gaia-x KI

Dataspaces as Enabler for Collaborative Engineering

prostep ivip symposium

Funded by the European Union
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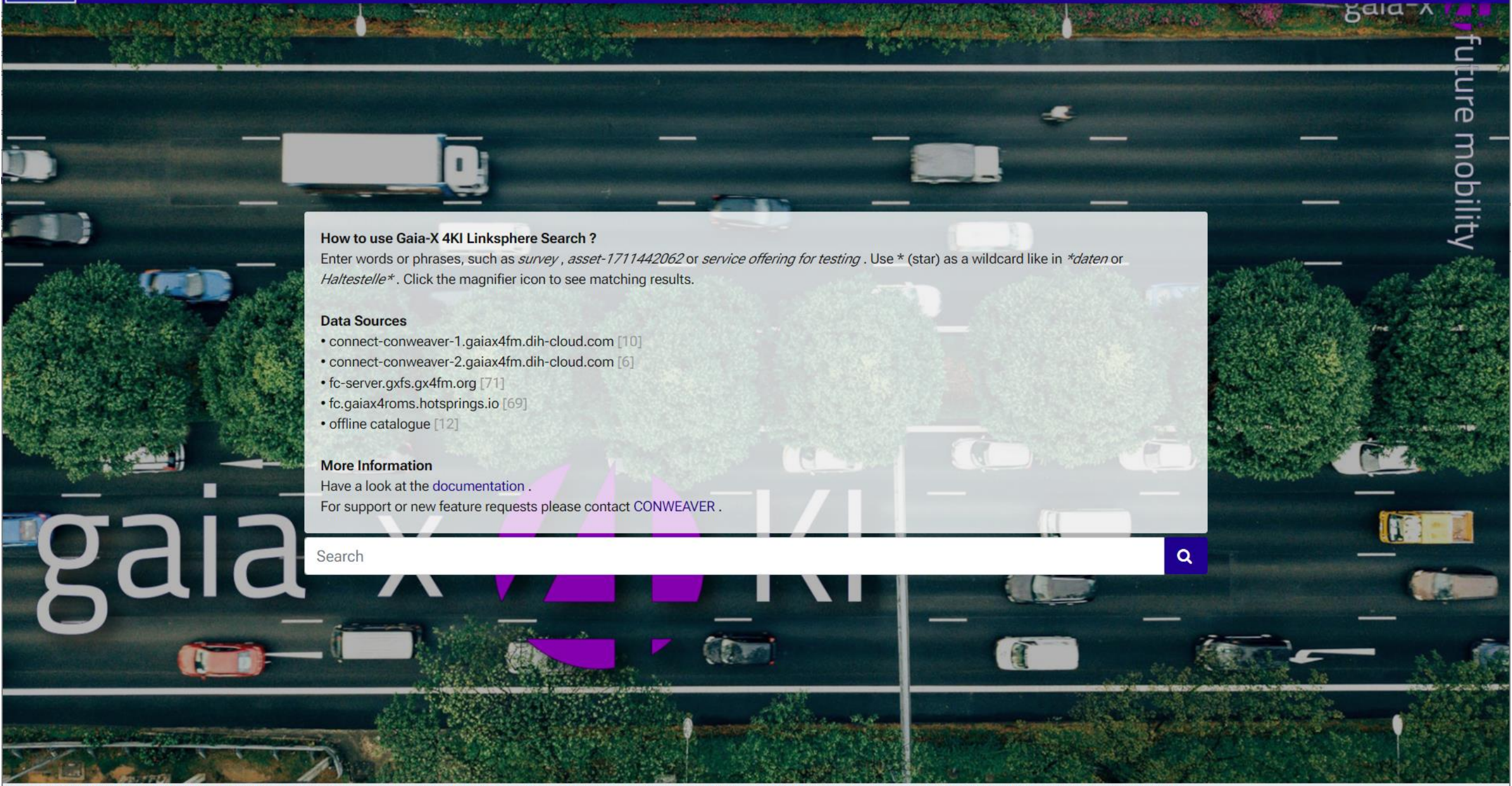

How to use Gaia-X 4KI Linksphere Search ?

Enter words or phrases, such as *survey* , *asset-1711442062* or *service offering for testing* . Use * (star) as a wildcard like in **daten* or *Haltestelle** . Click the magnifier icon to see matching results.

Data Sources

- connect-conweaver-1.gaiax4fm.dih-cloud.com [10]
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- fc-server.gxfs.gx4fm.org [71]
- fc.gaiax4roms.hotsprings.io [69]
- offline catalogue [12]

More Information

Have a look at the documentation .

For support or new feature requests please contact CONWEAVER .

