

Players in the Industrial Data Economy 2025



Content

1. Manufacturing-X Funding Initiative	5
1.1 Ongoing Projects	5
1.1.1 Aerospace-X	5
1.1.2 Chem-X	6
1.1.3 CX-NEXT	6
1.1.4 DAVID	7
1.1.5 Decide4ECO	8
1.1.6 Factory-X	9
1.1.7 Healthtrack-X	10
1.1.8 Robot-X	10
1.1.9 SCALE-MX	11
1.1.10 Semiconductor-X	12
2. 8ra/IPCEI-CIS Funding Initiative	13
2.1 Ongoing Projects	13
2.1.1 Construct-X	13
2.1.2 growING	14
2.1.3 Railway-X	14
2.1.4 RoX	15
2.1.5 Wind-X	16
3. Kopa35c Funding Initiative	17
3.1 Ongoing Projects	17
3.1.1 Antrieb 4.0	17
3.1.2 Fluid 4.0	17
3.2 Completed Projects	18
3.2.1 Catena-X	18

4. Federal Government Funding Initiative	21
4.1 Ongoing Projects	21
4.1.1 DaFox	21
4.2 Completed Projects	21
4.2.1 DIONE-X	21
4.2.2 Fair Data Spaces	22
4.2.3 Fed-X-Pro	22
4.2.4 GRIPSS-X	23
4.2.5 URANOS-X	24
5. Additional Projects	25
5.1 Ongoing Projects	25
5.1.1 ACCURATE	25
5.1.2 Energy Data-X	25
5.1.3 FURNITURE-X	26
5.1.4 SM4RTENANCE	26
5.1.5 UNDERPIN	27
5.2 Completed Projects	28
5.2.1 Cooperants	28
5.2.2 Data4Industry-X	29
5.2.3 Data Space 4.0	29
5.2.4 Int:net	30
5.2.5 Marispace-X	31
5.2.6 SCSN	32
5.2.7 TANGO	32
5.2.8 X-Kit	33
6. Participating companies and organisations	34

Foreword

Data and information have long been more than just a byproduct of industrial processes – they form the basis for innovation, efficiency and new business models. Numerous applications and industry-specific development projects are laying the foundations for tomorrow's data economy. That we are already presenting a new edition of this brochure just one year after the first edition was published reflects the fact that developments in the projects continue to progress. While the first edition took a broader look at many industries, this edition focuses more closely on industry and highlights which projects are currently in progress and which have already been completed.

This brochure is intended to help connect stakeholders, promote dialogue and the development of cross-industry standards, and offer an opportunity for those who are not yet familiar with the subject matter to get involved. The opportunities are great and just waiting to be seized.

If you have any further questions, please do not hesitate to contact us, the Forum Manufacturing-X.



A handwritten signature in blue ink, appearing to read 'M. Hüske'.

Dr Marc Hüske

Head of Forum Manufacturing-X

1. Manufacturing-X Funding Initiative

1.1 Ongoing Projects

1.1.1 Aerospace-X

Industry

Aerospace

Duration

April 2024 – June 2026

Content

The Aerospace-X consortium, comprising 14 companies and research institutions, was formed under the leadership of Airbus. The main objectives of this funding project are to establish a digital ecosystem for the aerospace industry, ensure digital continuity and enable new forms of collaborative, data-based value creation.

Using the fuselage, cabin and propulsion production chains as examples, the fundamental capabilities for cross-company digital collaboration are to be further developed in terms of basic technologies, data infrastructure, software services and regulatory requirements. The focus is on the use cases of demand and capacity management, CO₂ emissions and carbon footprint regulations, circular economy and collaborative quality management.

Participating companies and organisations

Consortium Management:

- Airbus Operations GmbH

Industry Partners:

- Diehl Aviation Laupheim GmbH
- PRÄWEST Präzisionswerkstätten Dr.-Ing. Heinz-Rudolf Jung GmbH & Co. KG
- Synergeticon GmbH
- gemineers GmbH
- Advanced-Materials-Concepts GmbH
- toolcraft AG
- ZAL GmbH

Technology Partners:

- SAP SE
- T-Systems International GmbH
- SupplyOn AG
- Capgemini Deutschland GmbH
- Research Partners:
- Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)
- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.

