EU-Japan Digital Partnership Webinar
- Connecting the EU, Japan and the World -

Manufacturing Data Space activity in Japan

2024.3.12
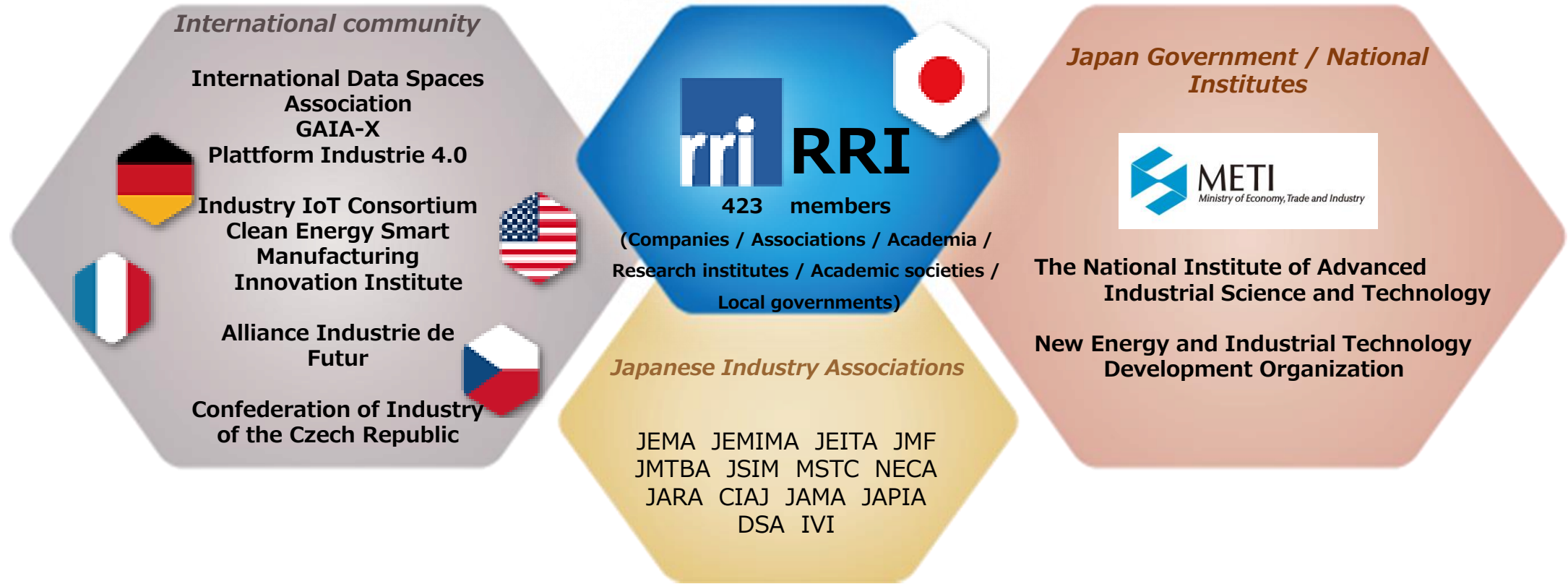RRI (Robot Revolution & Industrial IoT Initiative)
Kazuo Nakashima

https://www.jmfrri.gr.jp/

RRI: Robot Revolution & Industrial IoT Initiative

Established in 2015 under "New Robot Strategy"
Robot, Manufacturing Business transformation with Industrial IoT, and International Standardization

https://www.jmfrri.gr.jp/

Working with Partners

International community

International Data Spaces Association
GAIA-X
Plattform Industrie 4.0

Industry IoT Consortium
Clean Energy Smart Manufacturing Innovation Institute

Alliance Industrie de Futur

Confederation of Industry of the Czech Republic

RRI

423 members
(Companies / Associations / Academia / Research institutes / Academic societies / Local governments)

Japanese Industry Associations

JEMA JEMIMA JEITA JMF
JMTBA JSIM MSTC NECA
JARA CIAJ JAMA JAPIA
DSA IVI

Japan Government / National Institutes

METI
Ministry of Economy, Trade and Industry

The National Institute of Advanced Industrial Science and Technology

New Energy and Industrial Technology Development Organization

## Organization name of Japanese Industrial Association

JEMA: The Japan Electrical Manufacturers' Association, JEMIMA: Japan Electric Measuring Instruments Manufacturers' Association, JEITA: Japan Electronics and Information Technology Industries Association, JMF: The Japan Machinery Federation, JMTBA: Japan Machine Tool Builders' Association, JSIM: The Japan Society of Industrial Machinery Manufacturers, MSTC: Manufacturing Science and Technology Center, NECA: Nippon Electric Control Equipment Industries Association, JARA: Japan Robot Association, CIAJ: Communications and Information Network Association of Japan, JAMA: Japan Automobile Manufacturers Association, JAPIA: Japan Auto Parts Industries Association, DSA: Data Society Alliance, IVI: Industrial Value Chain Initiative

