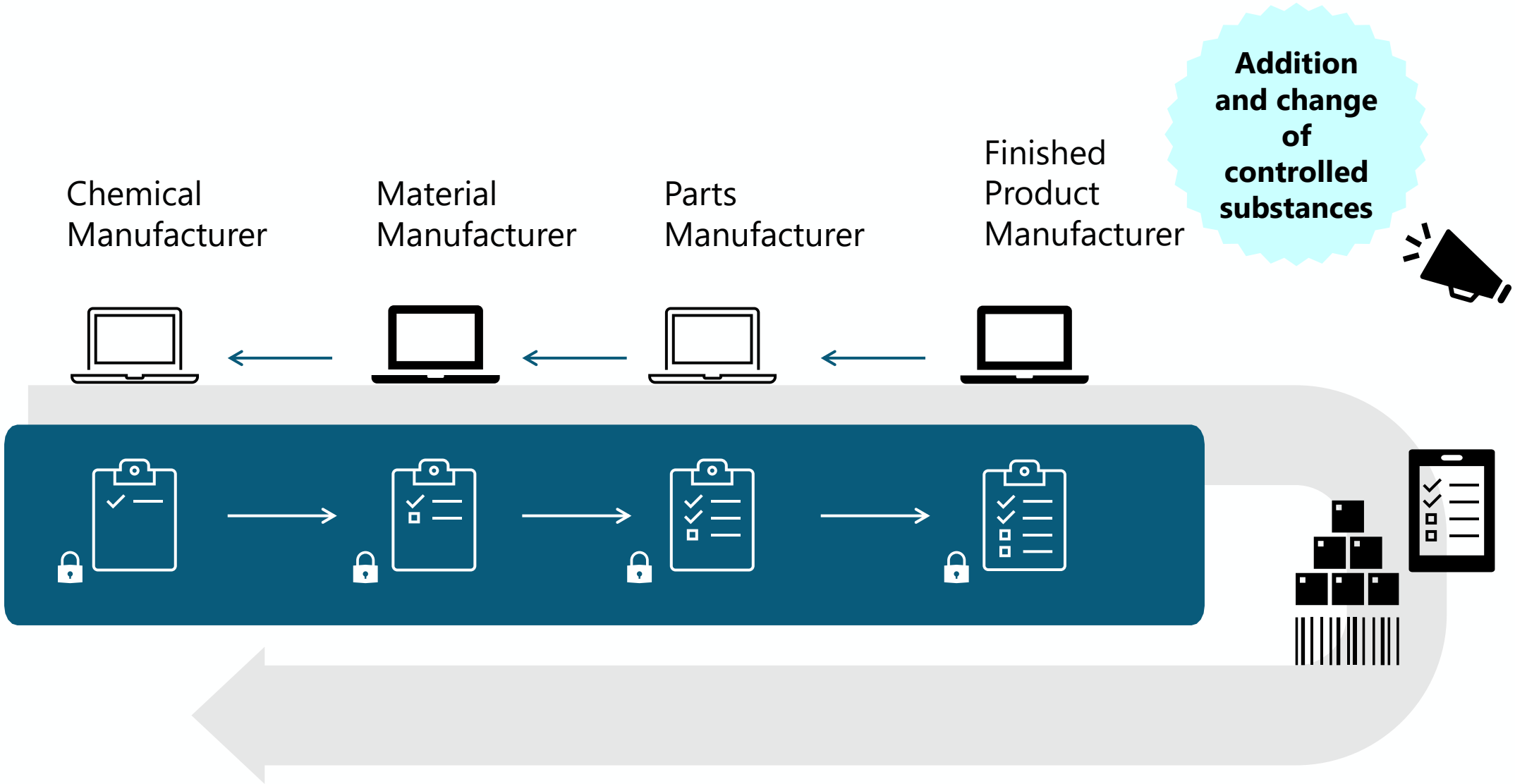
Use case expansion toward covering overall economic activity



