



Semiconductor-X" develops new digital twin technologies to digitally represent the critical planning segment of the semiconductor supply and value chain, adapting the Gaia-X/Catena-X architecture



Finanziert von der Europäischen Union
NextGenerationEU

Gefördert durch:



Bundesministerium
für Wirtschaft
und Klimaschutz

aufgrund eines Beschlusses
des Deutschen Bundestages

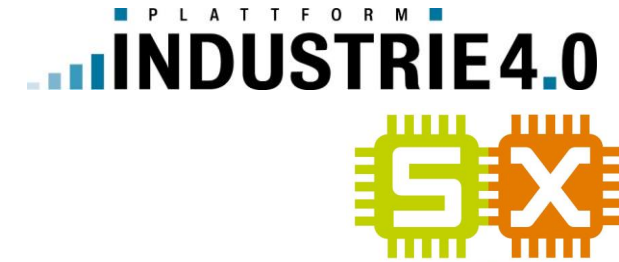
SEMICONDUCTOR-X

Initiative for the Digitalization of Supply Chains in the Semiconductor Industry

Harald Gossner, Intel

SEMICONDUCTOR-X

Resilient Semiconductor Supply and Value Chains for Europe



The "Semiconductor-X" Project Addresses Digitalization, Data-Exchange and Data-Modelling to Build Resilient Semiconductor Supply and Value Chains for Europe

Mission

- Enable efficient, sustainable, and resilient operations in the semiconductor industry **through industry-wide digitization**
- Enhance **digitalization capabilities** among large, mid-sized and small value chain partners
- Enable deep-**interoperability** and **AI-applications**

By this .

- **Ensure the availability of semiconductors for European key technologies** and industries
- Enable **new data-driven business models** and accelerate innovations.

Risk: A disruption in the semiconductor industry can significantly impact the entire European economy



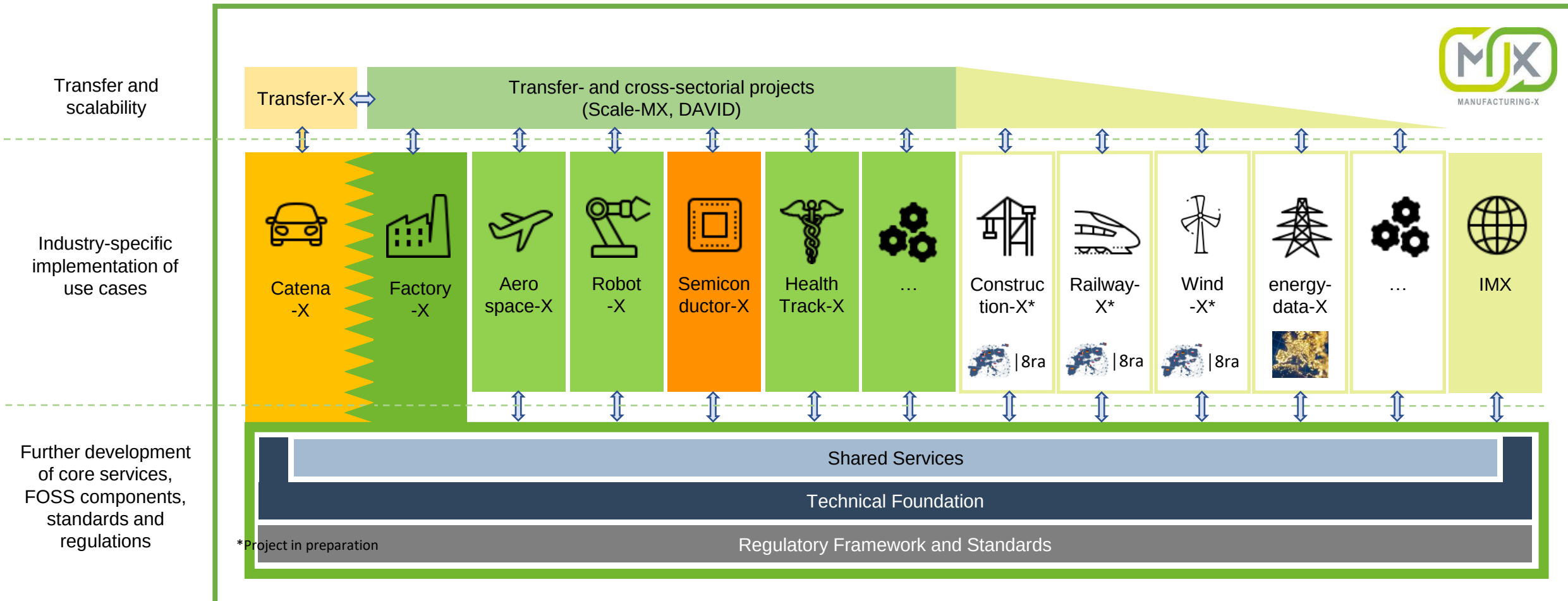
Challenge: Achieving resilience through deep and industry-wide digitization

