Data Spaces Symposium

FIWARE Vision in Data Spaces

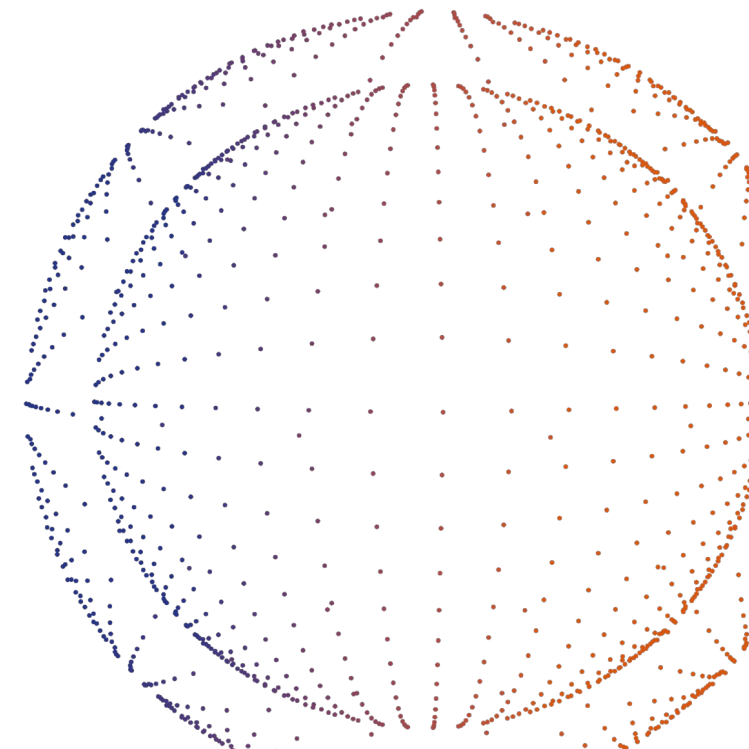Clara Pezuela,
FIWARE
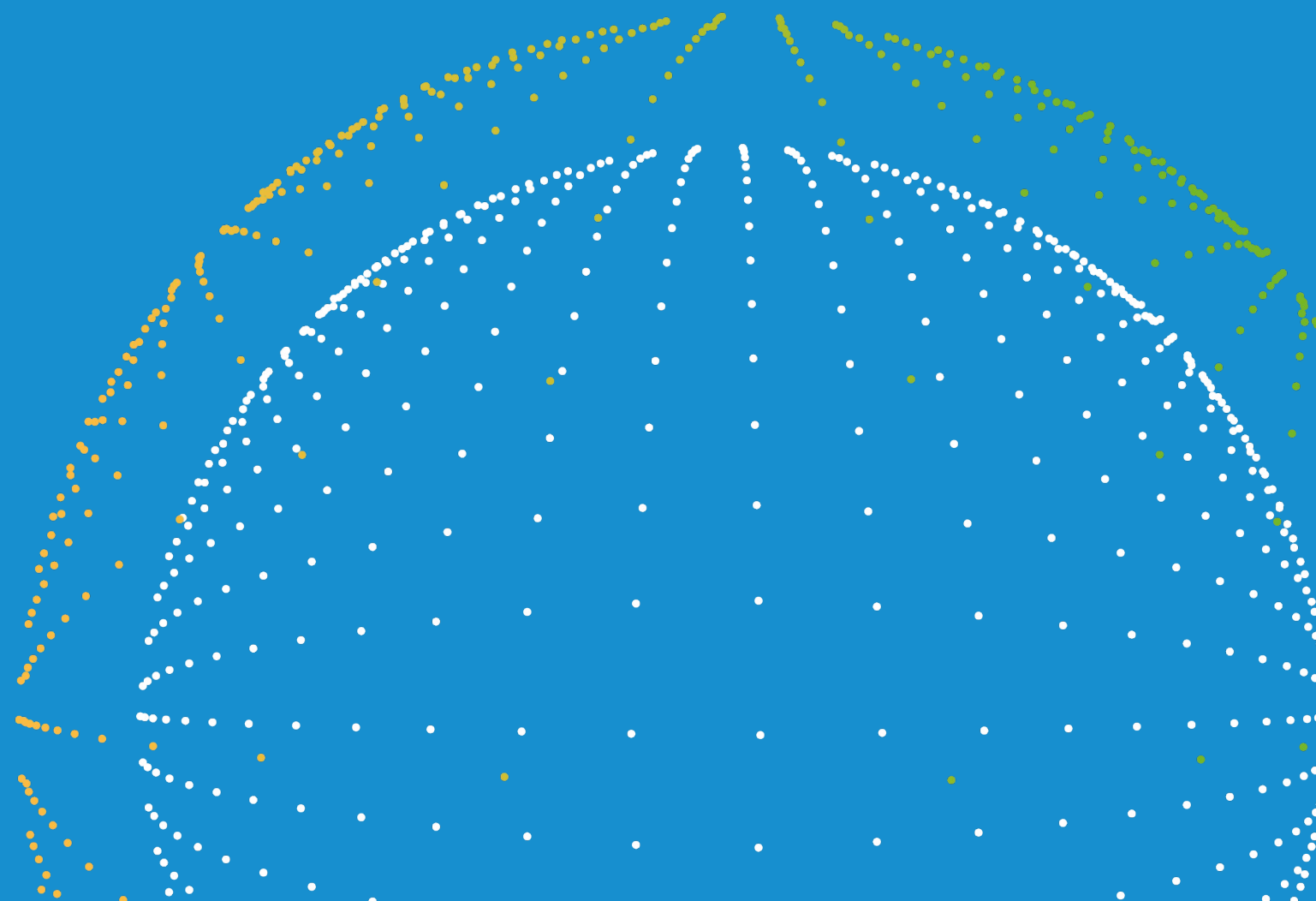
Table of contents