Collaboration with Germany

GER Industrie 4.0

RRI established

Joint statement for the collaboration was announced by METI and BMWi. Joint statement by RRI and PI4.0. Expert groups formed. Collaborative activity started.

| 2011 | ··· | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
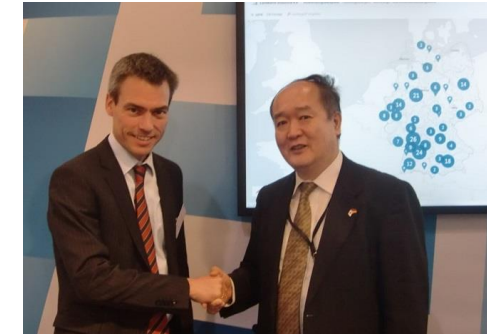
RRI delegation#1 to Germany

RRI delegation#2 to GER
GER delegation to JPN

METI announced "Connected Industries"
Hannover Declaration signed between BMWi and METI for the cooperation in the field of the 4th Industrial Revolution.

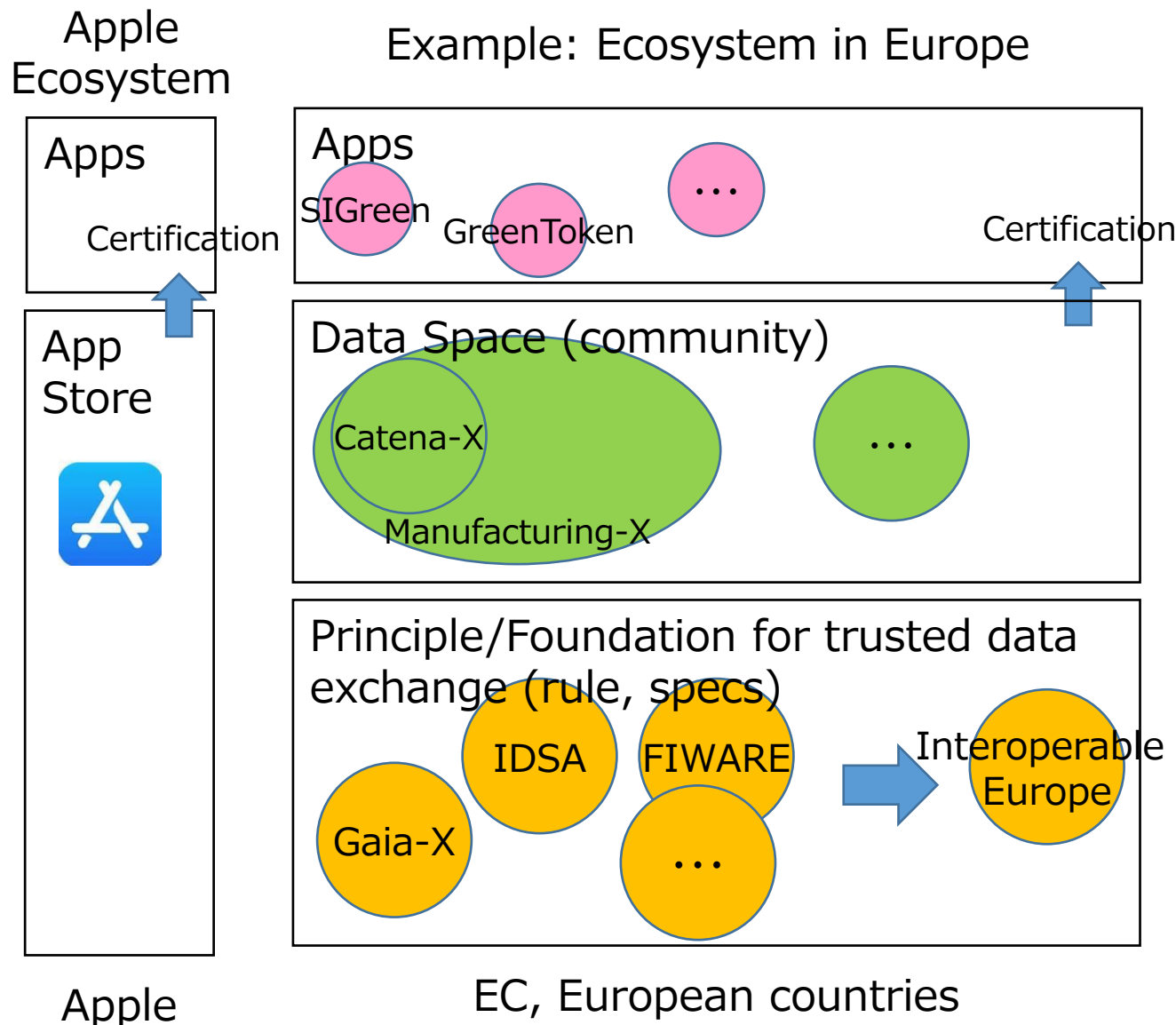RRI International Symposium 2022

Data Space: typical misunderstanding

- Data Space is either "Data Repository", nor "Data Storage".
- Data Space is the community of data users (providers, consumers, etc.) under the common interest (e.g. automotive).
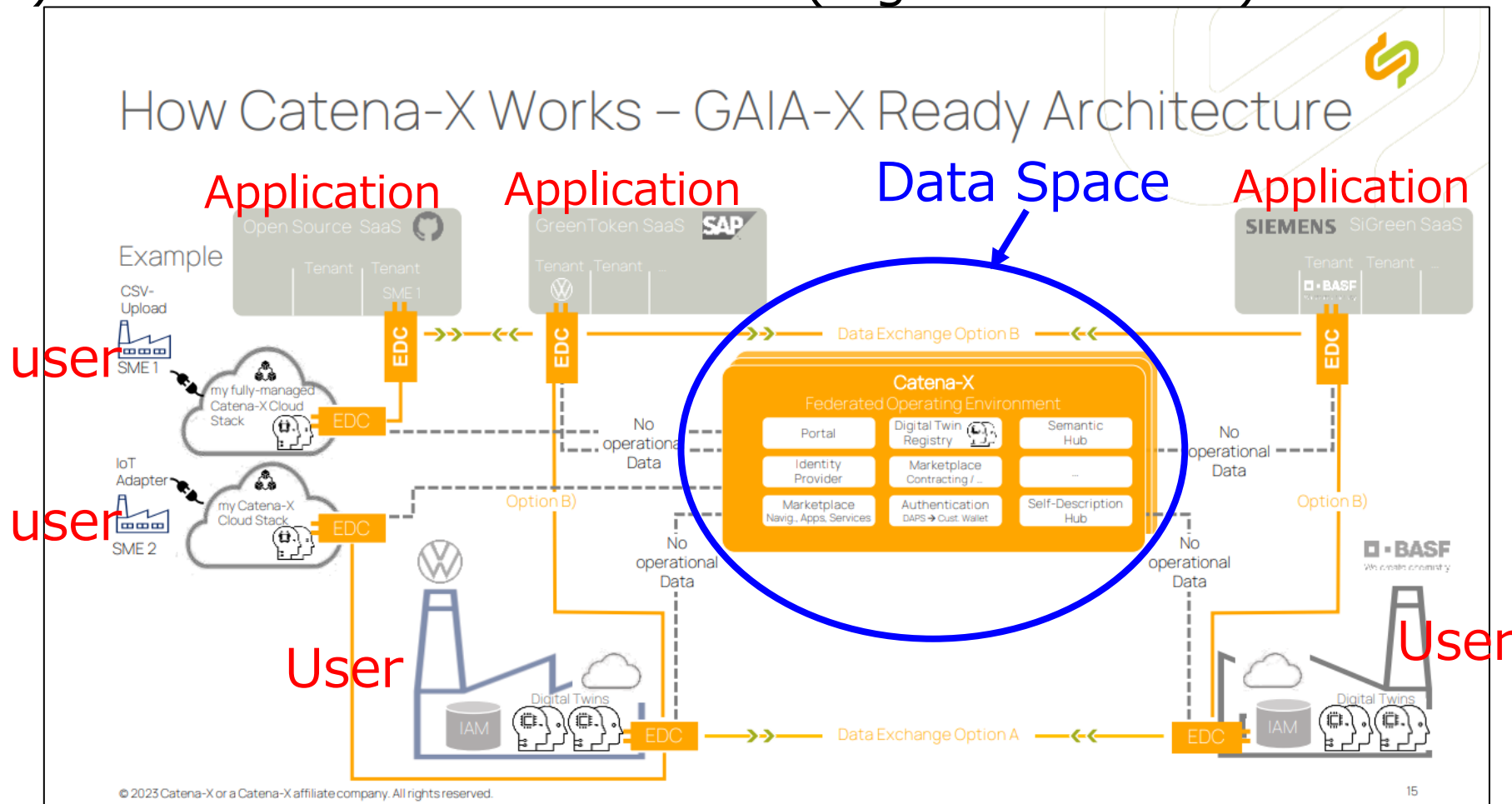
European approach: foundation and Data Space

