

Open Dataspaces, Catena-X, GAIA-X

Ouranos Study Group. Session #2.

For:
Office of Digital Strategy & International Affairs,
Commerce and Information Policy Bureau
Ministry of Economy, Trade and Industry

Through:
Catena-X e.V. Internationalization Expert Workgroup Japan & Korea
Satoshi TSUCHIYA, Fujitsu
Markus KRAEMER, SAP SE

Tokyo, 17. Dec. 2024



Our understanding of METI's open data space Trust Study group (TUE, 17. Dec. 2024) meeting #2

Quick Overview of
Manufacturing-X /
Catena-X as one
example of an
open data space.

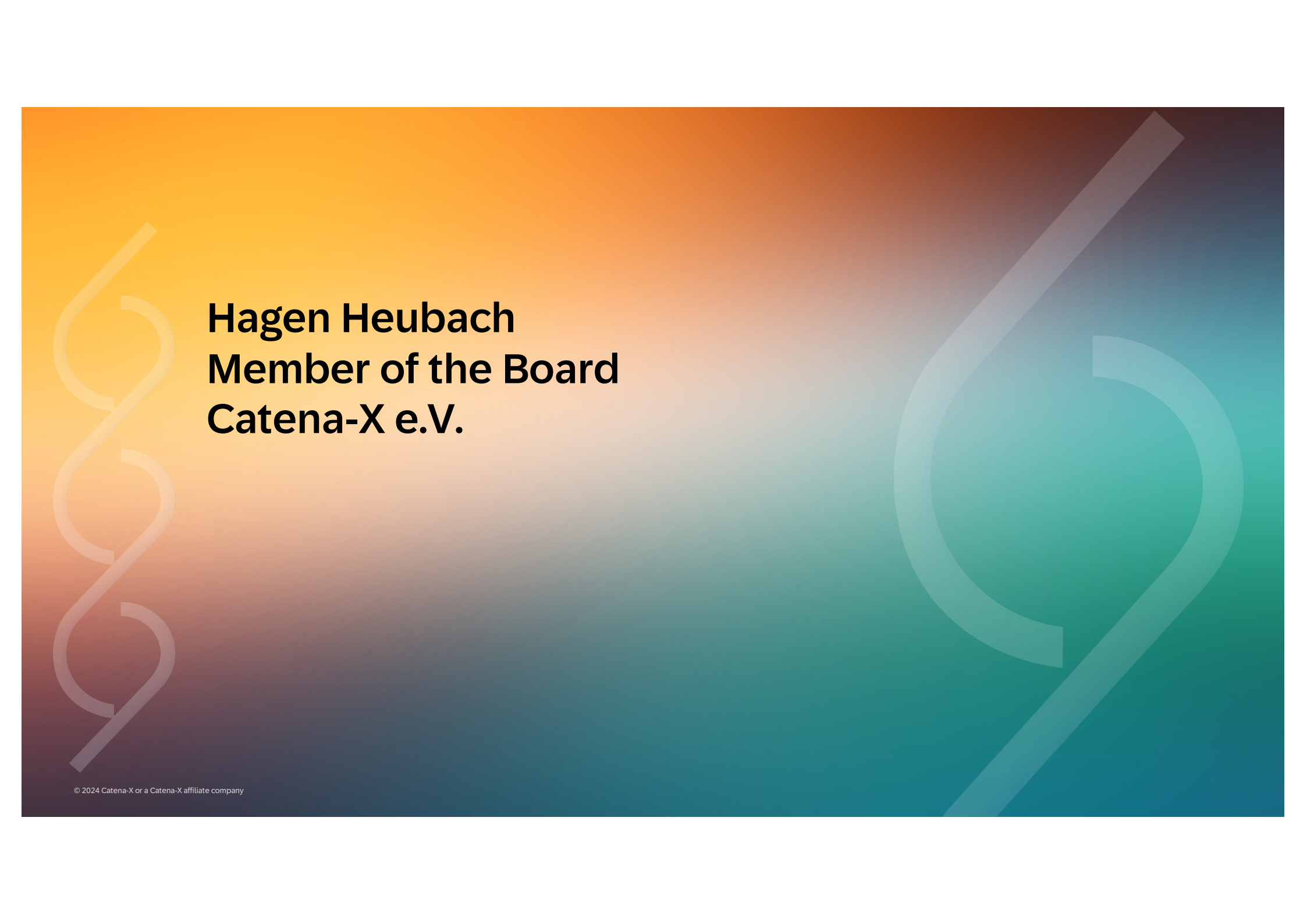
3 layers of data
security within
Catena-X as one
example of an
open data space.

GAIA-X, trust
wallet and
verifiable
credentials.