Search

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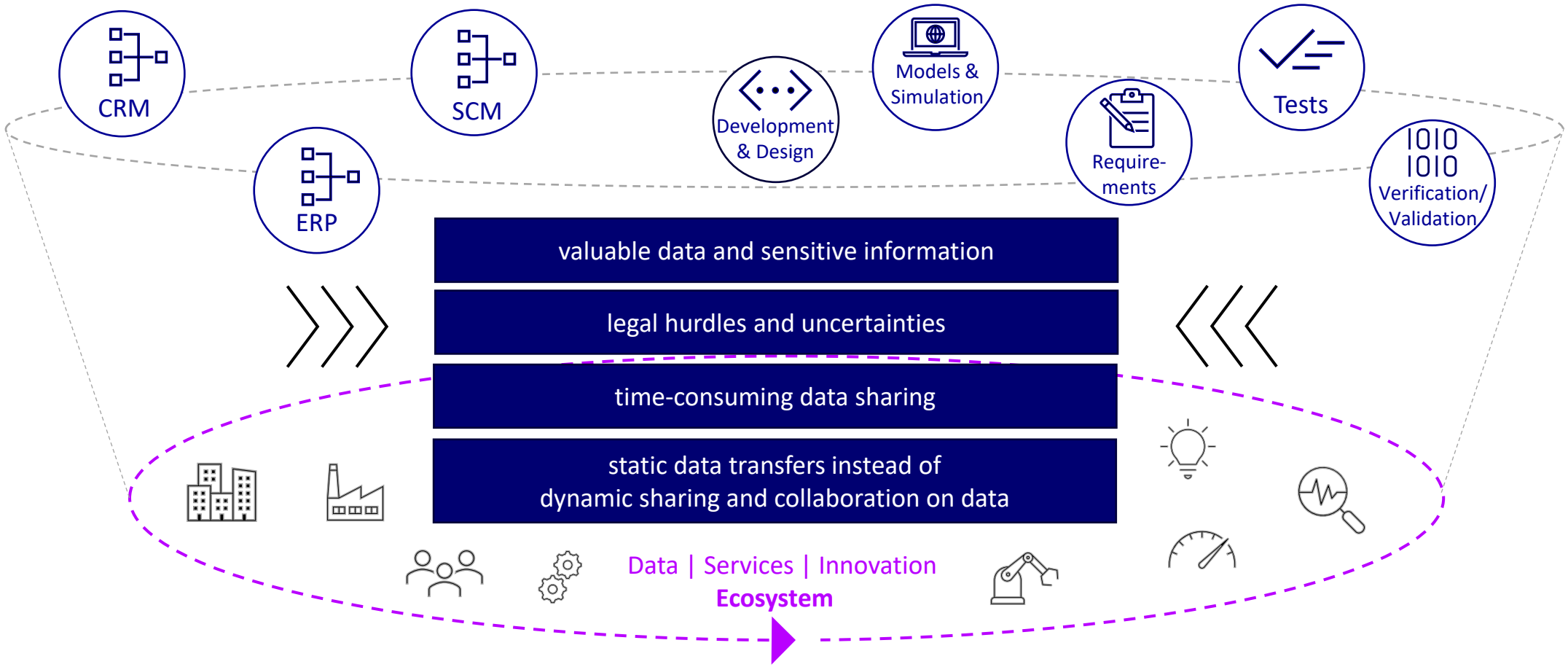
Collaboration through the whole lifecycle involves an increasing amount of partners



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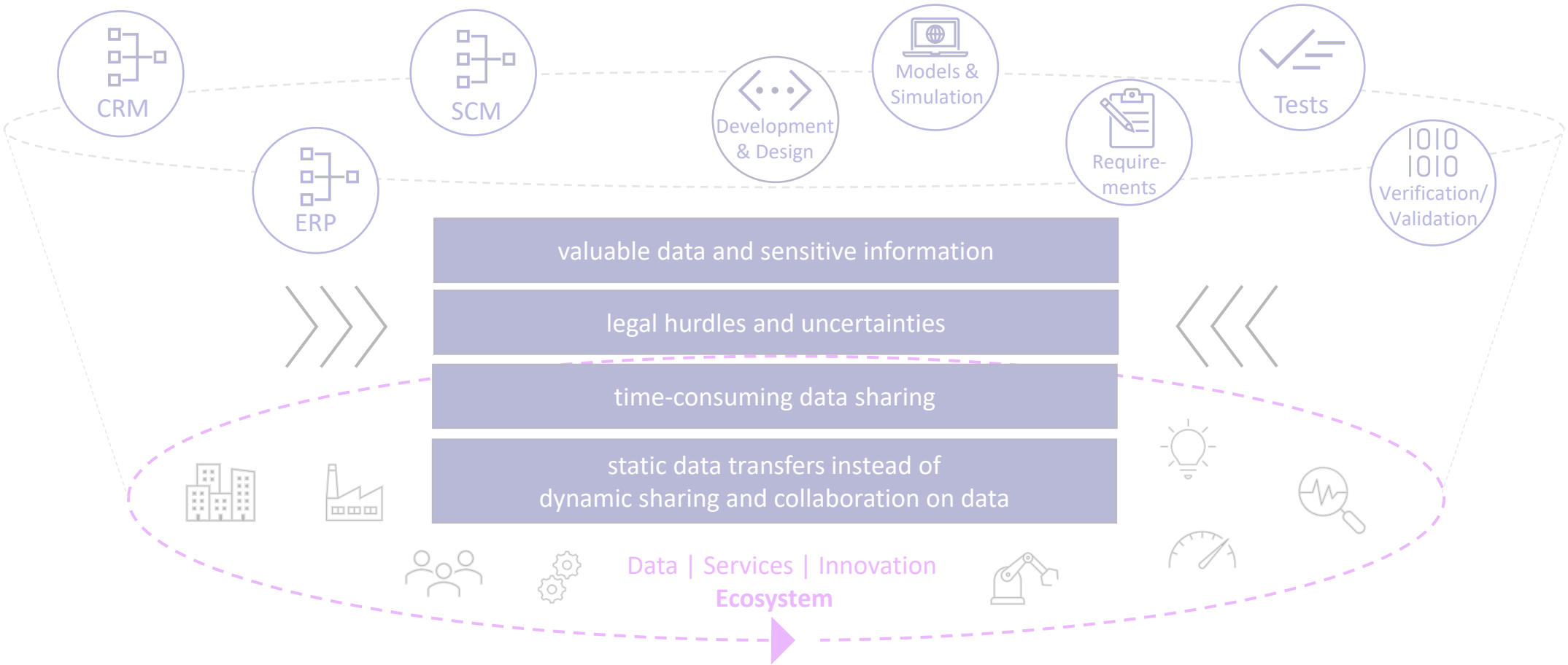