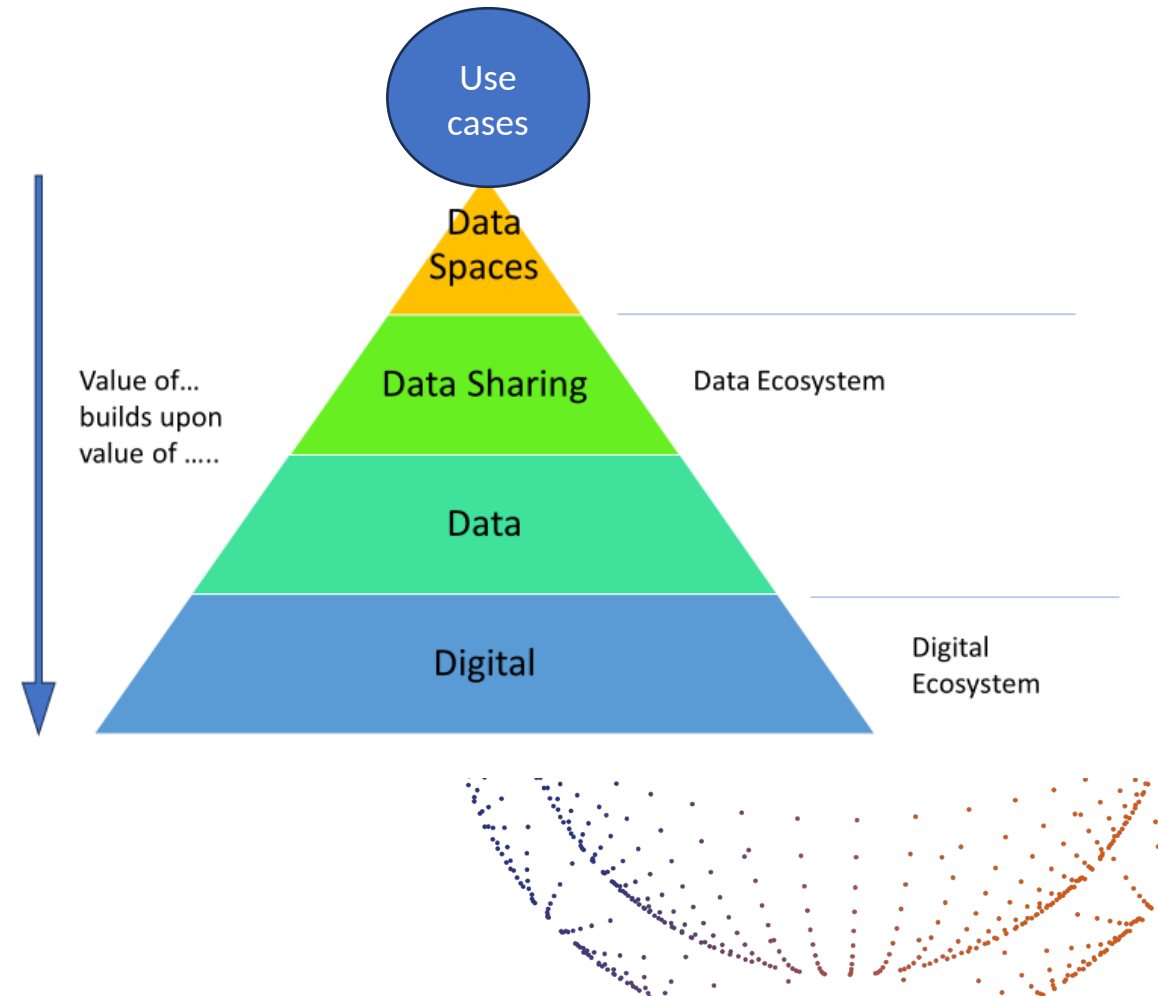# Context of data spaces

- The value of data spaces relies on the value of data sharing and therefore on the value of data

- Data Spaces operate in digital ecosystems and inherit some of their characteristics

- Data Spaces were introduced in the European Data Strategy to support the idea of "single market of data"

- Being concrete through use cases

Use cases

Data Spaces

Data Sharing

Data Ecosystem

Data

Digital

Digital Ecosystem

Value of... builds upon value of .....