Target: Digitize **everything** and enable sovereign and interoperable data exchange.

Manufacturing-X Drives Digitalization Across the Manufacturing Industries



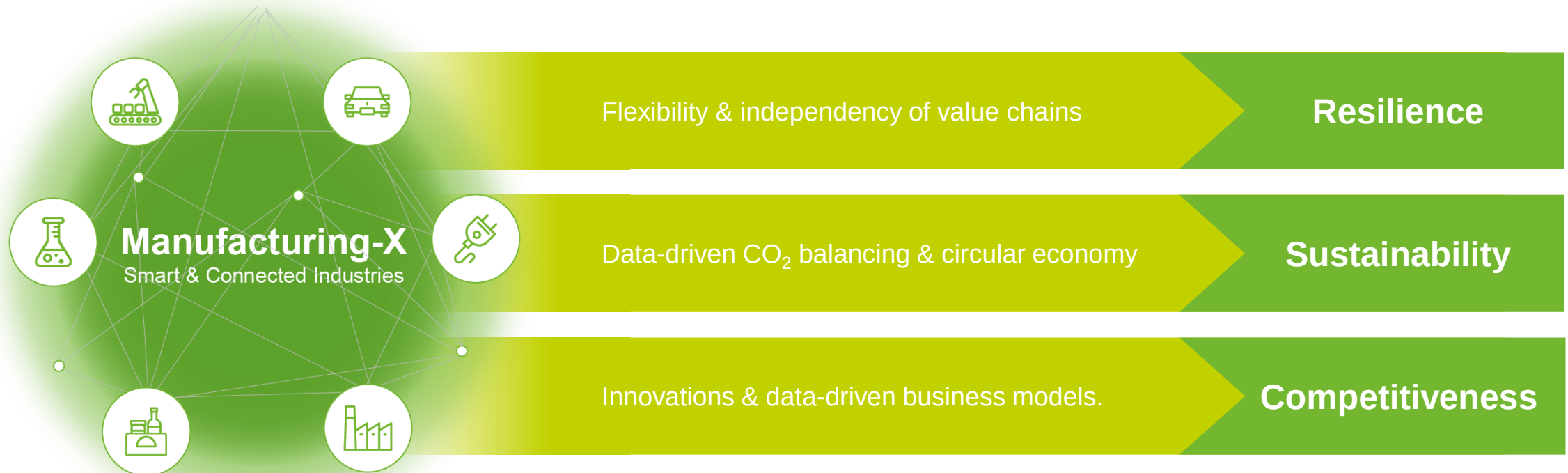
Semiconductor-X is a specialized initiative for the semiconductor industry