Associated Partners:

- Airbus Aerostructures GmbH
- ASCO Industries NV/SA
- DECKEL MAHO Pfronten GmbH
- ELG Utica Alloys International GmbH
- GKN Aerospace Germany GmbH
- ISOVOLTA GATEX GmbH
- ITP Aero – Industria de Turbo Propulsores S.A.U.
- Liebherr-Aerospace Lindenberg GmbH
- MTU Aero Engines AG
- Novelis Koblenz GmbH
- Otto-Fuchs KG
- ProSTEP iViP Verein e.V.
- Rolls-Royce Deutschland Ltd & Co KG
- SAS & Co KG
- thyssenkrupp Aerospace Germany GmbH
- Voestalpine BÖHLER Aerospace GmbH & Co KG
- WMH Westdeutscher Metall-Handel GmbH

Sources and further information

BMWK – Projekt „Aerospace-X“

Aerospace-X: Ökosystem für eine effiziente und nachhaltige Lieferkette in der Luft- und Raumfahrt – Fraunhofer ISST

1.1.2 Chem-X

Industry

Chemicals

Duration

December 2024 – November 2026

Content

The Chem-X project aims to create an interoperable data ecosystem for the chemical industry that enables the comprehensive exchange of data across the entire value chain network. The focus is not only on vertical data exchange within a specific industry, but also on interoperable, horizontal connections to multiple customer industries. This data ecosystem is intended to promote open and transparent communication that supports both legally binding and commercial processes. At the heart of the project is the development of open-source data models that serve as a foundation for data exchange and meet digital product passport requirements.

The three overarching goals of Chem-X are:

- 1. Competitiveness:** Chem-X aims to improve interoperability and efficiency in the supply chain by clearly defining chemistry-specific data models and standardising technical specifications.
- 2. Sustainability:** Defining an open-source data model for chemicals enables transparent and consistent communication of sustainability characteristics, such as the product carbon footprint (PCF) or recycled content.
- 3. Resilience:** With the help of digital technologies, such as digital material twins and the standardised exchange of material data, the industry can respond more flexibly and quickly to market changes.

Chem-X will not only drive digital transformation in the chemical industry, but will also promote the transition to data-based value-added services, enable new business areas and initiate further digitalisation projects in the industry and beyond.

Participating companies and organisations

Consortium Management:

- BASF SE

Project Partners:

- Cofinity-X GmbH
- Covestro AG
- DAW SE
- Henkel AG & Co. KGaA
- Merck KGaA
- SAP SE
- Siemens AG
- Spherity GmbH
- Wacker Chemie AG

Associated Partners:

- Catena-X e.V.
- Sika Automotive Deutschland GmbH
- Evonik Industries AG
- TFS Initiative

Sources and further information

BMWE – Projekt „Chem-X“

CHEM-X – Chem-X: Powering Transparency & Sustainability in the Chemical Industry

1.1.3 CX-NEXT

Industry

Automotive

Duration

August 2024 – September 2026

Content

Catena-X is a data ecosystem designed to meet the specific requirements of the automotive industry. It enables the standardised exchange of data and cross-company collaboration between various players in the industry. The follow-up project, CX-NEXT, builds on previous developments and aims to further enhance the functionality and performance of the existing data ecosystem. The focus is on further developing the infrastructure to meet the growing demands of global supply chains.

To achieve this, CX-NEXT focuses on three core objectives:

1. **Enhanced core services** – Optimising Catena-X's core services to ensure seamless integration and efficient operations – including in initiatives such as Manufacturing-X.
2. **Global reach** – Scaling Catena-X internationally in order to connect global partners more quickly, thereby increasing the resilience of supply chains.
3. **Open source first** – Further developing the Eclipse Tractus-X project to foster a community that is focused on collaboration and continuous improvement.