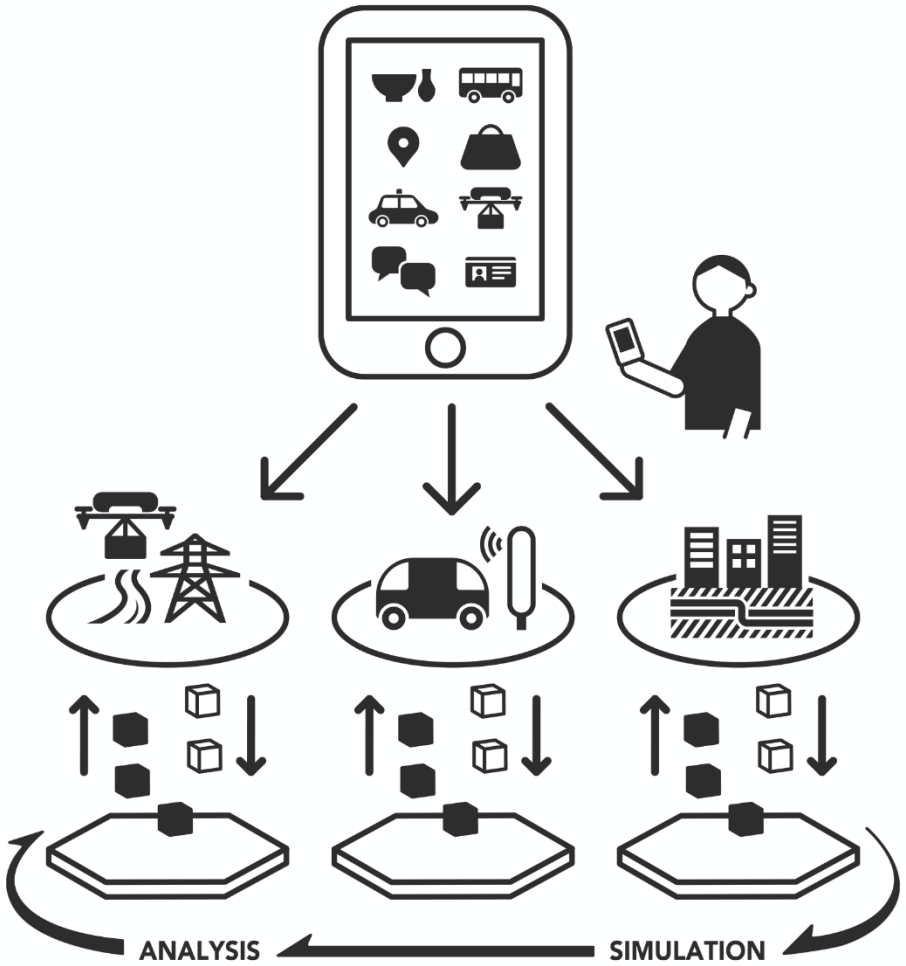
Chemical and Circular Management Platform



Chemical and Circular Management Platform



DIGITAL LIFELINE



HARD

SOFT

RULES

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

Framework for Analyzing Trust in the Trust Study Group

Q1

Data to be Shared

- ✓ Types of data to be shared
- ✓ Lifecycle of data from generation/acquisition to disposal

DMF STEP 1

Q2

Domains of Data Sharing

- ✓ Types and number of businesses included in domains of data sharing
- ✓ Rules, regulations, and agreements between businesses and regarding the data

DMF STEP 2

Q3

Risks and Uncertainties

- ✓ Properties of each data and the risks anticipated for those properties
- ✓ Uncertain elements that create risks

DMF STEP 3・4

※Data Management Framework

Q4

Countermeasures for Risks

- ✓ Items and targets requiring trustworthiness
- ✓ Assurance level that should be prepared for each item or target
- ✓ Responsibilities for ensuring the trust anchors?

Concept of Approaching Trust in Ouranos Ecosystem

Analysis of the "Domains" of Data Sharing

- ✓ Rules, laws and regulations governing the domain
- ✓ Consensus mechanisms or authorities among stakeholders in the domain
- ✓ Scope of the domain
- ✓ Expansion of the domain

Consideration of Solutions for Risks from the Analysis Results of the “domains”

Risks of …

Data Itself

Manage these risks individually along with the requirements and levels requested by each domain.

The requirements and levels are clarified through the analysis of the **“domains"**

Sharing Platforms and Other Factors

Entities
(Authenticity and Identity Verification)

A common risk across all use cases, and it was suggested that ensuring trust based on public government information could be effective.

e.g., **"gBizID"** provided by Digital Agency