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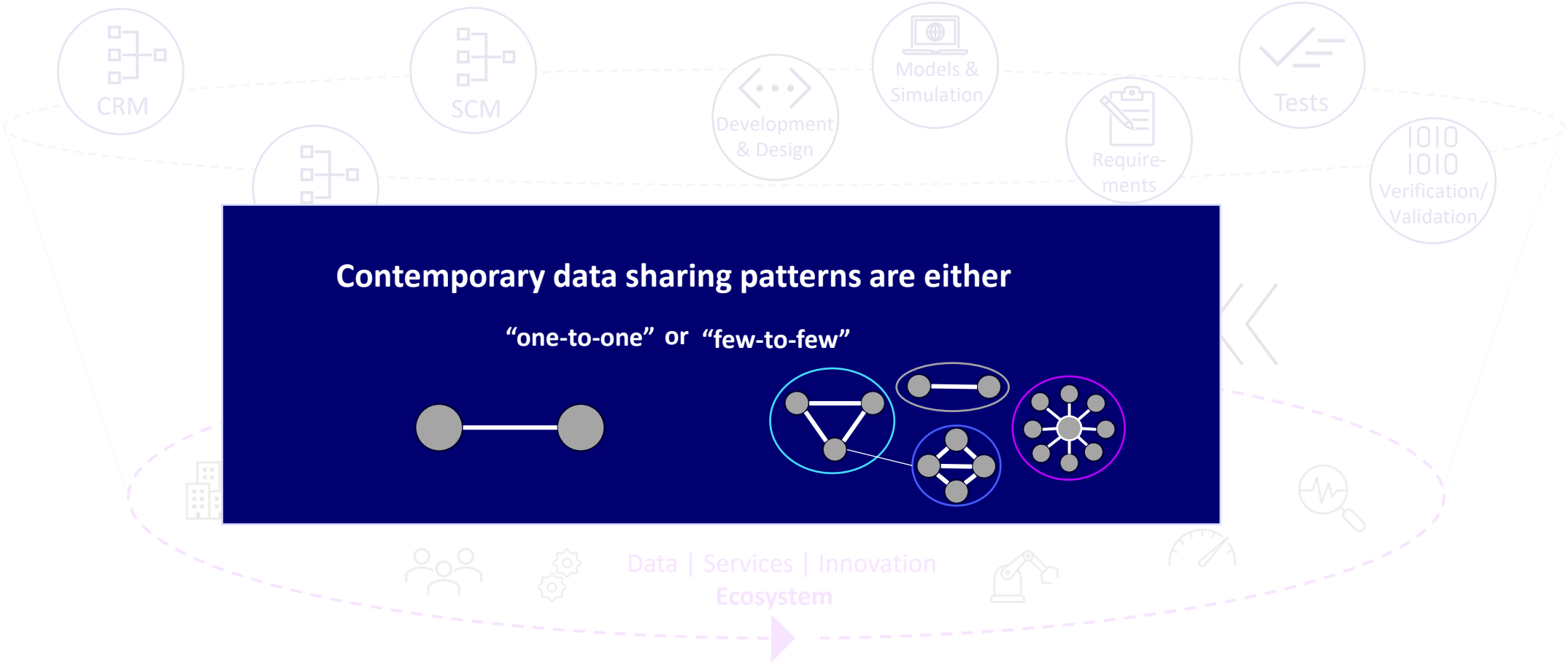
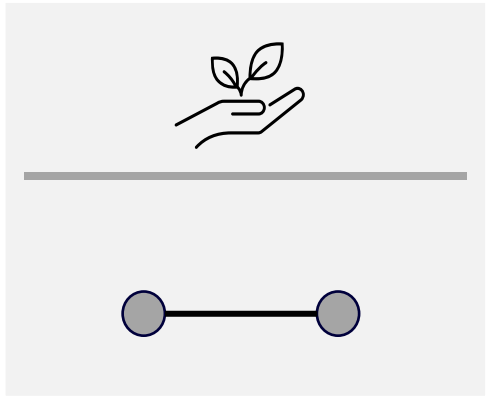
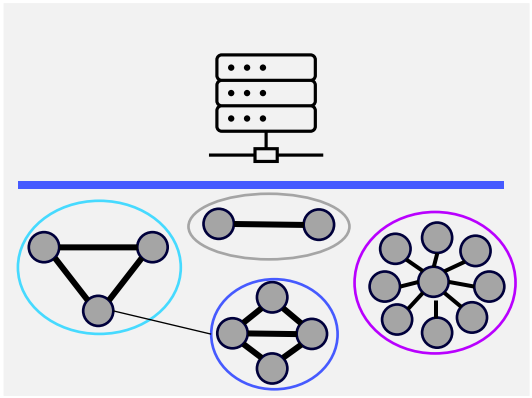


Collaboration through the whole lifecycle involves an increasing amount of partners

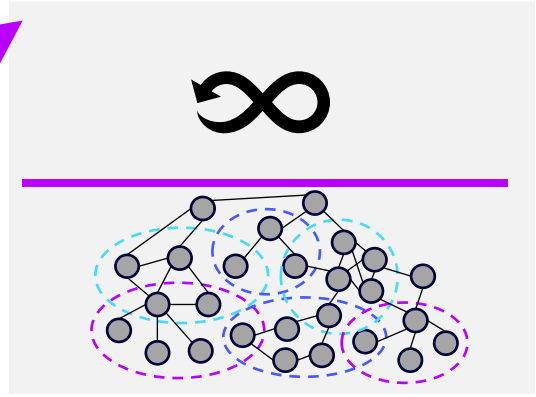
The next evolution stage brings new technological demands within but also new governance and business patterns



one-to-one
bilateral data exchange



few-to-few
closed community data sharing

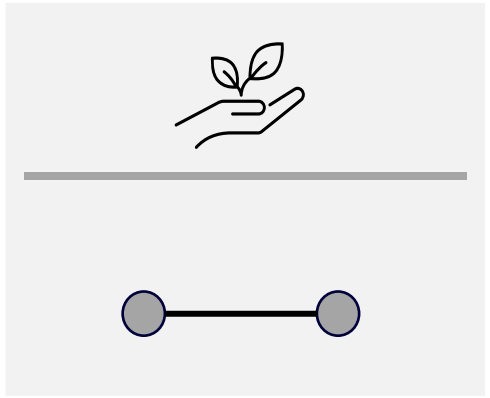


many-to-many
decentralized and dynamic data ecosystem

Adapted from: Data Spaces Business Alliance & Gaia-X Summit 2023

New approaches are needed to reach the next evolution stage

The next evolution stage brings new technological demands within but also new governance and business patterns