Participating companies and organisations

Consortium Management:

- BMW AG

Project Partners:

- BASF SE
- Cofinity-X GmbH
- Dräxlmaier GmbH & Co. KG
- SAP SE
- Fraunhofer-Institut für Software- und Systemtechnik ISST
- German Edge Cloud GmbH & Co. KG
- Henkel AG & Co. KGaA
- Siemens AG
- Schaeffler AG
- Volkswagen AG
- T-Systems International GmbH
- Robert Bosch GmbH
- Mercedes-Benz AG
- ZF Friedrichshafen AG

Sources and further information

Manufacturing-X – Datenökosysteme für eine wettbewerbsfähige, resiliente und nachhaltige Industrie

1.1.4 DAVID

Industry

Cross-cutting

Duration

May 2024 – July 2026

Content

DAVID supports the interoperability of digital twins in the Manufacturing-X data ecosystem. The abbreviation 'DAVID' translates to 'Direct Application Support for the Asset Administration Shell for Networking in the Industry 4.0 Data Space'.

DAVID is a cross-industry project. It will support the interoperable use of the Asset Administration Shell (AAS) as the standard for digital twins in the Manufacturing-X data ecosystem. The AAS enables standardised data exchange along the value chain and can be understood as the implementation of digital twins for Industry 4.0.

To this end, DAVID will methodically accompany all development projects in the funding programme in the implementation of the AAS, harmonise the various development strands and support the transfer of results into open standardisation.

In addition, the project is developing solutions to make AAS technology easier to use for medium-sized companies.

In addition to the consortium leader IDTA (Industrial Digital Twin Association), four research institutions are involved in the project: Karlsruhe University of Applied Sciences (HKA), IPI Institute for Production and Information Technology (TTZ Sonthofen), ifak Institute for Automation and Communication, and Fraunhofer IESE – all partners with extensive experience in the development, application and standardisation of AAS.

The digital participation of SMEs in the Manufacturing-X data ecosystem is key to the success of Manufacturing-X. With this in mind, the DAVID project will implement an adapter to support SMEs in connecting to the Manufacturing-X data ecosystem that will be developed from existing AAS building blocks according to open-source principles. These will be bundled into a manageable, easy-to-use package for SMEs as part of DAVID.

Participating companies and organisations

- Fraunhofer-Institut für Experimentelles Software Engineering IESE
- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.
- Hochschule Karlsruhe – Technik und Wirtschaft (HKA)
- Hochschule für angewandte Wissenschaften Kempten
- ifak – Institut für Automation und Kommunikation e.V.
- IDTA – Industrial Digital Twin Association e.V.

Sources and further information

BMW – Projekt „DAVID“

Projekt „DAVID“ am IPI gestartet

1.1.5 Decide4ECO**Industry**

Development and production/sustainability

Duration

April 2024 – September 2026

Content

The Decide4ECO project deals with the consideration and evaluation of sustainability requirements and the achievement of sustainability goals. Since a large part of resource consumption is already determined during product planning and development, the project focuses on the development of digital solutions to assist with decisions about sustainability criteria in development and production during this phase. The assessment should consider the entire value chain and the entire product life cycle.

The data on which the sustainability analysis is to be based must be collected across the entire manufacturing and supply chain. The necessary data exchange along supply chains is to be implemented based on common standards in the Manufacturing-X data ecosystem, for which open interfaces and standards are being developed as part of the project. A standardised digital product passport is to be provided in the shared data ecosystem and supplemented with information. The software solutions for assessing sustainability are to consider all relevant upstream and downstream processes and be supplemented with predictive, AI-based impact analyses.

As part of Decide4Eco, PROSTEP will integrate Eclipse Dataspace Components (EDC) into its OpenPDM PLM integration platform to make data from PLM, ALM and ERP systems available in data spaces such as Manufacturing-X

and Catena-X using the Asset Administration Shell (AAS). Other Manufacturing-X projects will also be able to use the system during the duration of the project. PROSTEP is also expanding its OpenCLM digital thread solution to include the option of enriching the digital thread with sustainability information and displaying this information in clear dashboards, as well as developing solutions for chatbot-supported product passport generation.