Data Space concept

A distributed system defined by a governance framework that enables secure and trustworthy data transactions between participants while supporting trust and data sovereignty. A data space is implemented by one or more infrastructures and enables one or more use cases.
(DSSC Glossary)

What is...

- Distributed system
- Governance framework
- Enabling trusted data transactions
- Supporting data sovereignty
- Several infrastructures supporting one or more use cases

What is not..

- A data lake
- Only a data platform
- Only a digital ecosystem

FIWARE
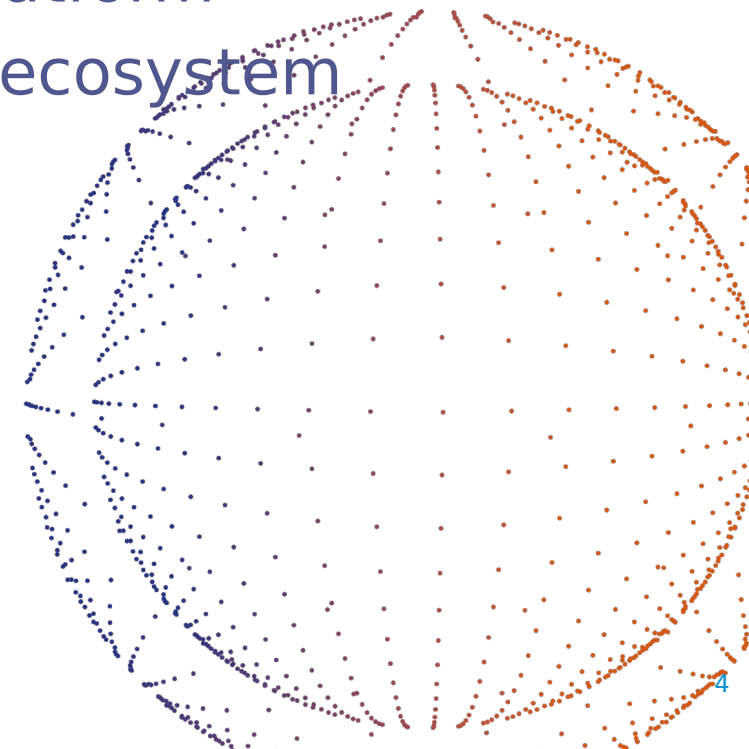
Why data spaces?

- Remove barriers in data sharing (interoperability, trust, sovereignty…)
- Minimize the risk of data sharing (security, costs…)
- Offer additional incentives for data sharing (reduce costs, access to more data…)
- Operate with different types of data (cross-domain data sharing…)
- Involve a large variety of participants (directly or through intermediaries)
- Federate with other data spaces
- Adhere to EU rules and values
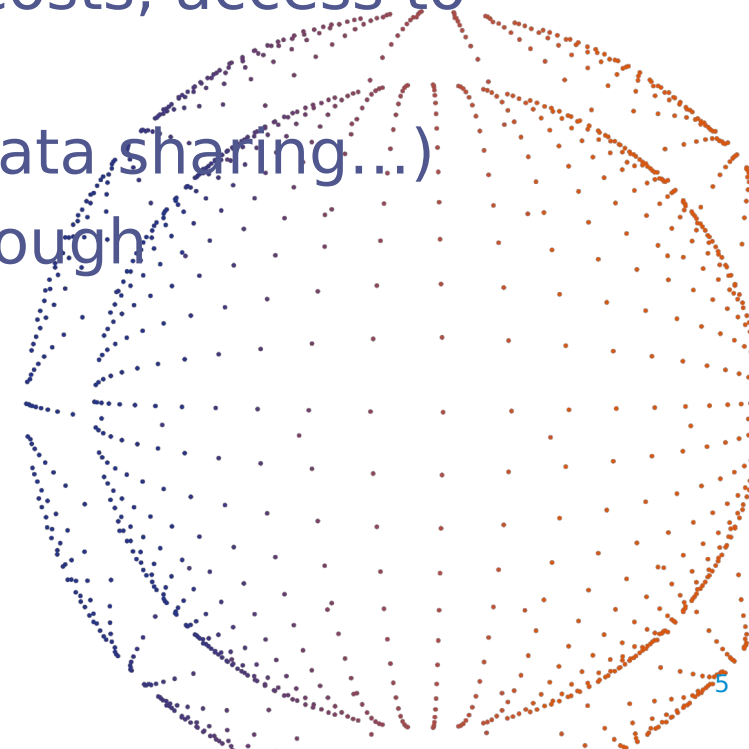
FIWARE purpose