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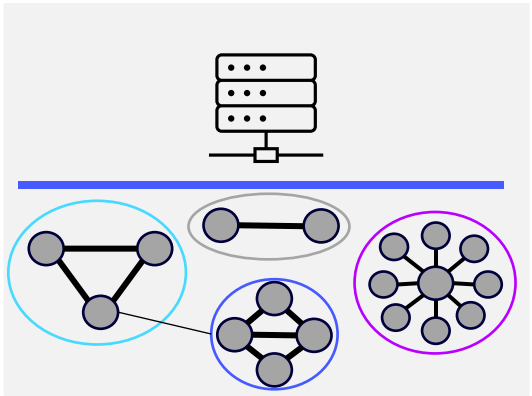
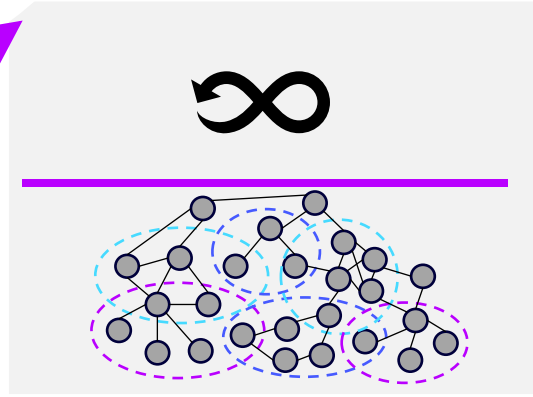


few-to-few
closed community data sharing

Dataspaces enable ecosystems

- **No long-term integration artefacts** for every single business relationship
- Dynamical, flexible, and **demand-driven** data consumption and integration
- **Trust and control mechanisms** for data sharing are required



many-to-many
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Important Data Issues in Business Ecosystems

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Today

57%
Worry about uncovering valuable data and trade secrets.

59%
Fear of losing control over their data.

55%
Feeling inconsistent processes and systems as (very) big barrier.

32%
Fear that platforms will not reach critical mass.

© PwC-Study on "Industrial Data Space"

Trust and Security

Data Sovereignty

Interoperability

Reliability & Global Reach

Standards | Trust Mechanisms | Technologies | Global Initiatives

Business

- Business collaboration format
- Multilateral organization for a data sharing purpose
- Shared goals of participants regarding the exchange and sharing of data
- Decision making body for collective data governance

Legal

- Instrument for the implementation of the European and member states' data strategies
- Potential object of application of EU Data Governance Act
- Object of application of European values for data sharing and data sovereignty

- General Design Principles[1]
  - No physical data integration, leave data where it is (→ **federated data architecture**)
  - No common schema required (→ integration foremost on **semantic level through vocabularies**)
  - Data networking, data visiting and data co-existence
  - Nesting and overlaps possible (→ **ecosystem of data spaces**)
- Additional IDS[2] Design Principles
  - Data sovereignty and traceability
  - Trusted participants

- Data remains at the data holder and is only shared when needed
- Data sharing based on metadata, individual agreements, and policies
- Extension to services for logging or auditability

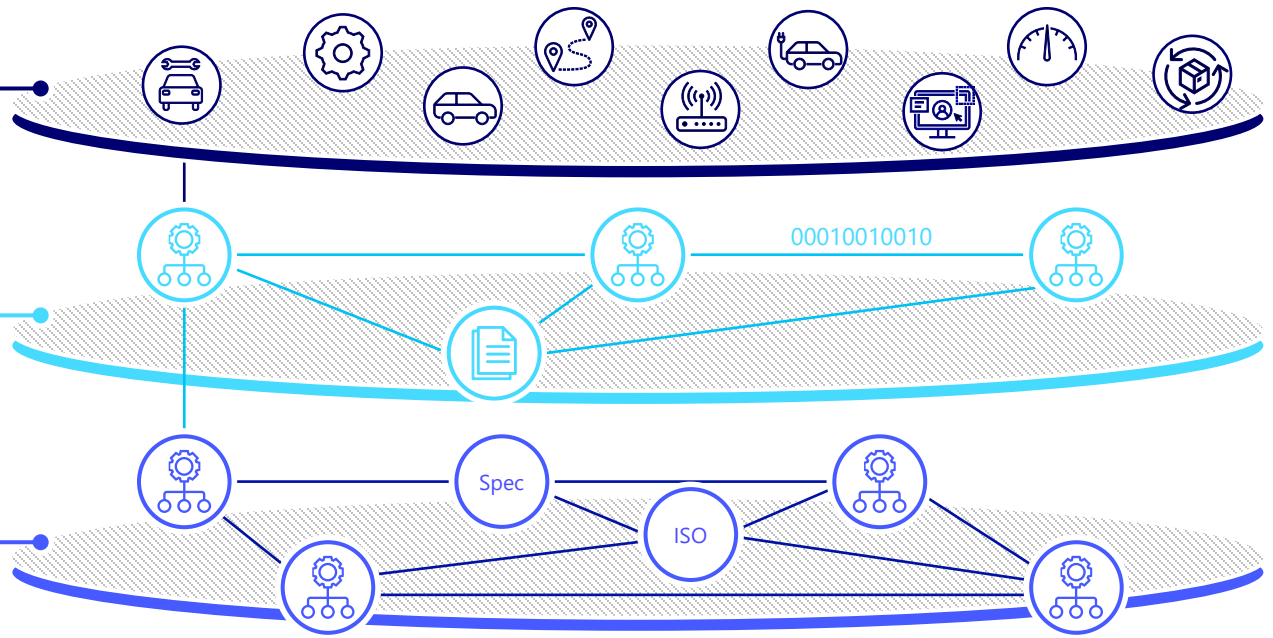
Source: Otto (2022)
1) Franklin et al. (2005); Halevy et al. (2006); 2) IDSA (2019).