Agenda

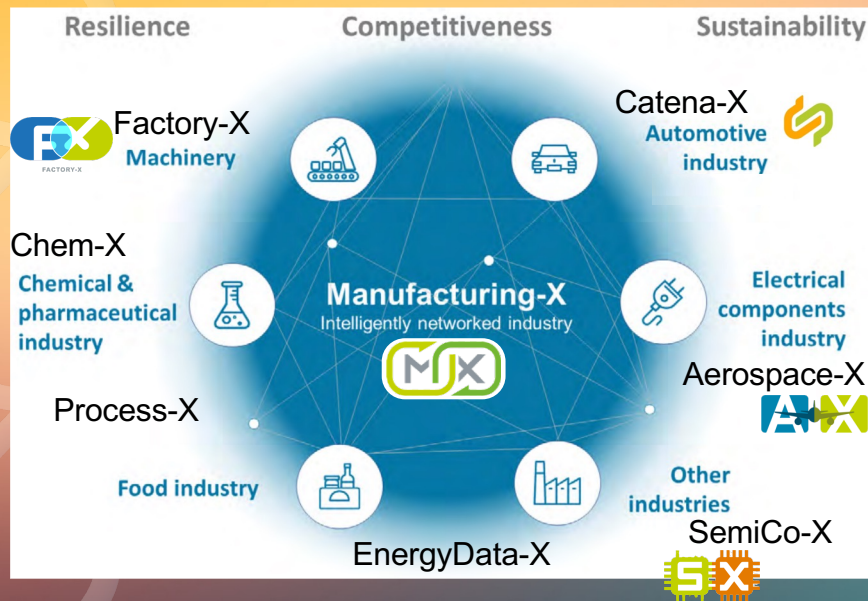
Minutes after starting:

00:00	Start & welcome	(speaker: Kraemer, onsite)
00:30	Introduction of speakers	(speaker: Kraemer, onsite)
01:30	Video message Catena-X Board member	(speaker: Heubach, video)
03:30	Brief history of Catena-X as example of an open & interoperable data space	(speaker: Kraemer, onsite)
05:30	Data Sovereignty: 3 layers of trust: process / semantic / trust anchor	(speaker: Kraemer, onsite)
08:15	Trust Concept of GAIA-X as used as basis in Catena-X	(speaker: Tsuchiya, onsite)
10:30	Verifiable Credentials and Digital Wallet in Catena-X	(speaker: Tsuchiya, onsite)
14:00	Wrap up and Summary	
15:00	End	



Hagen Heubach
Member of the Board
Catena-X e.V.

Manufacturing-X will establish an open data ecosystem across industries



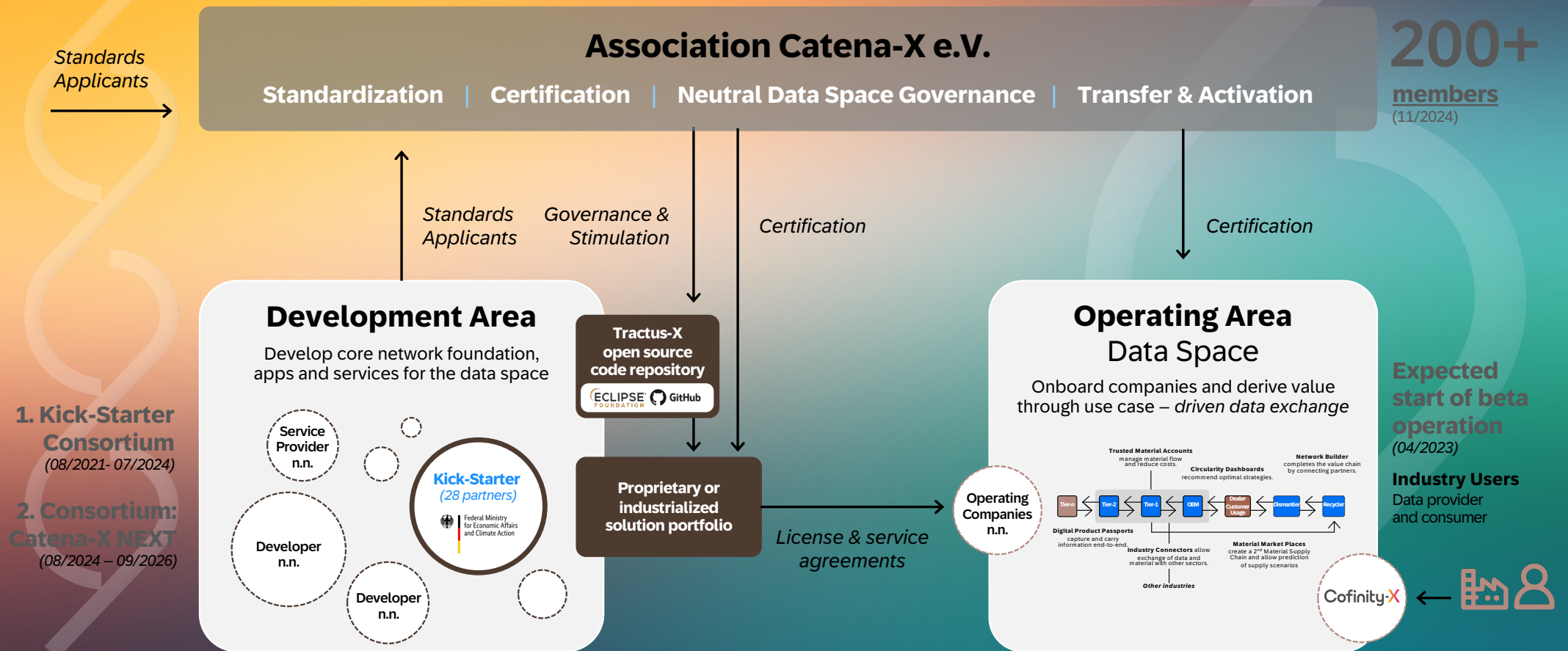
Source: Plattform Industrie 4.0: Manufacturing-X – Initiative to digitalize supply chains in the industry - [link](#)