Manufacturing-X - Creating a fully interconnected manufacturing industry



Addresses key challenges of supply chains

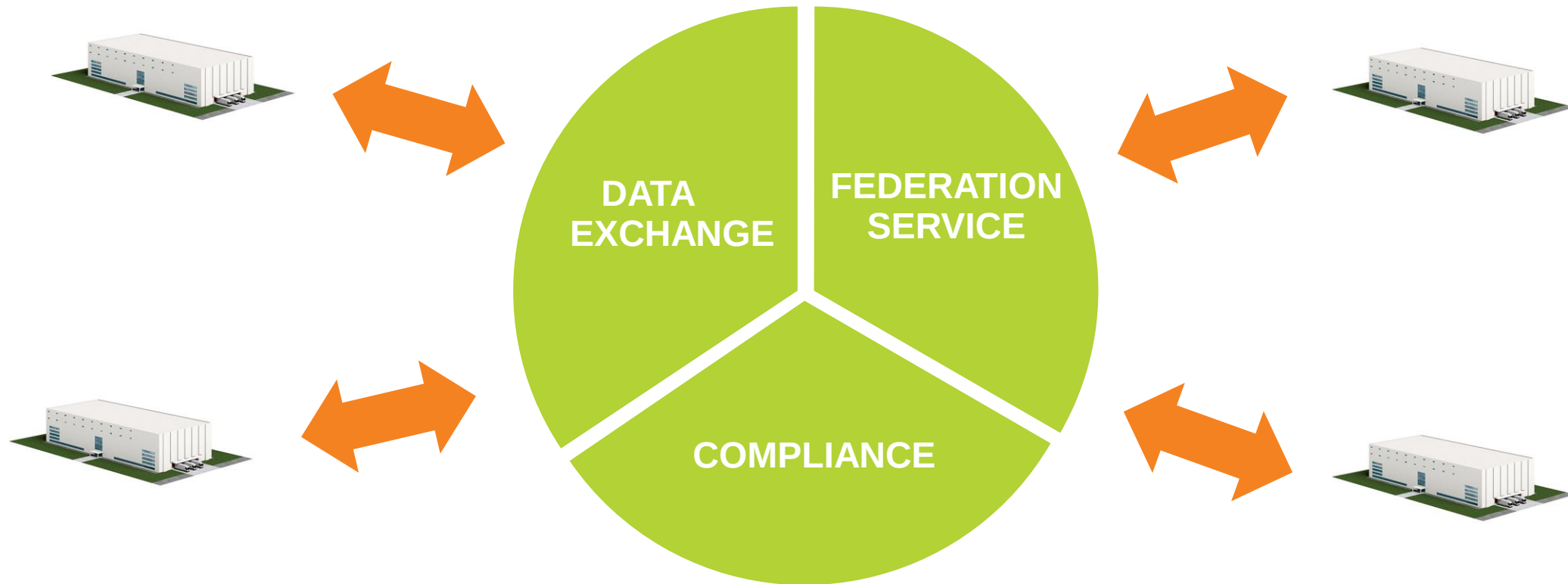


Manufacturing-X – Trust and Compliance

Federated data infrastructure with transparent governance for secure and trusted data exchange.