Dataspace Technologies imply different layers with different business models

Data Ecosystem

Data Space

Data Infrastructure

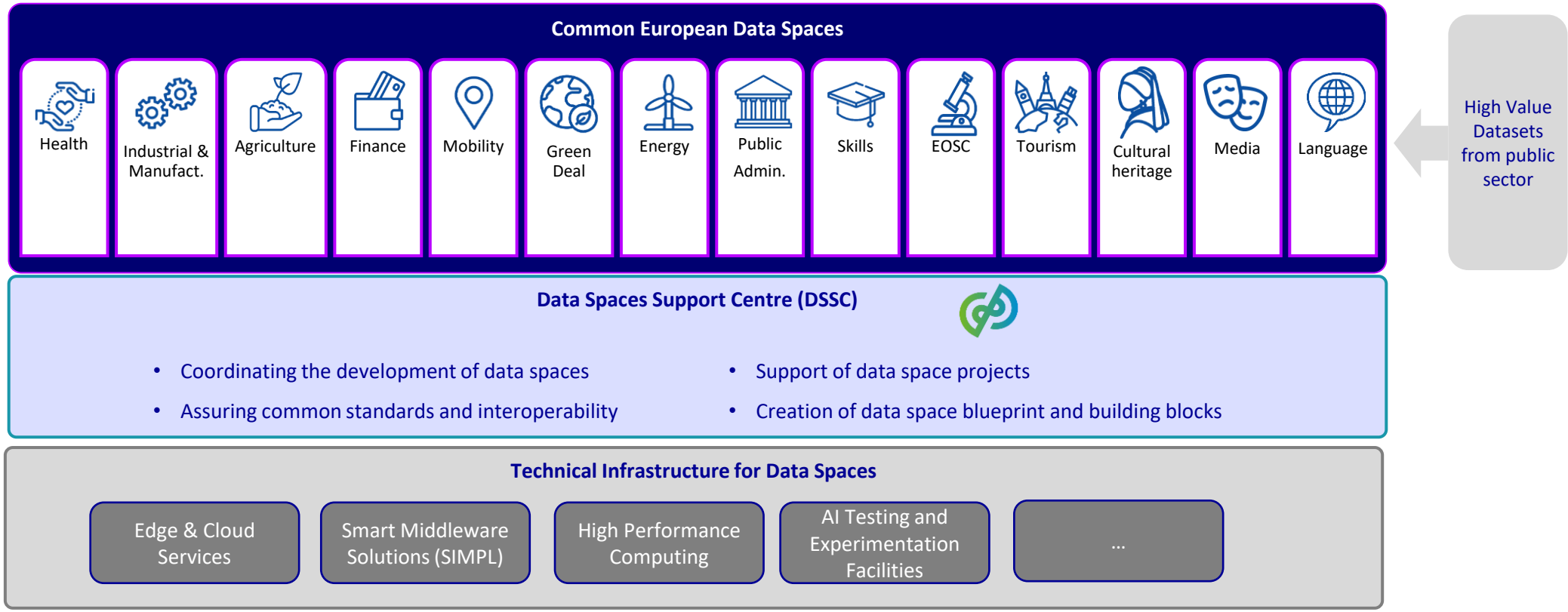


Individual business models

Collaborative business models

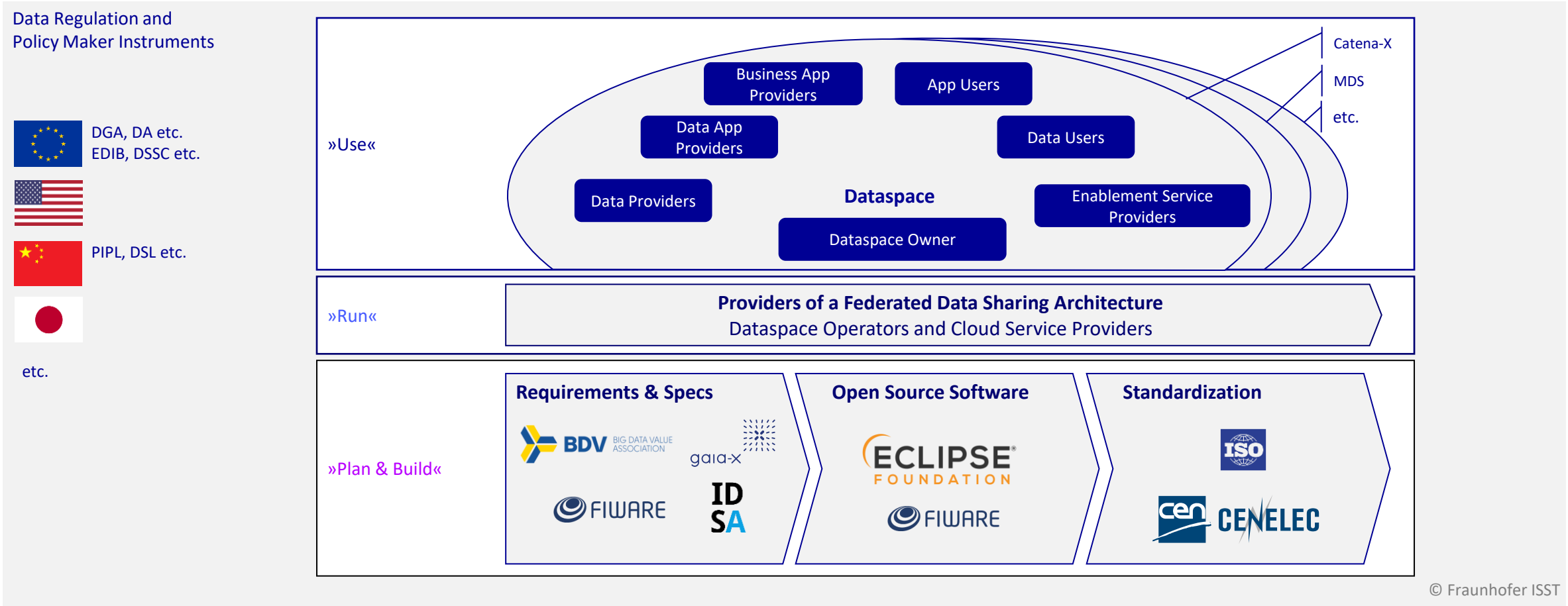