The cross-sectoral initiative Manufacturing-X implements the **DataSpace Industrie 4.0**:

- 1. Business Focus**
Use cases are defined and agreed jointly by industry representatives, associations and leading companies
- 2. End 2 end across companies**
Use cases and scenarios do not only span inner company silos but also connect companies with in one and adjacent industries
- 3. Data Sovereignty**
An open and trusted data space allows access of relevant data while data sovereignty of the data owner is maintained
- 4. Standards based**
The inherent complexity of the technology used is managed through open source principles and industry standards and architectures like GAIA-X, AAS (Asset Administration Shell), DCP (Decentralized Claims Protocol), DSP (Data Space Protocol) and others
- 5. Scaling from large to small and medium companies**
Access to Manufacturing-X is as easy as connecting to any cloud based network

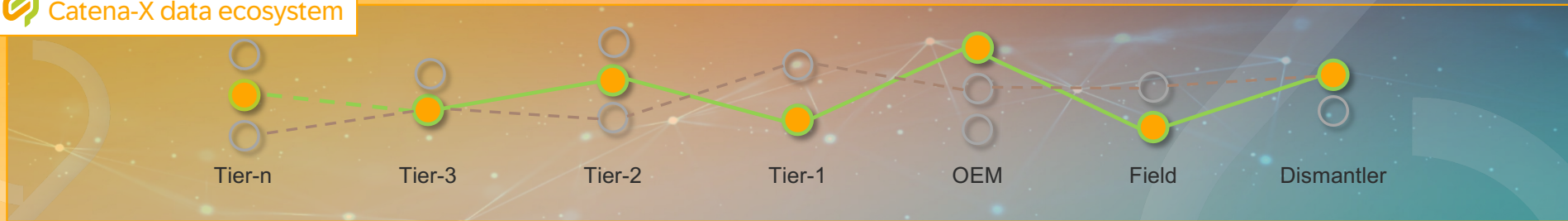
Catena-X Organizational Setup

The art of balancing power and fostering collaboration within a data ecosystem



Catena-X seeks to develop an open, collaborative ecosystem for data exchange along the value chain with strong principles.

 Catena-X data ecosystem



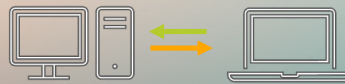
#DataSovereignty

Decide about
the use of your
data



#DataSecurity

Data exchange
via secure
connector



#Interoperability

Common standards
allow different
systems to work
together



#Trust

Easily identify
partners in the
ecosystem



#GovernanceFramework

Unified policies,
authorizations and
monitoring

The full range of principles can be found on the [Catena-X Website](#).

Catena-X is not a database to store and collect data but an open ecosystem to share data in a better way – standardized, secure and simple.