Example: Ecosystem in Europe

Apple Ecosystem

Apps

Certification

App Store

Apple

Apps

SIGreen
GreenToken
...

Certification

Data Space (community)

Catena-X
Manufacturing-X
...

Principle/Foundation for trusted data exchange (rule, specs)

Gaia-X
IDSA
FIWARE
...
Interoperable Europe

EC, European countries

- Growing movement around the world to create new businesses and solve problems by trusted data exchange.

- Issues that cannot be solved by individual companies alone, such as carbon neutrality and circular economy.

- Open and trusted business ecosystem is the key. (Structure, requirements, interfaces)

- Data sovereignty and decentralized management.

RRI's Manufacturing Data Space Action Group (AG4)
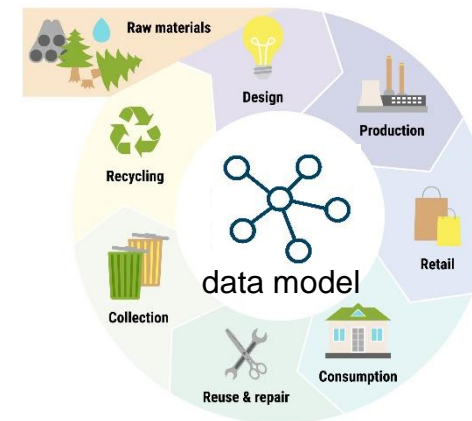
Society 5.0
- Balance between social issues and economic development.
- Multiple CPSs Connected.
- Manufacturing Data Spaces as an enabler for Society5.0.

TF1: Establish common understanding of Manufacturing data Spaces in Japan

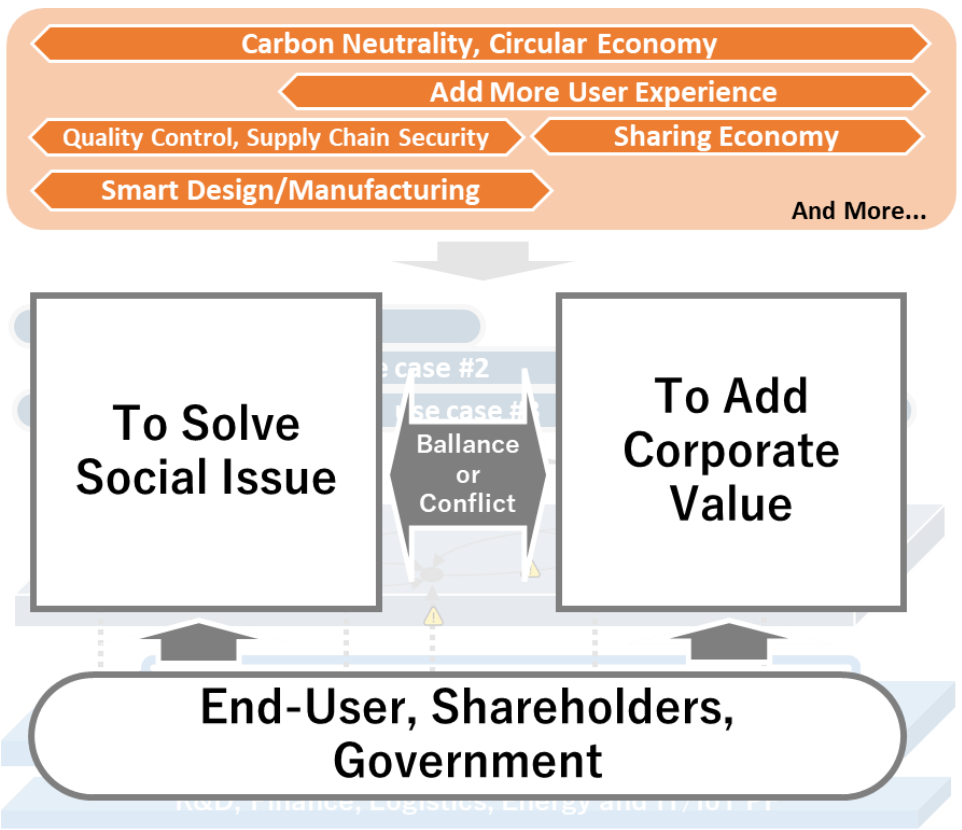TF2: Use Cases and core feature derived from use case study