Infrastructure business models

The European Perspective: Common European Data Spaces



Source: European Commission (2024) and Gaia-X Summit 2023.

A 30’000 ft View on Dataspaces



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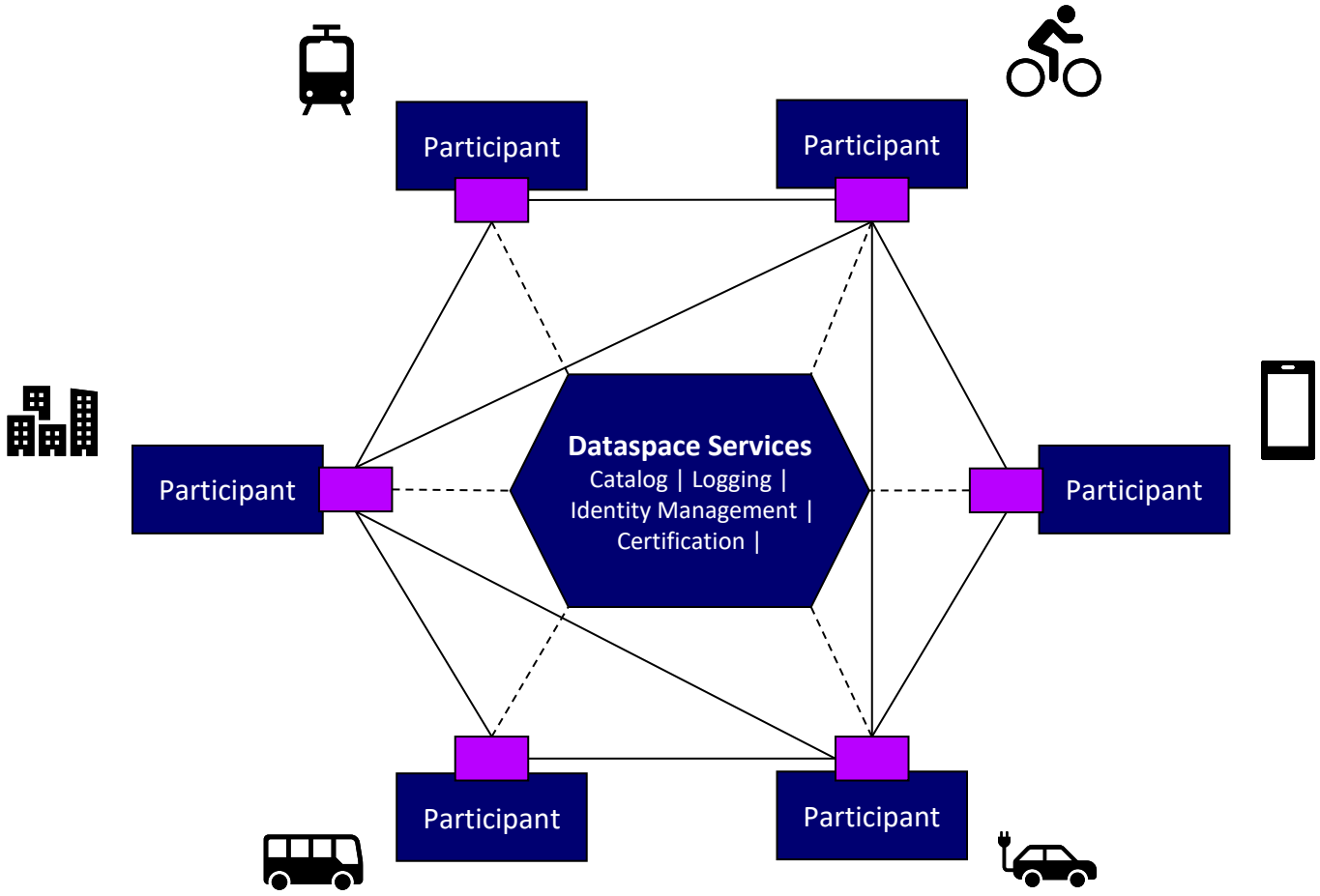