Data Space Integration – use cases, standards and certification

Use cases of the data space Catena-X

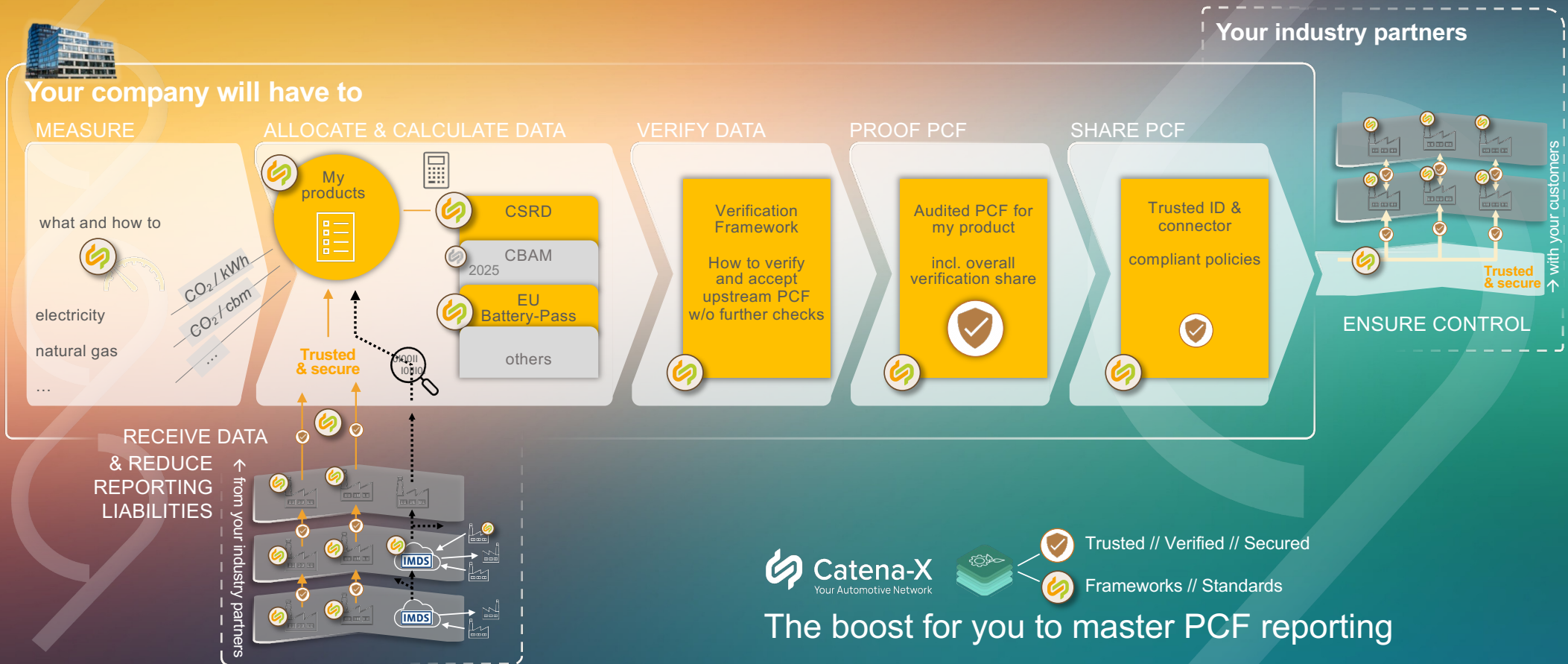
- Certificate Management
- Parts traceability
- Carbon footprint management
- Quality management
- Demand and capacity management
- Circular economy management
- Supply chain compliance & incident management
- Digital twin

Data Space Integration certified by Catena-X

- Cross company interactions highly rely on mutual trust
- Based on our Catena-X standards to provide transparency and reliability
- Catena-X major principles are considered in certified components