Contact Software and Nexpirit will implement new functions for sustainability analyses and integration into data ecosystems in their solutions to support companies in the collaborative development of sustainable products. Companies will be able to make decisions about sustainability-related product features earlier and with greater certainty.

Application partners will use the methods and IT solutions developed to create more sustainable products. In addition, they will be able to participate in future data ecosystems.

IT solution providers will use their experience from the project to expand their consulting services related to eco-compliance and the end-to-end management of sustainability information, and will enter into strategic partnerships to capitalise on the project results.

The Heinz Nixdorf Institute is designing a methodology for systematic and flexible decision-making support for the design of circular, resilient and transparent value creation networks. The focus is on a basic reference process model, information models which include the mapping of information quality, and algorithms for impact analyses on system models. The chair's Smart Automation Laboratory serves as an experimental environment for standards and software components. The results are incorporated into research and teaching.

Participating companies and organisations**Consortium Management:**

- PROSTEP AG

Project Partners:

- BOS GmbH & Co. KG
- CONTACT Software GmbH
- Hadi-Plast GmbH
- Heinz Nixdorf Institut (HNI)
- Lehrstuhl für Produktentstehung der Universität Paderborn
- Nexpirit GmbH
- Sonova Holding AG

Associated Partners:

- Grant Thornton AG
- Brainport Industries

Sources and further information

Decide4Eco | Decide4Eco

Decide4ECO nutzt Datenraum für nachhaltige Produktentwicklung | PROSTEP AG

BMW – Förderprogramm „Manufacturing-X“

1.1.6 Factory-X**Industry**

Manufacturing

Duration

February 2024 – June 2026

Content

The Factory-X project is a flagship project in the Manufacturing-X digital ecosystem. The goal of the project is to develop a federated data space for manufacturing companies and production equipment suppliers and to ensure its successful application. The federated data space is intended to enable the secure sharing of data between different players in production, thereby driving forward digitalisation and artificial intelligence in production.

Factory-X is the digital ecosystem designed to support factory equipment suppliers and operators on their path to digital transformation. Factory-X is an industry-wide movement that addresses real-world challenges through collaborative data exchange and innovative business models. The use of industry intelligence not only promises success in the digital age but also paves the way for sustainable business growth and greater resilience.

Participating companies and organisations**Consortium Management:**

- SAP SE
- Siemens AG

Project Partners:

- August-Wilhelm Scheer Institut für digitale Produkte und Prozesse gGmbH
- BASF SE
- Berger Holding GmbH & Co. KG
- Catena-X e.V.
- Codewerk GmbH

- DMG MORI AG
- Empolis Information Management GmbH
- EPLAN GmbH & Co. KG
- ESTAINIUM Association e.V.
- Festo SE & Co. KG
- Fraunhofer-Institut für Software- und Systemtechnik ISST
- German Edge Cloud GmbH & Co. KG
- Hilscher Gesellschaft für Systemautomation mbH
- ifm diagnostic GmbH
- IFW – Leibniz Universität Hannover
- Igus GmbH
- Inovex GmbH
- InstaWerk GmbH
- Institut für Steuerungstechnik der Werkzeugmaschinen und Fertigungseinrichtungen (ISW)
- Universität Stuttgart
- Lenze SE
- Labs Network Industrie 4.0 e.V.
- Matchory GmbH
- MT Analytics GmbH
- Open Industry 4.0 Alliance e.V.
- PAKIC GmbH
- Phoenix Contact GmbH & Co. KG
- Prenode GmbH
- proALPHA Business Solutions GmbH
- RIF Engineering & Consulting GmbH
- Ruhr-Universität Bochum
- Scheer GmbH
- SCHUNK SE & Co. KG
- Smart Demonstration Factory Siegen (SDFS) GmbH
- SICK AG
- SmartFactory KL e.V.
- Soffico GmbH
- Software AG
- Trumpf SE + Co. KG
- T-Systems International GmbH
- TÜV SÜD Chemie Service GmbH
- Uhlmann Pac-Systeme GmbH & Co. KG
- **VDMA e.V.**
- WITTENSTEIN SE
- ZVEI e.V.