TF3: Engineering innovation and revolution

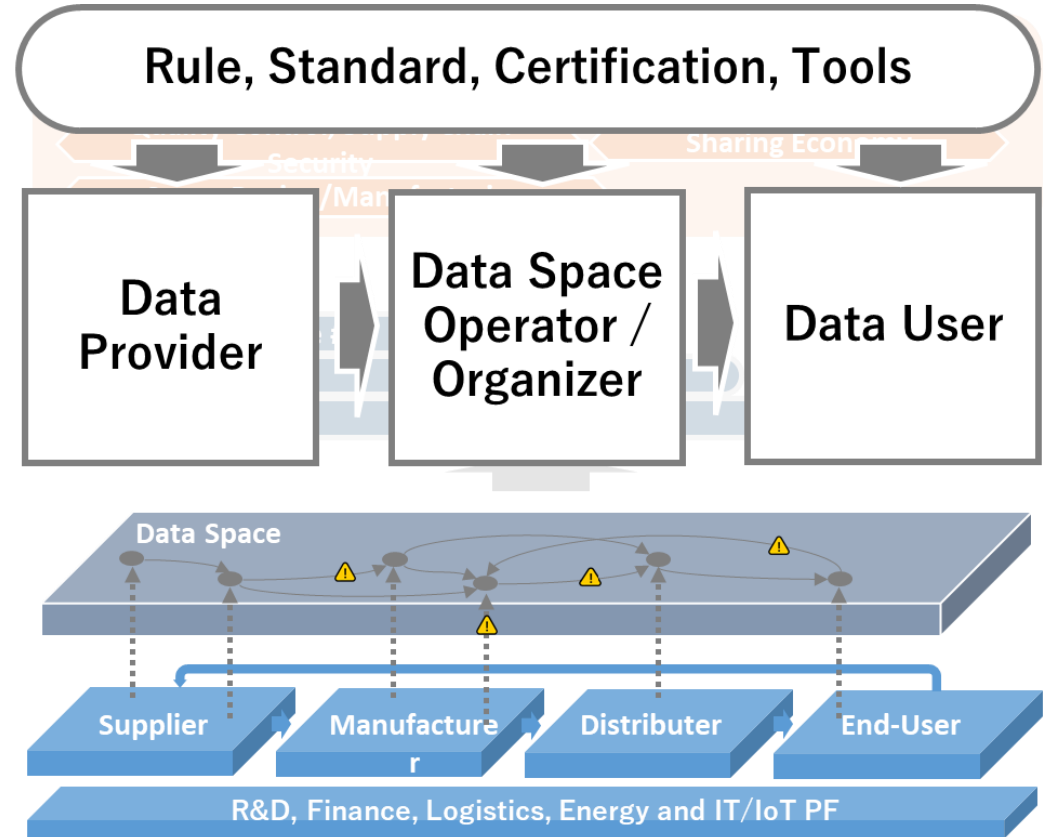TF4: Communication & disseminating Data Space concept