Global, growing and **open community** which promotes **open standards** for Data Exchange and Data Models and develops **open source** components for smart solutions, digital twins and data spaces.
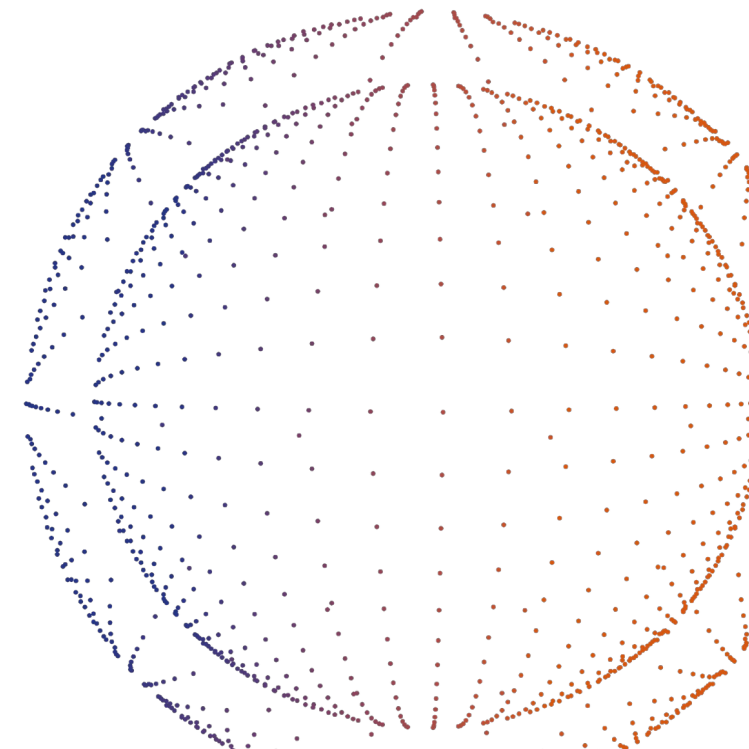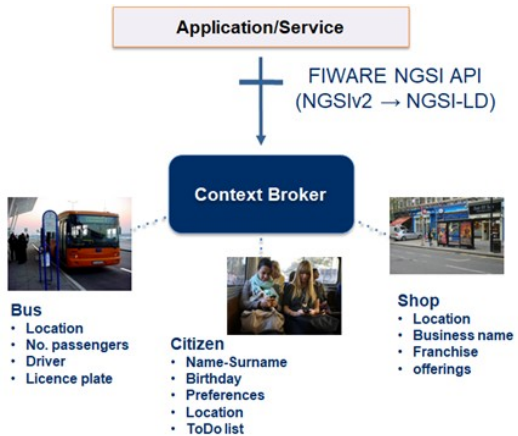
FIWARE key assets

NGSI-LD and Context Broker

NGSI-LD is a simple but powerful REST API for getting access to context data in right-time

Specifications published by ETSI in October 2019 under ISG CIM

Orion-LD Context Broker is an implementation provided by FIWARE as a CEF Building Block

Smart Data Models (www.smartdatamodels.org)

Collaborative program to provide open licensed data models (mapped into JSON and JSON-LD) for digital twins and data spaces

According to principles of agile standardization, use cases driven
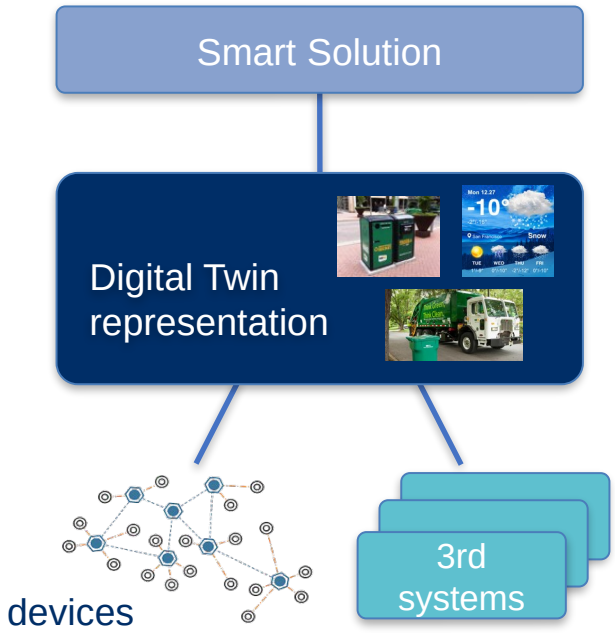
1200 data models, 13 domains, 7 languages, 100 organizations