Associated Partners:

- ARENA2036 e.V.
- Arvato Systems GmbH
- Bayern Innovativ GmbH
- Beckhoff Automation GmbH & Co. KG
- Digital Data Chain Consortium GbR
- Eviden Germany GmbH
- IDTA – Industrial Digital Twin Association e.V.
- Robert Bosch GmbH
- Sharecat Solutions AS
- Standardization Council Industrie 4.0
- ZVEI e.V.

Sources and further information

Factory-X

BMW – Projekt „Factory-X“

Factory-X: Ein souveräner Datenraum für den
Maschinen- und Anlagenbau – Fraunhofer ISST

1.1.7 Healthtrack-X**Industry**

Pharmaceutical/health

Duration

May 2024 – July 2026

Content

The HealthTrack-X (HT-X) project aims to digitise production and supply chains in the healthcare sector. The industrial healthcare industry is a leading and forward-looking industry with a high level of research and innovation. Nevertheless, digitisation is still not very advanced in many areas. For example, there is no interoperable infrastructure between companies along the healthcare supply chain, though data formats and quality are crucial factors that vary greatly. This is where HT-X comes in, creating interoperable interfaces. HT-X was launched by a group of companies involved in sphin-X to realise the vision of a collaborative data ecosystem for the healthcare system. sphin-X promotes use cases in the areas of research and development, supply chain, product lifecycle and collaboration. HT-X is realising this vision by building a technical infrastructure for these use cases, committing to the development of a data ecosystem, ensuring technical readiness for data exchange, connecting the first participants to the data ecosystem and implementing initial use cases in the data ecosystem.

Participating companies and organisations**Consortium Management:**

- Roche Diagnostics GmbH

Project Partners:

- Adesso SE
- BDI e.V.
- Fraunhofer-Institut für Software- und Systemtechnik ISST
- Gesundheitsforen Leipzig GmbH
- Rote Liste Service GmbH
- Siemens Healthineers AG
- W2 Healthcare GmbH & Co. KG

Sources and further information

Datenökosystem für das Gesundheitswesen |
HealthTrack-X

HealthTrack-X – Fraunhofer ISST

HealthTrack-X Datenraum

BMW – Projekt „HealthTrack-X“

1.1.8 Robot-X**Industry**

Manufacturing

Duration

April 2024 – June 2026

Content

Robot-X aims to digitise the product life cycle for robotic systems, connect the players involved and optimise the interaction process. The barriers to entry for small and medium-sized enterprises (SMEs) in robotic systems are often high due to high investment costs and complex development processes. The Robot-X project aims to help lower these barriers and make it easier for SMEs to access tailor-made robots and automation lines. This will be achieved through model-based system engineering (MBSE) and the use of artificial intelligence (AI).

At its core, the project focuses on setting up a networked data space for the harmonised exchange of digital twins of robotic components to enable data- and model-based system development using AI. The approach pursues the automated configuration of robotic systems based on a modular principle. To this end, different cross-industry application scenarios are being implemented in three use cases. These include the Drone Port – a take-off and landing device for drones for use in defence and agriculture. The project also addresses the topic of industrial packaging for irregularly shaped manufacturing parts as well as composites processing, an autonomous precision finishing system for the aviation industry.

Participating companies and organisations**Consortium Management:**

- YardStick Robotics GmbH

Project Partners:

- GalvanoPro GmbH
- ifak – Institut für Automation und Kommunikation e.V.
- Pierburg GmbH
- Rheinmetall AG
- Synapticon GmbH

Associated Partners:

- Schaeffler AG
- Sumitomo Corporation
- NexCOBOT
- IDTA – Industrial Digital Twin Association e.V.
- Hortica GmbH
- Erdbeerhof Glantz

Sources and further information

BMWE – Projekt „Robot-X“

Vernetzte modellbasierte Entwicklung und Betrieb von Robotern für Industrie und KMUs mithilfe von Catena-X und KI | ifak Magdeburg

1.1.9 SCALE-MX**Industry**

Cross-cutting

Duration

October 2024 – September 2026

Content

SCALE-MX, the transfer initiative of Manufacturing-X, aims to sustainably increase the participation of companies, especially SMEs, in the Manufacturing-X data ecosystem.