Various aspects from manufacturing companies

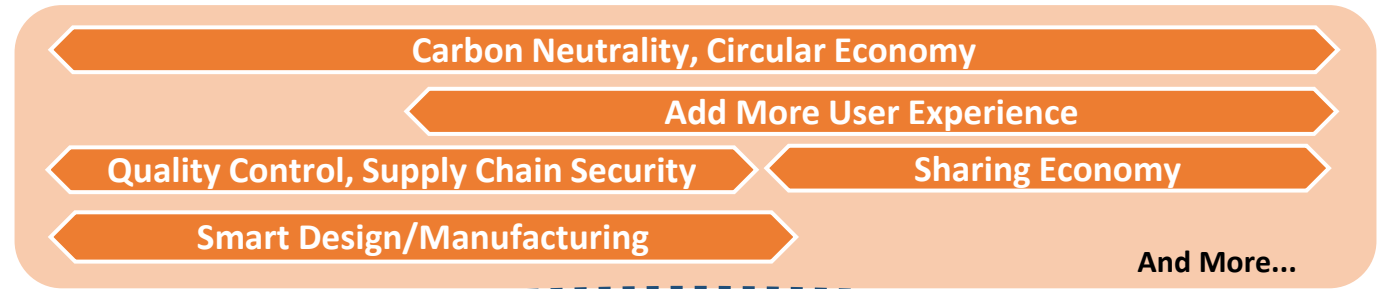Theme1: Motivation to join Data Space

- Carbon Neutrality, Circular Economy
- Add More User Experience
- Quality Control, Supply Chain Security
- Sharing Economy
- Smart Design/Manufacturing

And More...

To Solve Social Issue — Ballance or Conflict — To Add Corporate Value

End-User, Shareholders, Government

R&D, Finance, Logistics, Energy and IT/IoT PF

Theme2: Concern to join Data Space

Rule, Standard, Certification, Tools

Data Provider → Data Space Operator / Organizer → Data User

Data Space

Supplier | Manufacturer | Distributer | End-User

R&D, Finance, Logistics, Energy and IT/IoT PF

Motivation to join Data Space

Carbon Neutrality, Circular Economy

Add More User Experience

Quality Control, Supply Chain Security

Sharing Economy

Smart Design/Manufacturing

And More...

Theme3

Future Manufacturing driven by Data Space
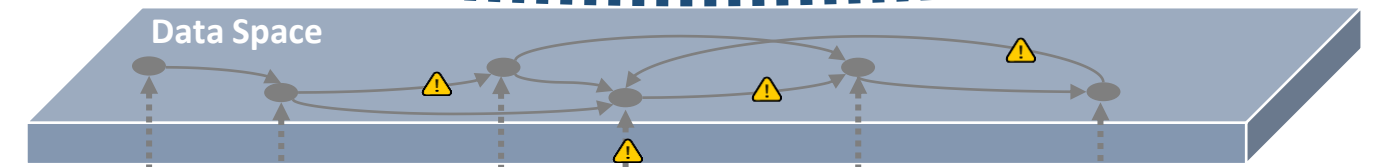
use case #1

use case #2

use case #3

Concern to join Data Space

Data Space

Stakeholders

Supplier

Manufacturer

Distributer

End-User

R&D, Finance, Logistics, Energy and IT/IoT PF
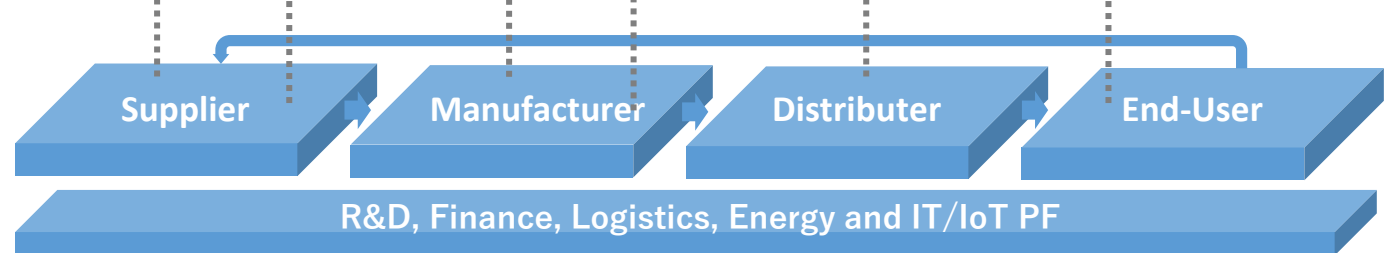
Motivation & Big Picture

International Manufacturing-X (IM-X): Make Data Work

IM-X will implement a federated, decentralized and collaborative data ecosystem for smart manufacturing. Open, global and cross-sectoral.

Australia, Austria, Canada, European Commission, France, Germany, Italy, Japan, Netherlands, Spain, South Korea, USA

INTERNATIONAL MANUFACTURING-X COUNCIL

International Manufacturing-X Smart & Connected Industries

Reorganize and increase flexibility and autonomy of industrial value chains and networks.

Resilience

Increase efficiency and enable data-driven solutions for CO_2 balancing and circular economy.

Sustainability

Accelerate digital innovations and enable new data-driven business models to create new value for manufacturing

Competitiveness

RRI International Symposium 2023