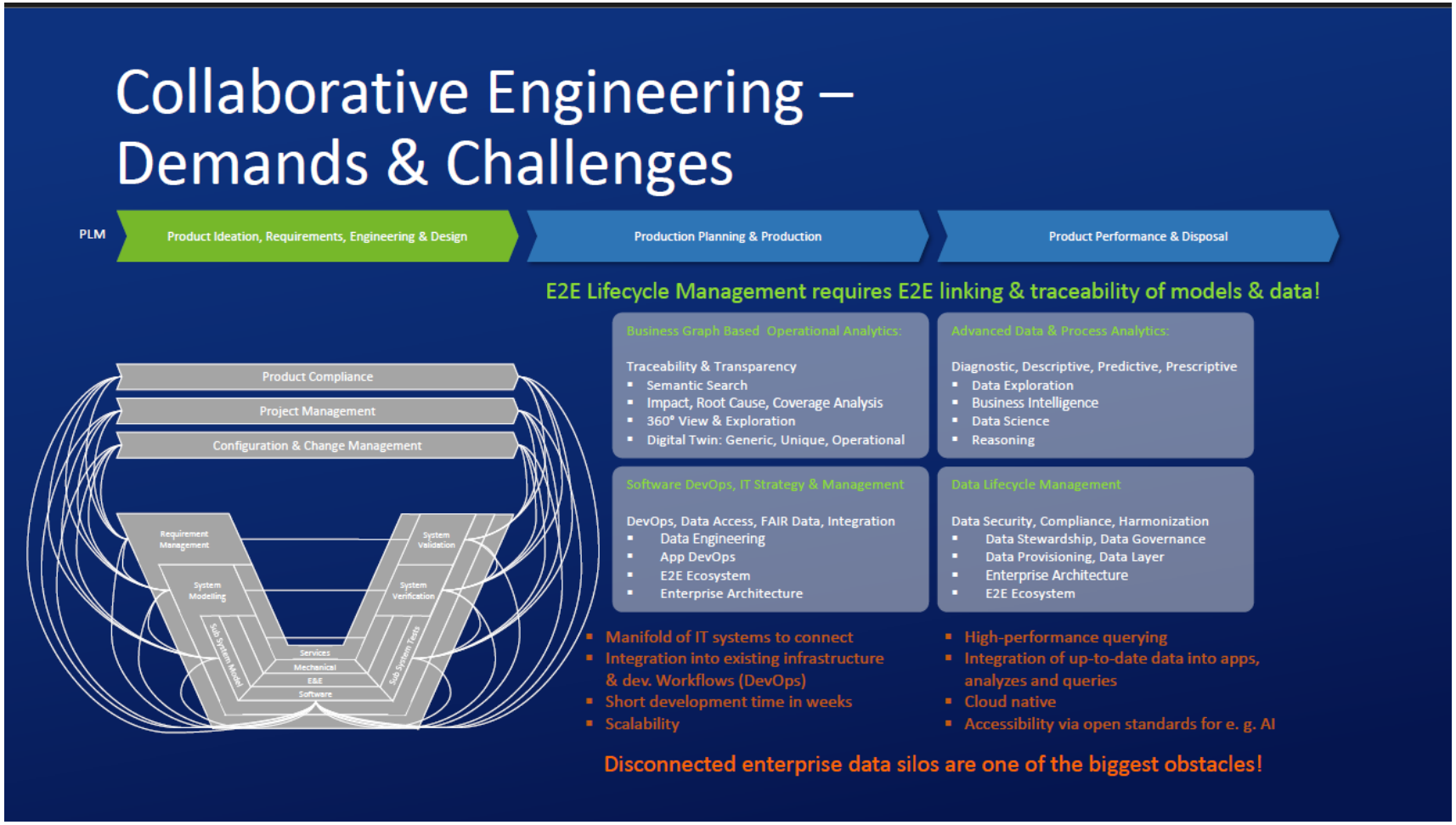
Legend: DGA – Data Governance Act; DA – Data Act; EDIB – European Data Innovation Board; DSSC – Data Spaces Support Centre; PIPL: Personal Information Protection Law, DSL – Data Security Law.