SCALE-MX makes Manufacturing-X understandable and easily accessible, paving the way for a digitally networked industry. SCALE-MX acts as a central point of contact for users, providers and multipliers for the Manufacturing-X industrial data ecosystem. The project communicates the digital infrastructure, its advantages and specific use cases from the X projects in a practical and target group-oriented manner. The goal is to get as many companies in the manufacturing industry as possible, especially SMEs, to express interest in the Manufacturing-X data ecosystem, engage with it and want to join in the future. In this way, SCALE-MX helps to raise awareness of the industrial data ecosystem and scale it up.

Participating companies and organisations**Consortium Management:**

- **VDMA e.V.**
- ZVEI e.V.

Project Partners:

- Bayern Innovativ GmbH
- Niedersachsen.next GmbH
- DIHK Service GmbH
- WIK GmbH

Associated Partners:

- BDI e.V.
- BDLI e.V.
- IDTA – Industrial Digital Twin Association e.V.
- NAMUR e.V.

Sources and further information

SCALE-MX

BMWE – Projekt „SCALE-MX“

DIHK SCALE-MX

1.1.10 Semiconductor-X

Industry

Semiconductor

Duration

May 2024 – September 2026

Content

Semiconductor-X aims to create a sovereign data ecosystem for the semiconductor industry while developing advanced digital twins to digitally map critical planning segments of the semiconductor supply chain and value chain.

These are based on a generic software architecture with configurable data and reference models. AI-based analysis functions are used to overcome industry-specific challenges such as long production lead times, fluctuating process yields and high variant diversity.

Digital twins are being developed and networked for various application levels:

1. **Heterogeneous integration:** secure and efficient data exchange between partners in a manufacturing chain, especially when integrating semiconductor chiplets into complex IC packages
2. **Resilient network nodes:** new digital services and cooperation models to optimise operations and increase quality in the manufacturing process
3. **Sustainability assessment:** development of methods for determining and optimising the carbon footprint as well as energy and water consumption along the value chain

Participating companies and organisations

Consortium Management:

- Intel Corporation

Project Partners:

- DAS Environmental Expert GmbH
- Elmos Semiconductor SE
- Expo21XX GmbH
- Fraunhofer-Institut für Elektronische Mikrosysteme und Festkörper-Technologien (EMFT)
- Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration (IZM)
- Fraunhofer-Institut für Fabrikbetrieb und -automatisierung (IFF)
- Fraunhofer-Institut für Integrierte Schaltungen (IIS)
- Fraunhofer-Institut für Werkzeugmaschinen und Umformtechnik (IWU)
- HQ-Dielectrics GmbH
- Hochschule für Technik und Wirtschaft Dresden (HTW)
- Infineon Technologies AG
- Merck Electronics KGaA
- OmegaLambdaTec GmbH
- OptWare GmbH
- Robert Bosch Semiconductor Manufacturing Dresden GmbH
- SAP SE
- Siemens AG
- Systema GmbH

Associated Partners:

- Athinia Technologies LLC
- DHL Customer Solutions & Innovations
- Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)
- NetApp Deutschland GmbH
- Pfeiffer Vacuum GmbH
- Resonac Holdings K.K.
- Roseman Labs
- Semiconductor Equipment and Materials International (SEMI)
- Siemens Digital Logistics GmbH
- Swissbit Germany AG
- Texas Instruments Deutschland GmbH
- **VDMA e.V.**
- ZVEI e.V.

Sources and further information

Semiconductor-X – Building Resilient Semiconductor Supply Chains – Dataspaces for a Sustainable and Resilient Semiconductor Ecosystem

BMW – Projekt „Semiconductor-X“

Semiconductor-X

2. 8ra/IPCEI-CIS Funding Initiative

2.1 Ongoing Projects

2.1.1 Construct-X

Industry

Construction

Duration

March 2025 – February 2028

Content

In this three-year research project, a consortium of around 40 partners is developing digital standards, tools and processes. The Construct-X consortium team consists of renowned companies from the construction industry, skilled trades, IT technology, research and university institutions. Leading associations from the construction industry and skilled trades are also involved.