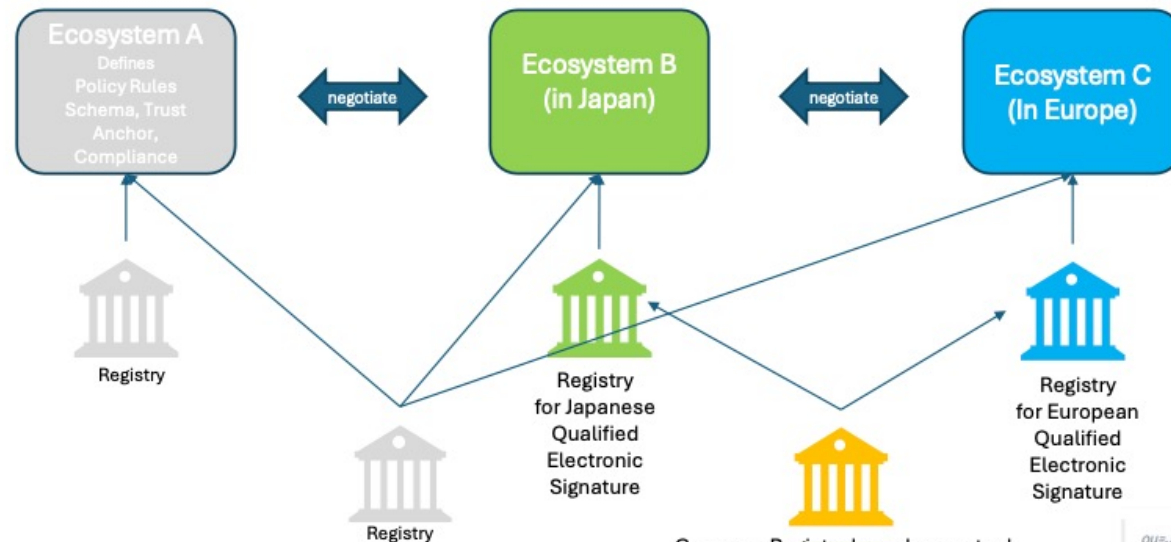


Catena-X PCF end to end business approach, enables to continuously adapt and implement present and future PCF regulations



Data Space Integration – Common Registry

How to build interoperable ecosystems/dataspaces ?



Common Registry based on mutual
recognition of qualified electronic
signatures
(https://ec.europa.eu/commission/presscorner/detail/en/ip_23_5378)
Ex: My Number Card* (マイナンバーカード)
Ex: eIDAS

ou=Japan Agency for Local Authority Information Systems
ou=JPKI for digital signature
o=JPKI
c=JP

Alternatively:

ou=地方公共団体情報システム機構
ou=公的個人認証サービス署名用
o=公的個人認証サービス
c=JP

#GaiaXSummit24

Self-sovereign Identity (SSI) Evolution: Past / Current / Future State

PAST

- Central IdP setup with DAPS
- Companies didn't have SSI wallets
- Companies didn't have attested SSI identity

CURRENT

- Decentral SSI setup with a single cloud wallet offering
- Credentials issued by the operating company
- EDC uses SSI for identification of communication partners
- Only one wallet implementation available (no open-source solution)
- Trust list with a single issuer
- Single operating company

Near Future

- Enable **BYOW**
- Enable the issuer to distribute verifiable credentials based on a **standard protocol**
- Trust list with multiple issuers

Next steps

- Company identities with EIDAS
- Additional DID methods
- Multiple issuers (operating company, ISO certificates, tax numbers)
- Common trust list for multiple issuers

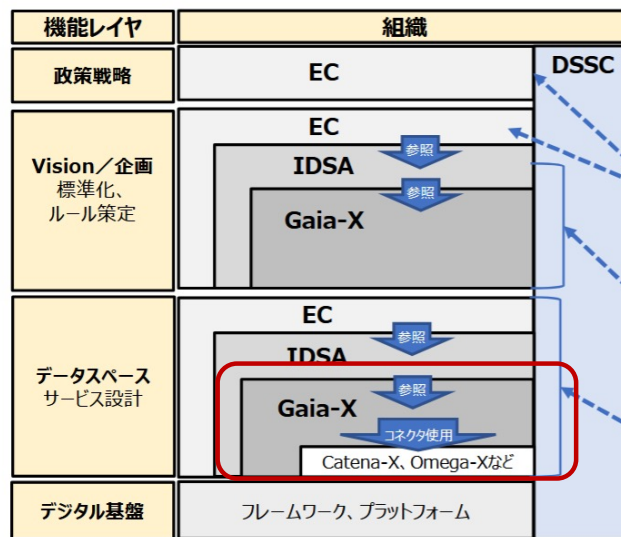
Overall relationships between Gaia-X and Catena-X

Functions and Roles Structures of EU Dataspaces

EUのデータスペース構築の役割分担



■ EC、IDSA、Gaia-Xの各組織で設計方針を参照し、データスペース間の接続手順を統一



DSSC(Data Spaces Support Centre)
レイヤ縦断でデータスペース参加者の支援を行う組織
(EU、ISDA、Gaia-X、FIWAREなどが共同出資)

欧州委員会 (EC)
・2018年 一般データ保護規則 (GDPR) 施行
・2020年 「欧州データ戦略」を発表
「欧州データスペース (European Data Spaces)」の
構築により、産業用データの有効活用を通じてEU発展を目指す

IDSA 技術仕様リファレンス・アーキテクチャ(RA)を策定
Gaia-X IDSAのRAを参照し、Gaia-XのRFを策定

欧州委員会 (EC) データスペースの基本パーツを作成
IDSA IDSコネクタ※を作成
Gaia-X IDSコネクタをコア技術にEclipseコネクタを開発し、
Catena-X等のデータスペースで使用