Relied on open standards (schema.org, SAREF, IEC CIM, DCAT-AP, CPSV-AP, GBFS, OSLO…)
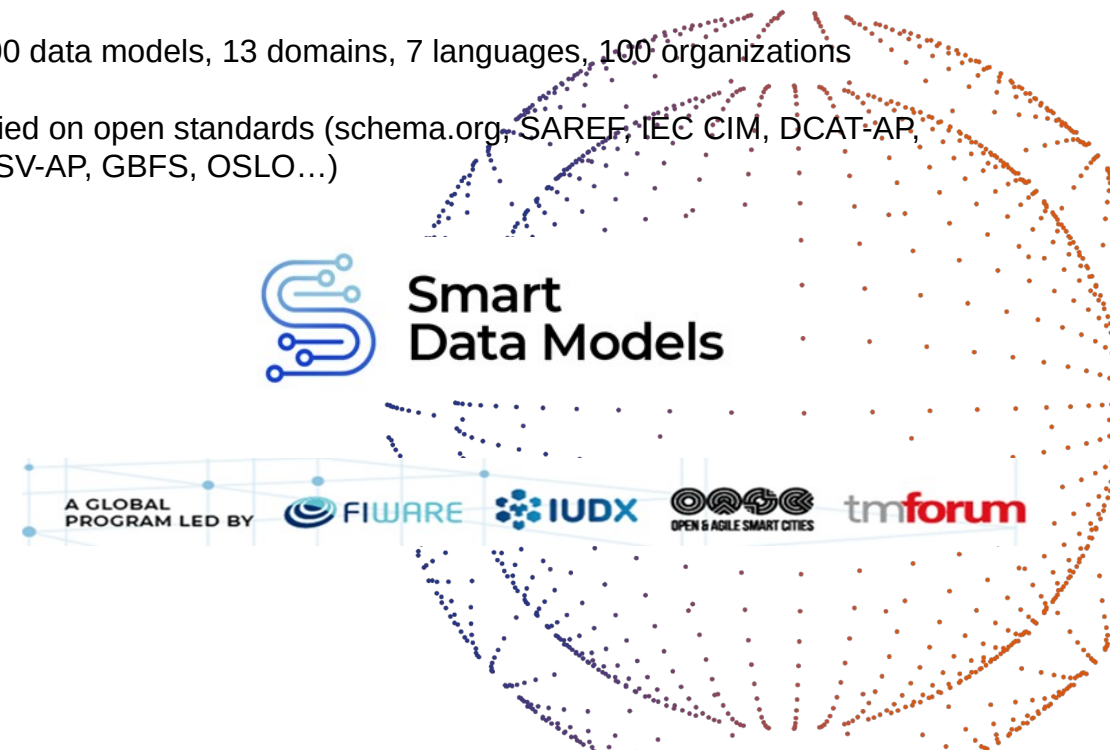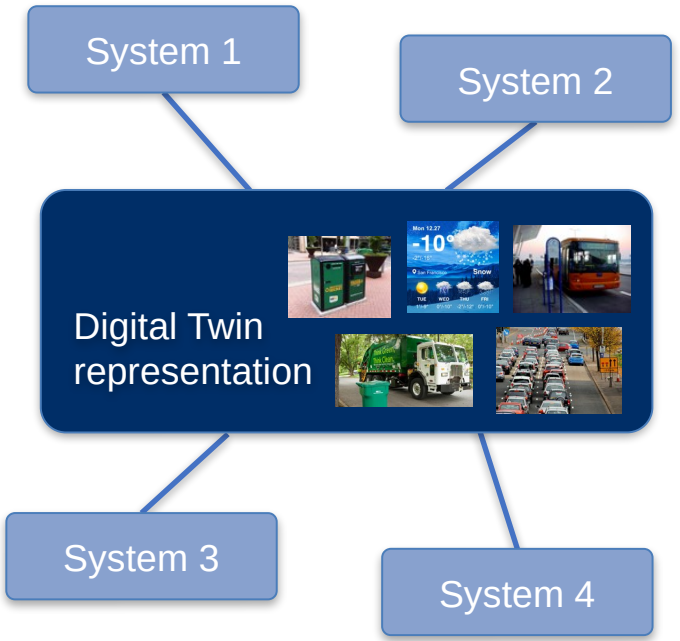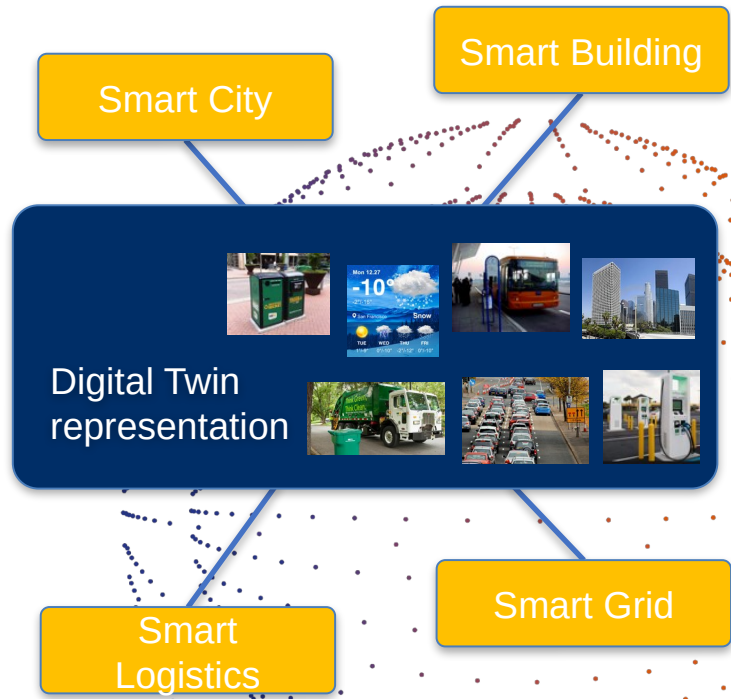
FIWARE technology evolving towards data spaces