Among other things, Construct-X is developing data rooms based on open-source principles, a cloud-based open-source reference architecture and cloud edge applications relevant to the construction sector. This also includes the development of technologies for the multi-provider cloud edge continuum, which will enable latency-free and secure processing of data on construction sites.

The goal of Construct-X is to increase productivity, efficiency and transparency in the construction industry and in construction projects. It also aims to effectively address aspects of sustainability and resource conservation. The consistent use of data is a key factor in this, but has only been partially implemented in the diverse and heterogeneously organised construction industry to date.

Construct-X aims to make an important contribution to ensuring that future investments in the planning, construction and operation of infrastructure and building construction achieve significantly more and better output.

Construct-X is funded by the Federal Ministry for Economic Affairs and Energy and the European Union and is part of the EU initiative IPCEI-CIS, Important Project of Common European Interest – Next Generation Cloud Infrastructure

and Services. Construct-X is thus part of the EU strategy to strengthen Europe's digital sovereignty. buildingSMART Germany is responsible for all communication for the new, nationwide research project Construct-X and will also contribute to important areas of digital standards.

Participating companies and organisations

- Adesso SE
- ARENA2036 e.V.
- Bergische Universität Wuppertal
- buildingSMART Deutschland e.V.
- Contrans Logistik GmbH
- European Competence Center GmbH (EECC)
- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.
- HFK Rechtsanwälte PartGmbH
- HOCHTIEF Engineering GmbH
- Hottgenroth Software AG
- IS Predict GmbH
- Liebherr-Electronics and Drives GmbH
- Lindner Group KG
- LogProIT GmbH
- LS Cargo Logistics GmbH
- Madaster Germany GmbH
- Makadamlabor Schwaben GmbH
- Materna Information & Communications SE
- MeisterSystems GmbH
- META architektur GmbH
- PSI Software SE
- Ruhr-Universität Bochum
- sit.institute GmbH
- Smart Site Solutions GmbH
- SOFTBAUWARE GmbH
- STRABAG SE
- tabya GmbH
- TROX GmbH
- UNIBERG GmbH
- VIA IMC GmbH
- ZECH Bau Holding GmbH
- ZVEH e.V. (Zentralverband der Deutschen Elektro- und Informationstechnischen Handwerke)
- ZVSHK e.V. (Zentralverband Sanitär Heizung Klima)
- Zeppelin Rental GmbH & Co. KG

Sources and further information

Construct-X | Die Zukunft des Bauens ist digital

Construct-X: Vereinfachte Informationsverarbeitung auf der Baustelle – Fraunhofer ISST

Forschungsprojekt Construct-X läutet neue Phase der Digitalisierung des Bauwesens ein

Hottgenroth Software AG

2.1.2 growING**Industry**

Machinery and plant manufacturing

Duration

November 2024 – January 2027

Content

The growING project is revolutionising collaboration in special-purpose machine construction through the further development of digital twins. The goal is to enable seamless digital and cross-company collaboration to shorten the time-to-market for new machines.

Interoperability technologies such as the Asset Administration Shell and the Eclipse Dataspace Connector are used to ensure the compatibility of different tools and processes. To validate the efficiency and practicality of the developed solutions, demonstrators and pilot systems are being set up in real-world application scenarios.

growING is making a significant contribution to the development of the multi-provider cloud edge continuum by delivering requirements and testing deployed applications and technologies. The project takes the concept of digital twins to a new level by gradually enriching them and making them usable for more complex scenarios. In this way, growING strengthens the digital sovereignty of Germany and Europe, reduces technological dependencies and promotes the training and qualification of skilled workers in the field of digital technologies.