※コネクタ：データスペース間でデータ連携を行う仕組み

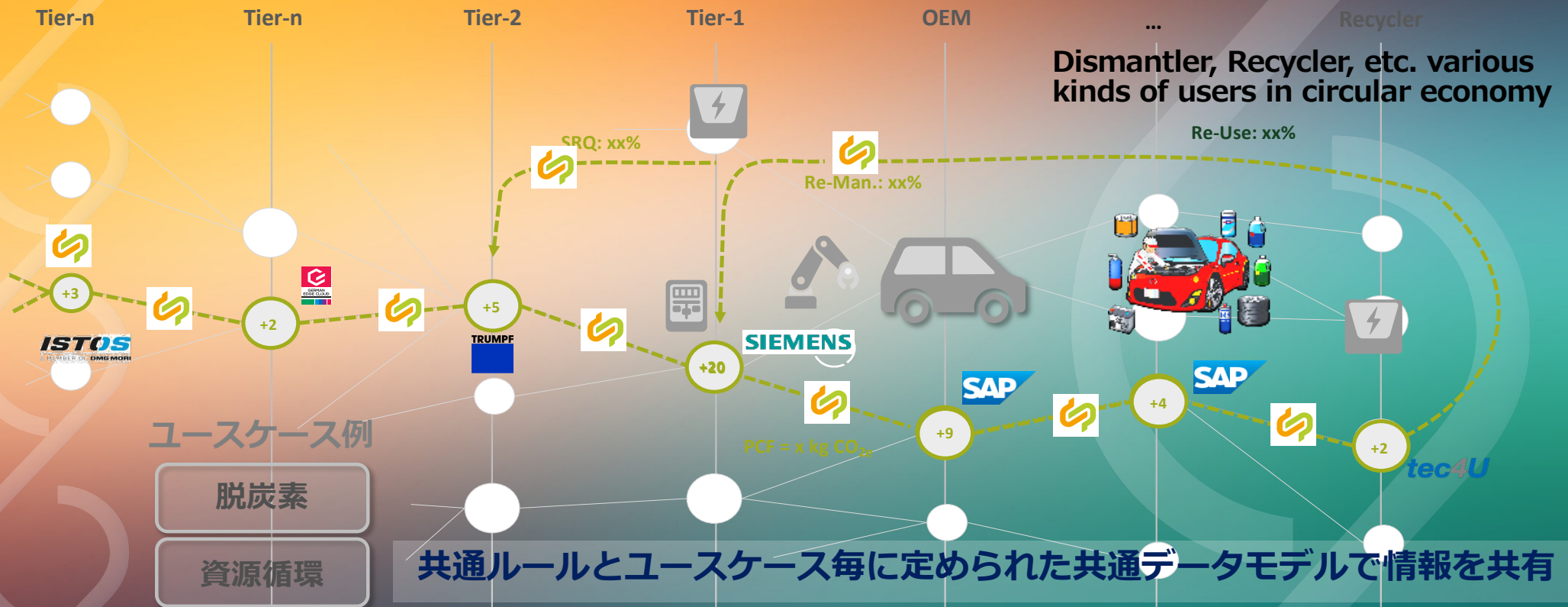
Catena-X is the lighthouse project of Gaia-X.

Catena-X refers to Gaia-X as base standard for trust & data exchange

IPA DataSpace Primer データスペース入門 (2024)