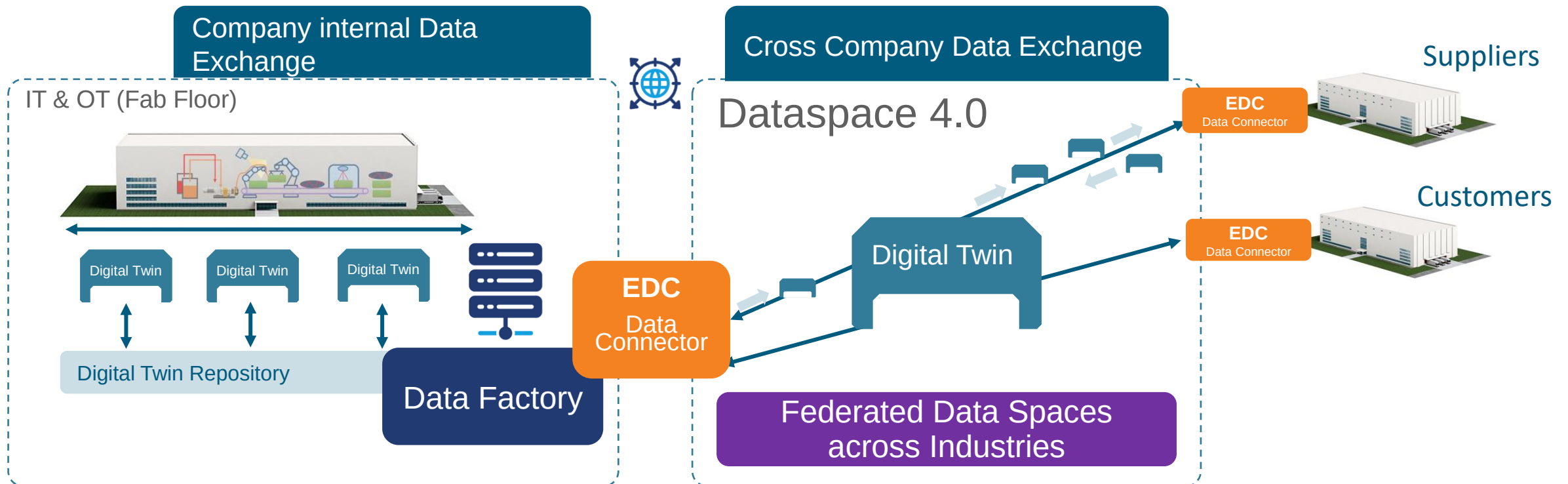
DATASPACE 4.0 TRUST & IDENTIFICATION



Manufacturing-X – Digital Twin & Interoperability



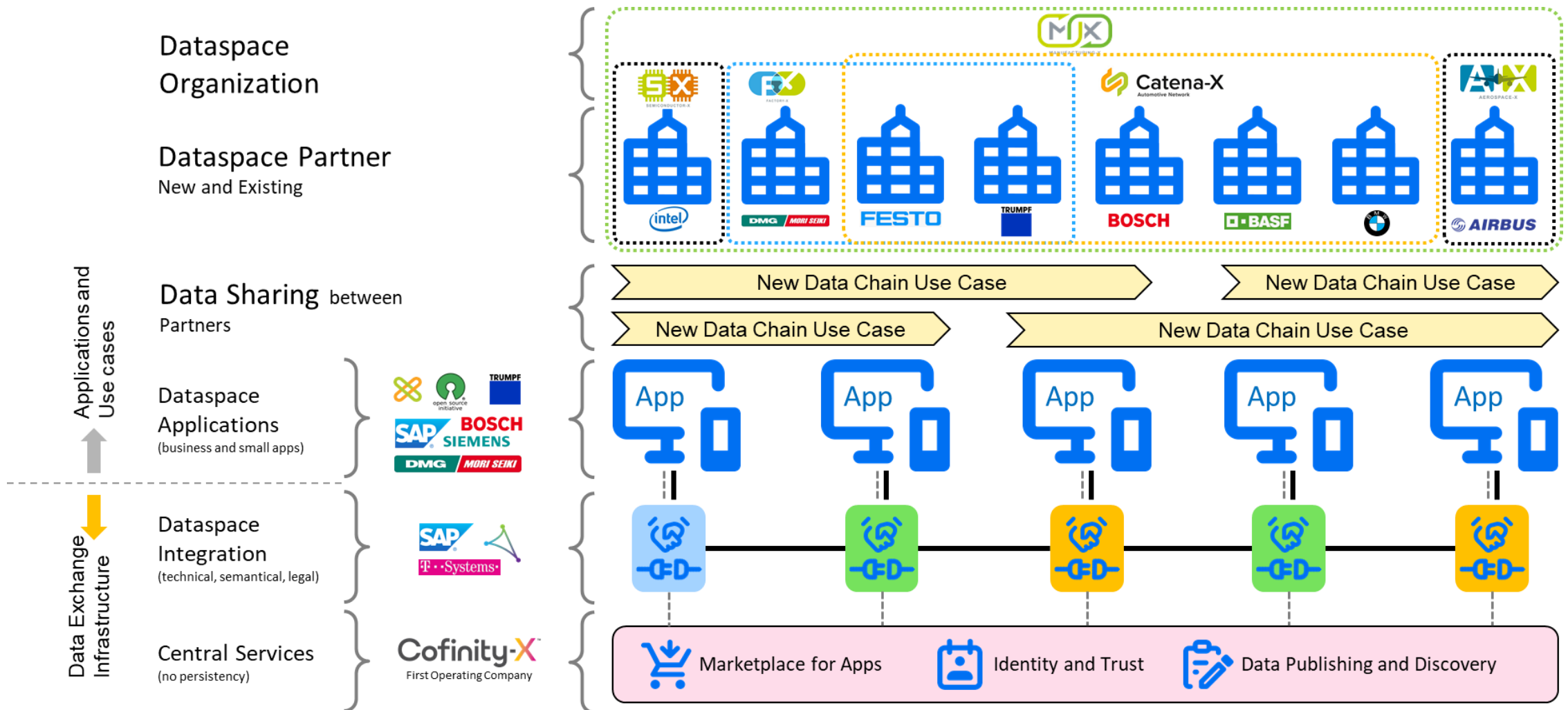
Interoperable Data Exchange based on the Digital Twin (Asset Administration Shell)