Zooming in again: Dataspace Technologies – How they Work

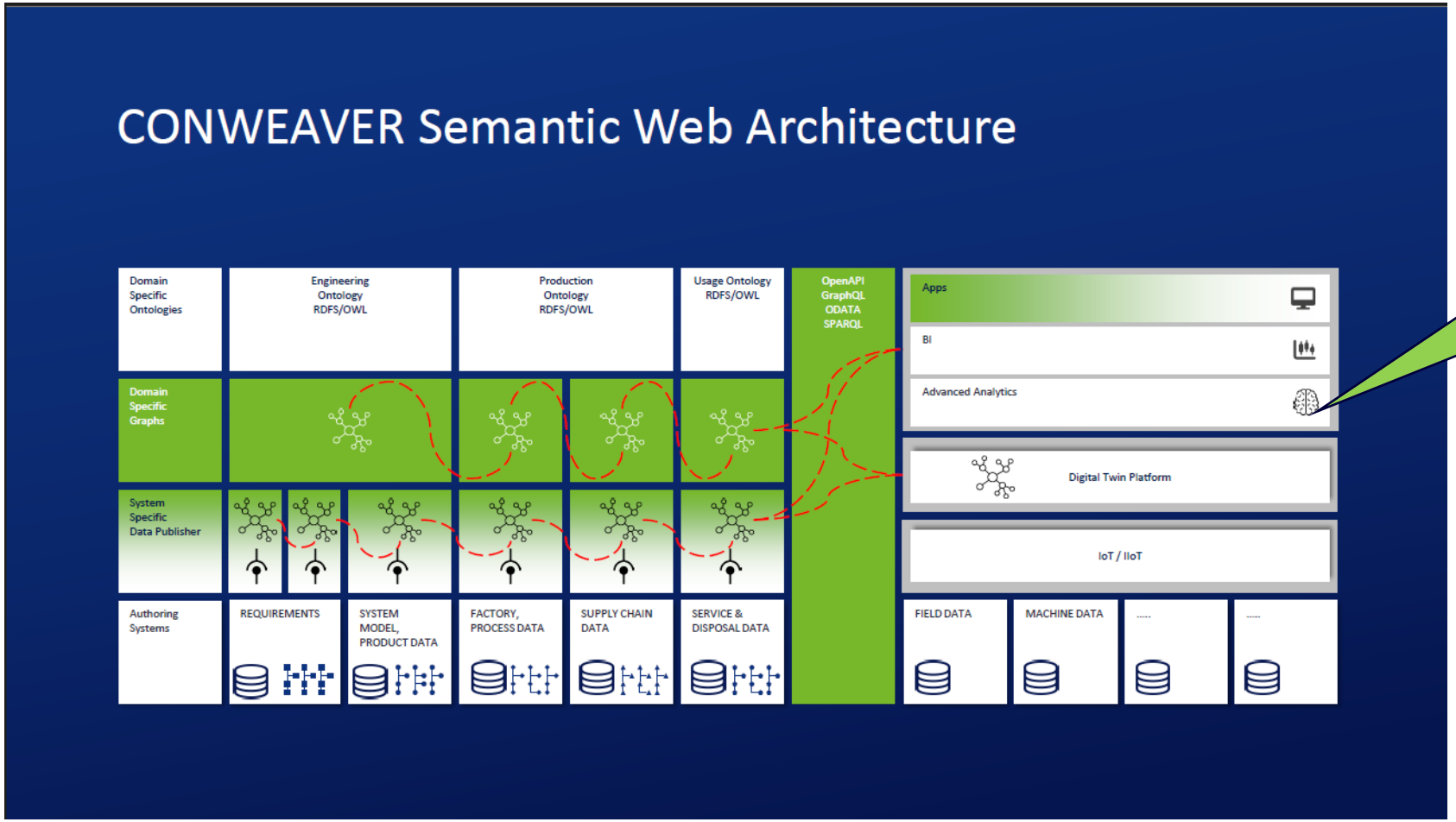


Legend: - - - - Metadata; —— Data;. Source: Otto (2022).

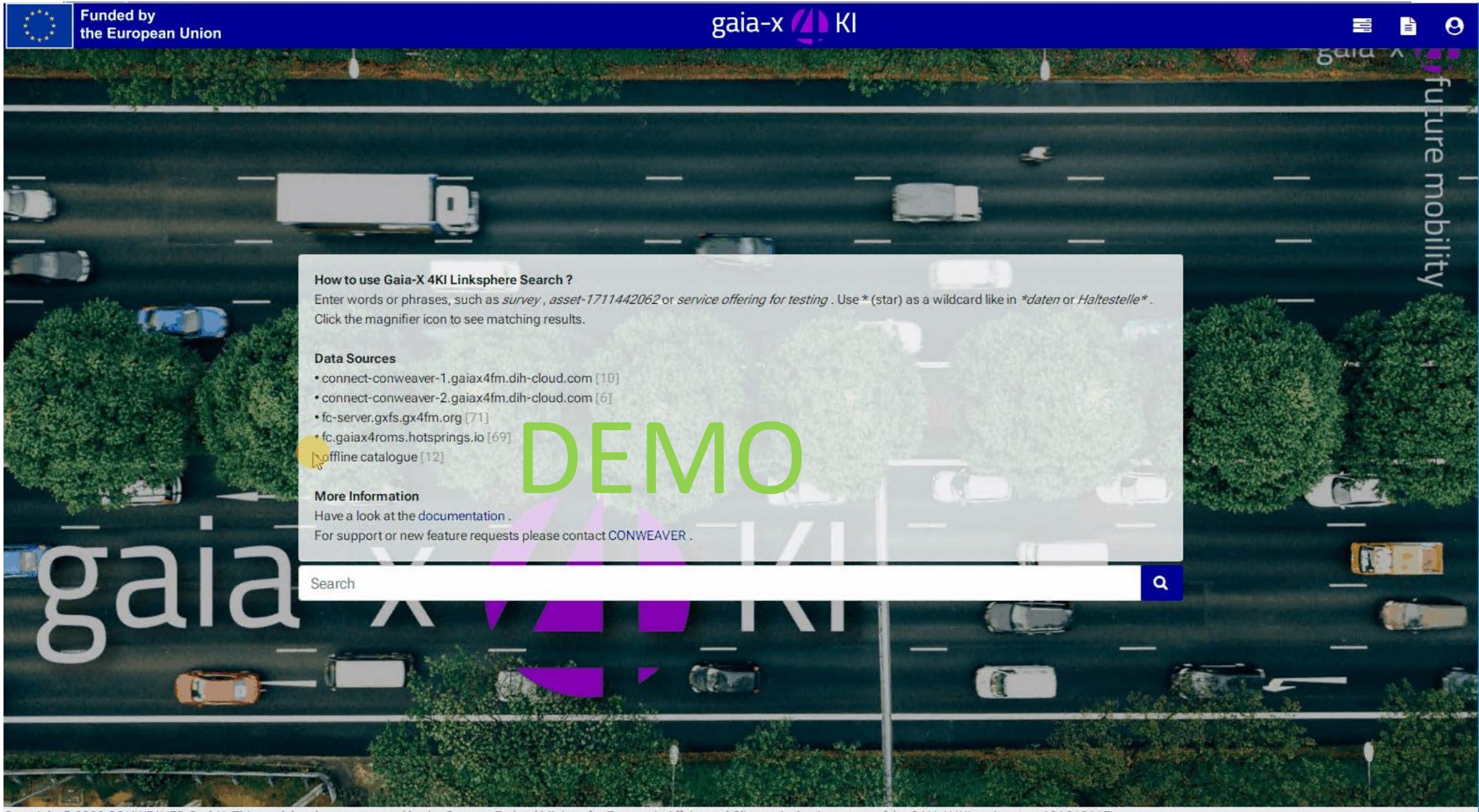
Use Cases @ automotive customers?



Solution Concept of CONWEAVER Semantic Web Architecture



How to use EKG for AI? See you @CONWEAVER booth 39



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See you
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