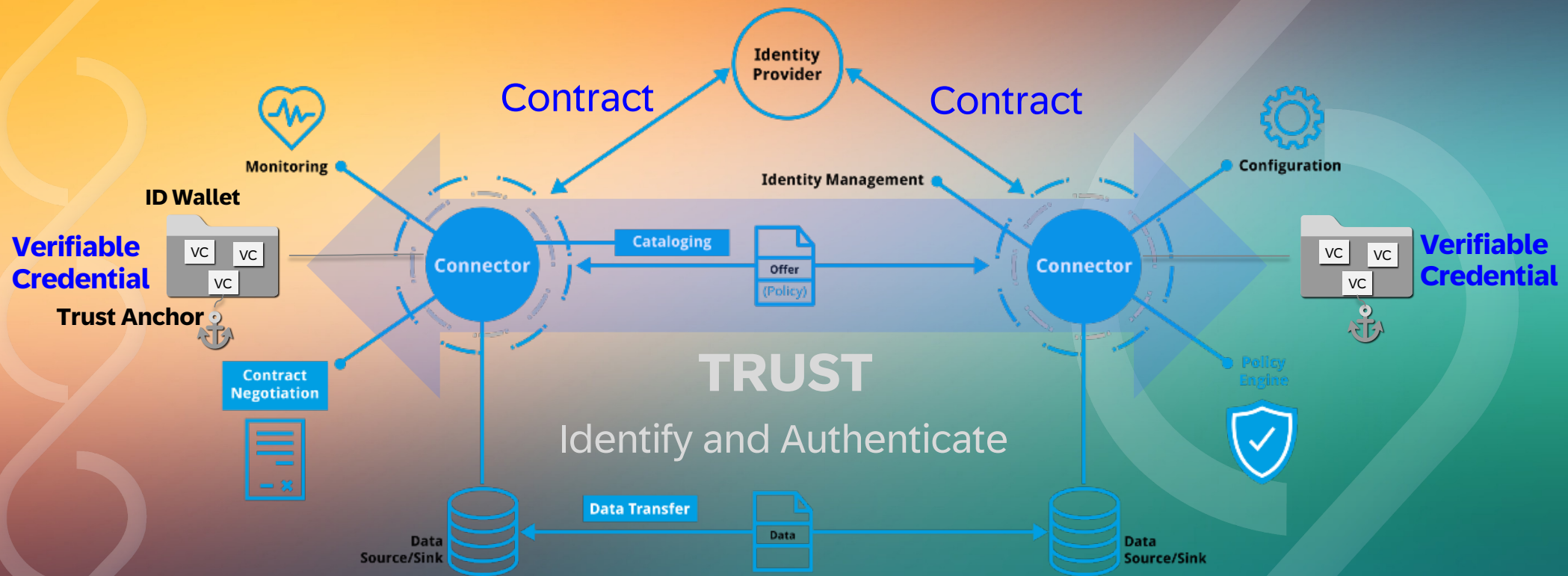
<https://www.ipa.go.jp/digital/data/jod03a000000a82y-att/dataspaces-gb.pdf>

Use of global, decentralized IDs among multiple industries



さまざまなベンダーのソフトウェア間で データの連携・共有が可能に

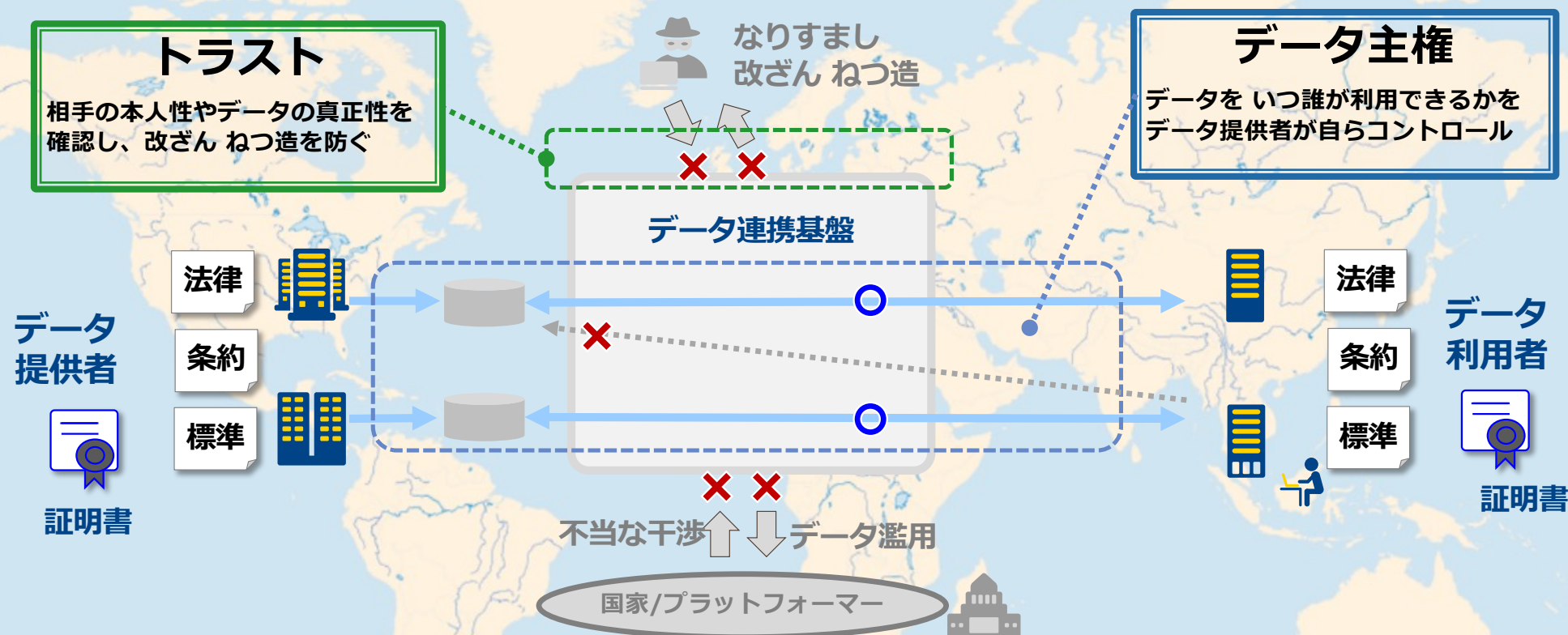
Dataspace Protocol is developed for trusted global data exchange
Identify each other by ID and establish a channel for data communication