Maintain data sovereignty

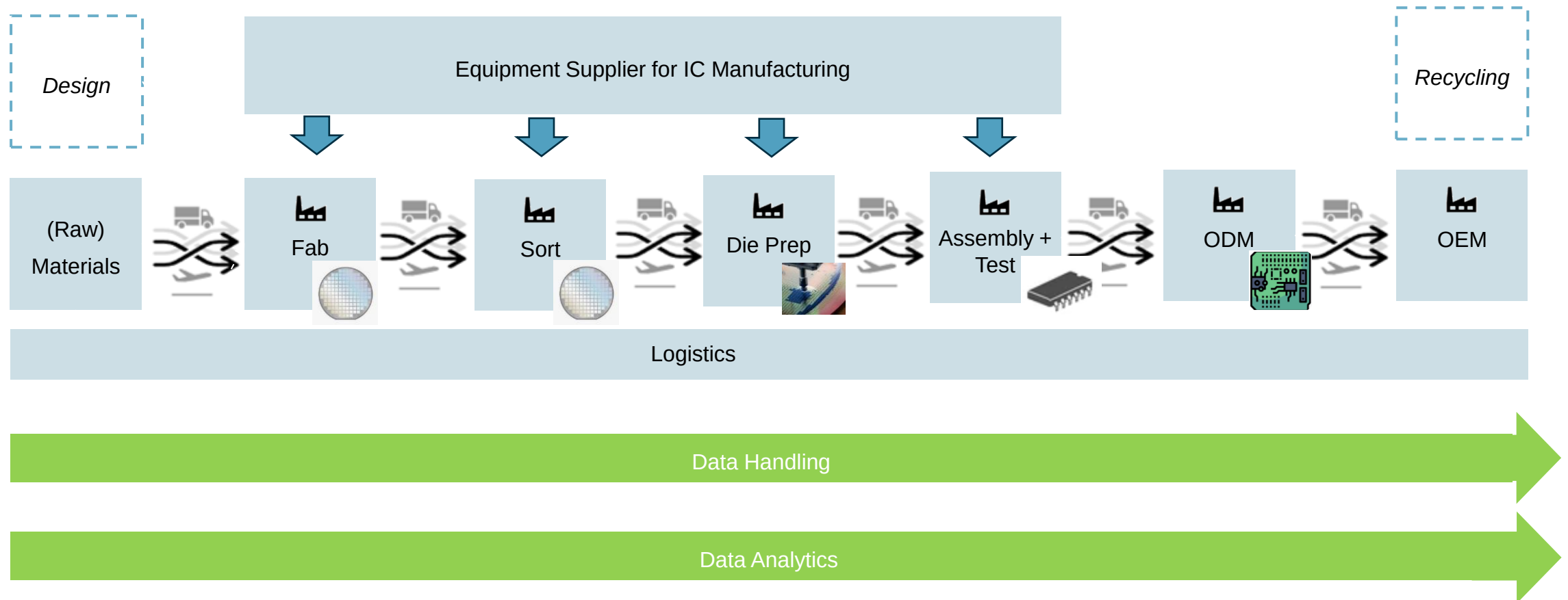
Manufacturing-X

How it works



Semiconductor-X Data Space

Addressing an E2E Semiconductor Manufacturing Supply Chain



Semiconductor-X – Project Team

Partners across the Industrial Supply Chain and RnD Organizations



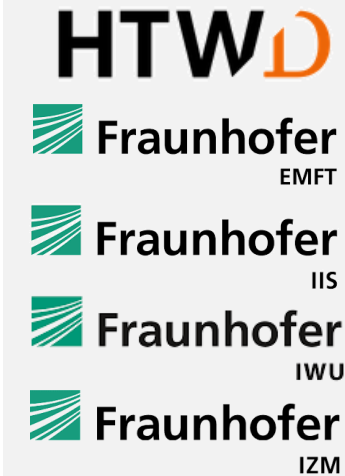
Consortia Lead

Large Industry

SMEs

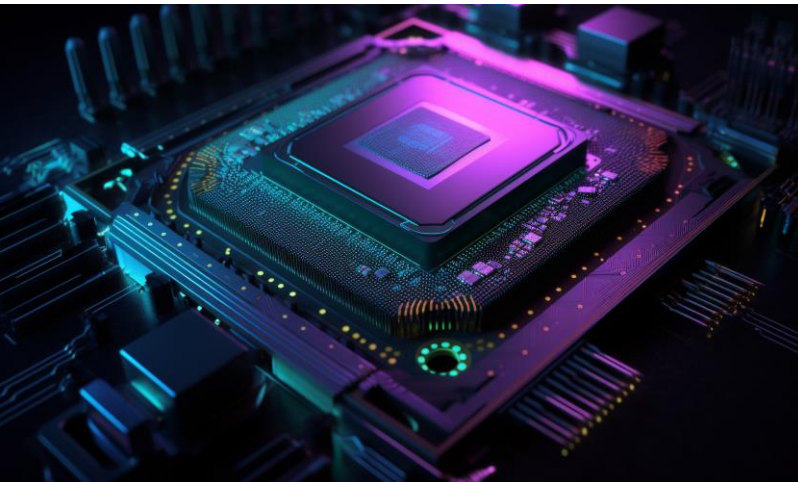
RnD

Industry Associations

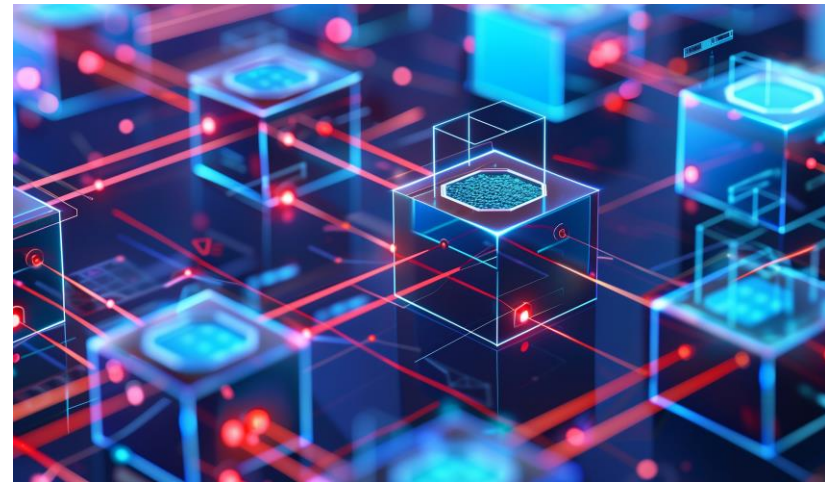


Semiconductor-X Application Clusters

Demonstrate Usage in Industry-relevant Applications



Cluster 1
Resilient value chains for Chiplets production through heterogeneous integration



Cluster 2
Resilient Network Nodes – Digital Integration for Optimized Factory Operations



Cluster 3
Sustainable Semiconductor Production for a reduced environmental footprint

Outlook



- Need of international standards for data exchange addressing the semiconductor supply chain
- Connect data space of semiconductor supplier and customer industries
- SEMICONDUCTOR-X project offers participation of more industry members as associated partner (contact Harald.Gossner@intel.com)