**Architecting
Smart Solutions**

devices

**Integrating systems
and sharing data
within organizations**

**Integrating systems
and sharing data
across organizations
(data spaces)**

FIWARE in Data Spaces

Data Spaces Business Alliance (DSBA)

Joint forces with BDVA, GAIA-X and IDSA in 2021

Technical Convergence v2.0: Minimum Viable Framework (MVF) enabling the creation of data spaces

Data Spaces Support Centre (DSSC)

Support action for coordination and support to the Common European Data Spaces

FIWARE leading the communication, standardization, data interoperability and value creation

FIWARE Data Space Connector

Bundle of components and services deployed at each data space participant to engage in a data space.

Evolution of concept from IDS RAM 4.0

DSBA-complaint
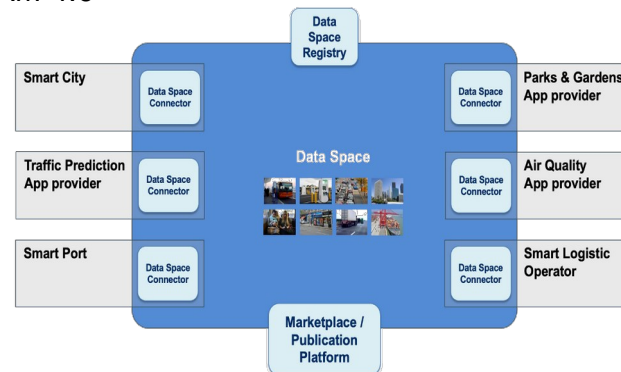
Engagement in related projects

Focused on support the setting up of 30 experiments of data space use cases

Building the European data, cloud and edge marketplace

Deploy of European Data Space for Smart Communities through pilots (DS4SSCC, DS4SSCC-DEP)

European Mobility Data Space (Prep4DSpace4Mobility, deployEMDS)

Manufacturing Data Space (EU DATA SP4CE, SM4RTENANCE)

FIWARE in Data Spaces Building Blocks

Business & Organisational Building Blocks

Business
- Business model development
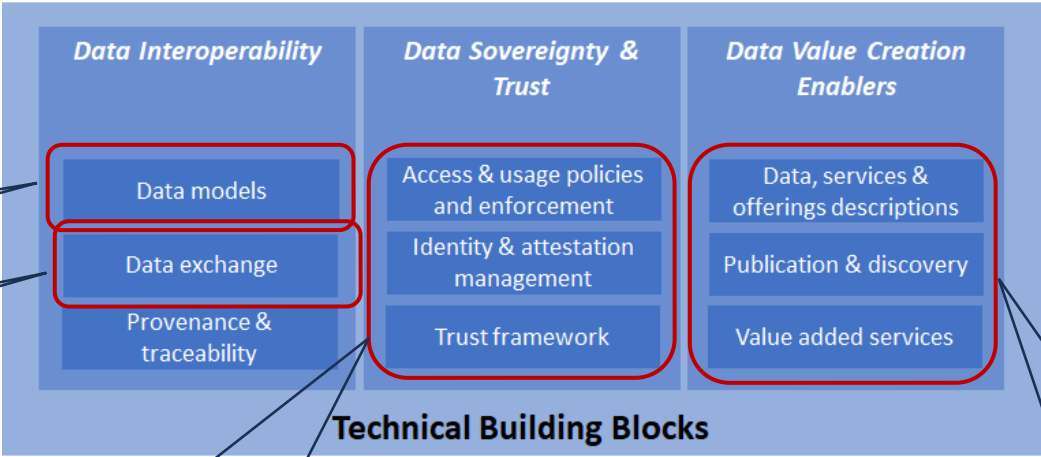- Use case development
- Data product development
- Data space intermediary