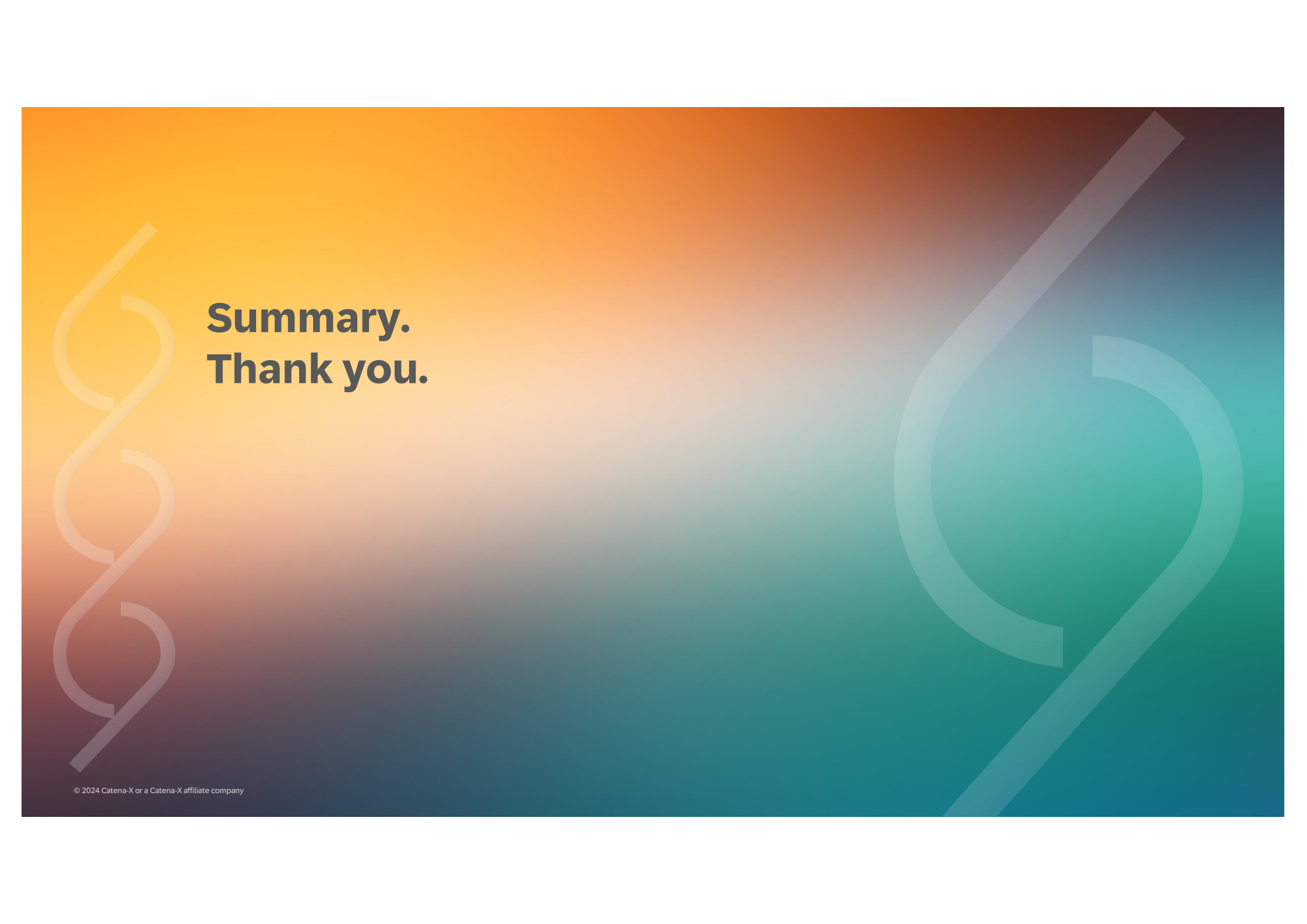
It seems like a kind of telecom standards such as phone, SMS and e-mail

Trust & data sovereignty required for international inter-enterprise data federation

国際的な企業間データ連携にはトラストとデータ主権が必要



本人性 真正性 データ主権を保証できないと 信用力 競争力が低下する恐れ



**Summary.
Thank you.**