Governance
- Organisational form & governance authority
- Participation management

Legal
- Regulatory compliance
- Contractual framework

DATA SPACES SUPPORT CENTRE

Technical Building Blocks

Data Interoperability
- Data models
- Data exchange
- Provenance & traceability

Data Sovereignty & Trust
- Access & usage policies and enforcement
- Identity & attestation management
- Trust framework

Data Value Creation Enablers
- Data, services & offerings descriptions
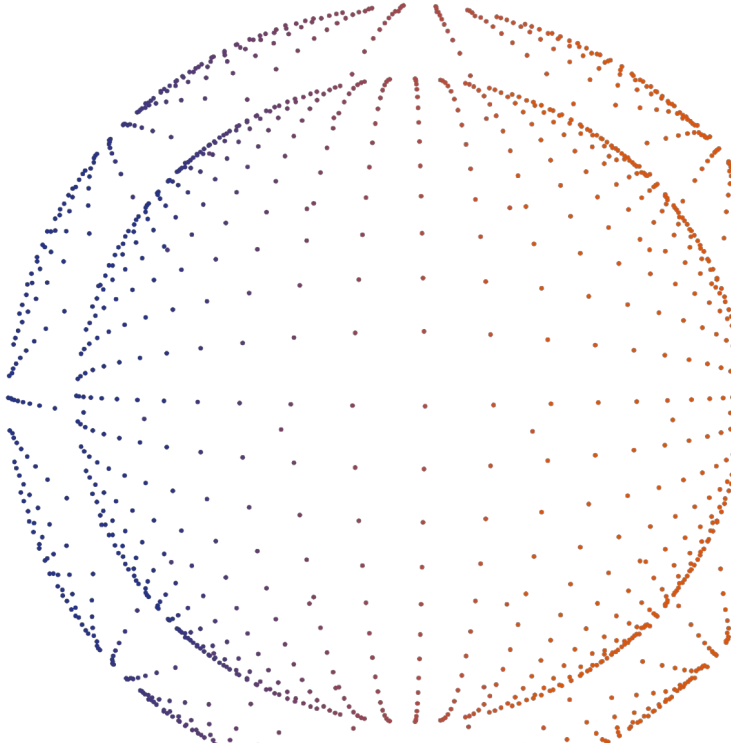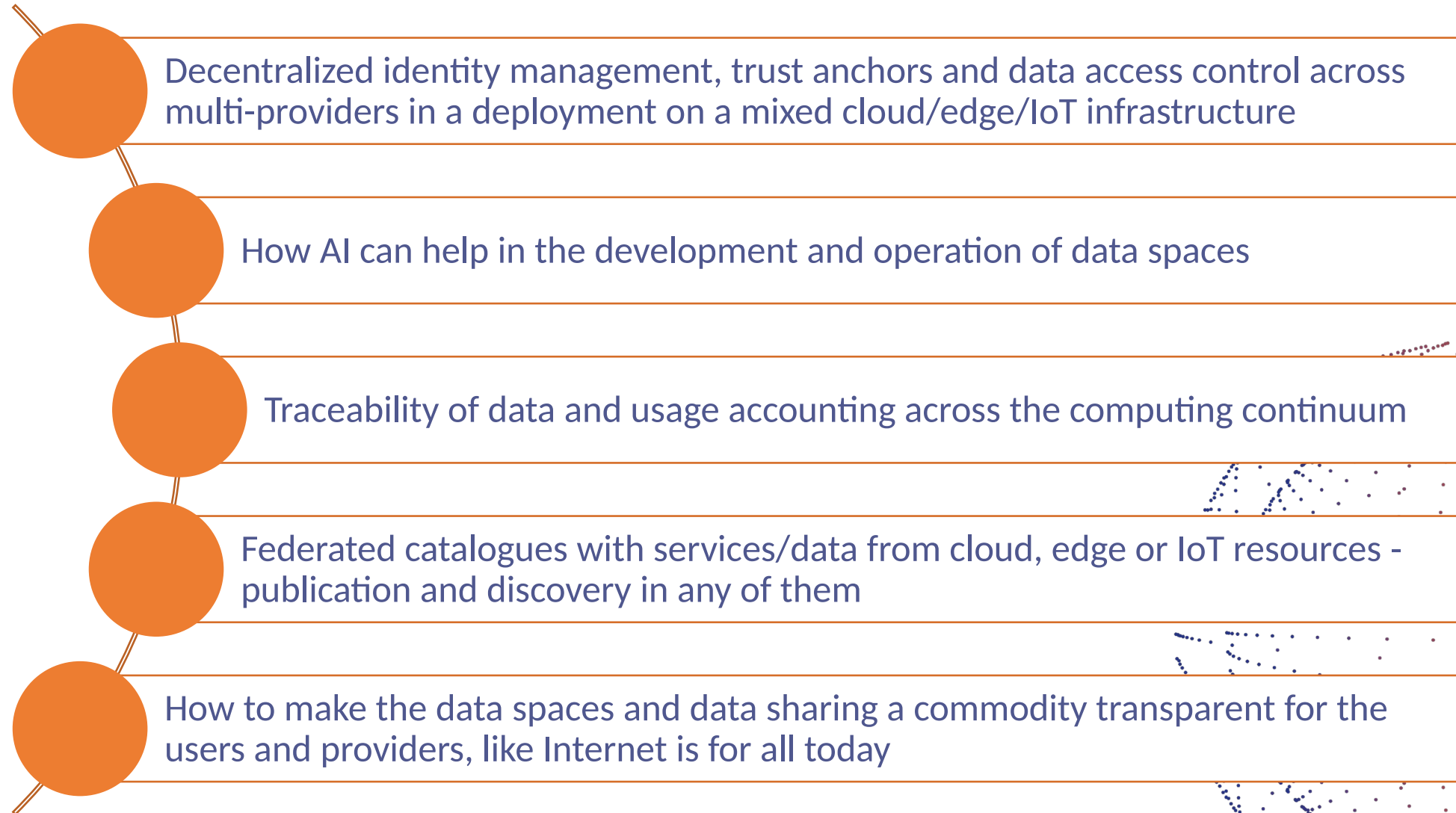- Publication & discovery
- Value added services

Smart Data Models

Context Broker (NGSI-LD)

Trust Framework (Verifiable Credentials, EBSI)

DOME Marketplace (TM Forum, DCAT)

FIWARE

Roadmap in Data Spaces

Decentralized identity management, trust anchors and data access control across multi-providers in a deployment on a mixed cloud/edge/IoT infrastructure

How AI can help in the development and operation of data spaces

Traceability of data and usage accounting across the computing continuum

Federated catalogues with services/data from cloud, edge or IoT resources - publication and discovery in any of them

How to make the data spaces and data sharing a commodity transparent for the users and providers, like Internet is for all today
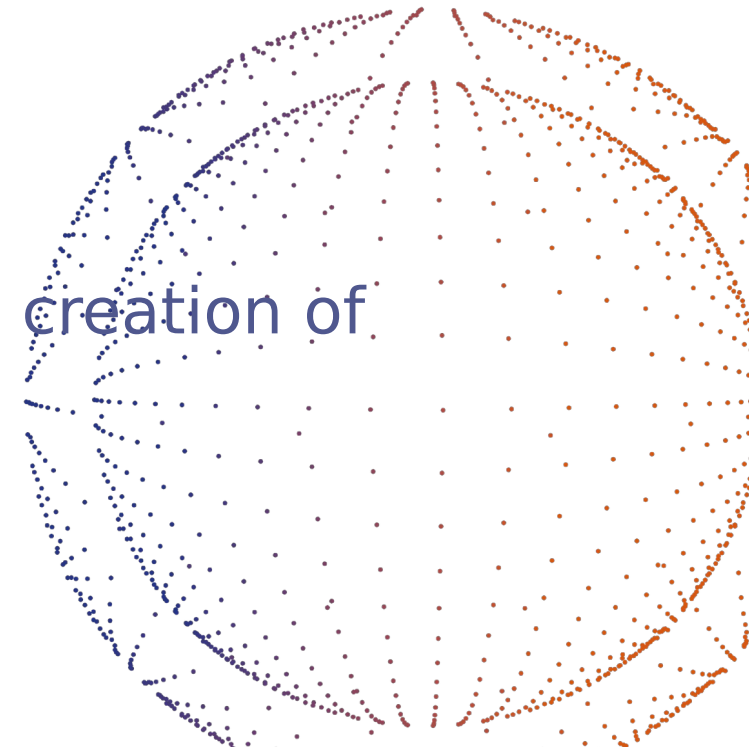
Take aways

- FIWARE helps in moving from vision to market

- FIWARE brings key assets to leveraging on open standards and open source frameworks

- FIWARE collaborates with DSBA and others towards creation of truly interoperable data spaces

Thanks!

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