Participating companies and organisations

- flexis GmbH
- Klotz GmbH
- Robert Bosch GmbH
- Robert Bosch Manufacturing Solutions GmbH
- ruhlamat GmbH
- SimPlan GmbH
- Universität Stuttgart

Sources and further information

Startseite – growING

growING – 8ra

growING | Institut für Steuerungstechnik der Werkzeugmaschinen und Fertigungseinrichtungen | Universität Stuttgart

Forschungsprojekt growING

2.1.3 Railway-X**Industry**

Railway

Duration

January 2025 – December 2026

Content

The goal of the Railway-X project is to make a significant contribution to strengthening the competitiveness, sustainability and resilience of supply chains in the European railway industry. The railway industry is central to Germany as a business location and is of great importance for the national and international mobility of people and goods. However, companies in the railway industry face a variety of challenges. These include, for example, outdated infrastructure, a lack of interoperability, fragmented data landscapes, inefficient processes and high costs. These shortcomings hamper the development of sustainable mobility based on 'strong rail' and the use of new technologies. The Railway-X project therefore aims to develop a comprehensive solution that addresses these shortcomings and sustainably strengthens the railway industry in Europe.

To this end, innovative data-driven solutions and software services are being developed specifically for rail vehicle manufacturers, suppliers, operators, maintenance companies and dismantling companies. These solutions are intended to enable sustainable approaches such as circular economy strategies (e.g.; reuse, repair, refurbish,

remanufacture, recycle) and new data-driven business models. Within the project, DFKI is developing an AI-supported R-strategy assistant for the railway industry that ensures the availability of rolling stock and rail infrastructure while managing system components in resource- and PCF-optimised cycles. Essentially, it is about AI-supported knowledge and data management for decision-making support and recommendations for action. The R-Strategy Assistant is designed to automatically provide transparent and traceable recommendations for action based on manufacturing and condition data as well as the usage history of components and parts.

Participating companies and organisations

- Capgemini Deutschland GmbH
- Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (DFKI)
- FKM Elemente GmbH
- HARTING Stiftung & Co. KG
- Hoppecke Batterien GmbH & Co. KG
- Salzgitter AG
- Siemens Mobility GmbH
- TU Braunschweig
- WAGO Kontakttechnik GmbH & Co. KG

Sources and further information

Railway-X – KI-basiertes Wissens- und Datenmanagement zur Entscheidungsunterstützung und Handlungsempfehlung in der internationalen Bahnindustrie

Railway-X

Plattform Industrie 4.0 – MX-Talk: Projekteinblick Railway-X

Railway-X – 8ra

2.1.4 RoX

Industry

Robotics and automation

Duration

September 2024 – February 2027

Content

The RoX joint project aims to create a state-of-the-art digital ecosystem for the development, deployment and continuous advancement of AI-driven robotic systems. This ecosystem provides access to modular, generic software components that serve as fundamental building blocks. Inspired by decentralised data ecosystems such as Manufacturing-X and Factory-X, the project seamlessly integrates different phases of the product life cycle, including design, commissioning, operation and maintenance. The adoption of established standards and the use of existing technologies are critical to ensuring the interoperability and compatibility of the project results.

The consortium consists of 24 partners from industry and academia, including key players and end users, who work closely with national and European stakeholders. Using more than twelve use cases in four application areas – loading and unloading, picking and assembly, production automation and AI-supported robot commissioning – the project thoroughly tests and validates the practical applicability and scalability of the ecosystem.

Participating companies and organisations

- ABB AG
- Adolf Würth GmbH & Co. KG
- Boehringer Ingelheim Pharma GmbH & Co. KG
- Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (DFKI)
- Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)
- Dürr Systems AG
- Fiege Logistik Stiftung & Co. KG
- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.
- Gluth Systemtechnik GmbH
- Intrinsic Innovation GmbH
- INVITE GmbH
- Mercedes-Benz AG
- Rheinmetall Waffe Munition GmbH
- RIF Institut für Forschung und Transfer e.V.
- Roboception GmbH
- robomotion GmbH
- SAFELOG GmbH
- SCHUNK SE & Co. KG
- Siemens AG

- SOTEC GmbH & Co. KG
- T-Systems International GmbH
- **VDMA e.V.**
- Wacker Chemie AG
- YardStick Robotics GmbH

Sources and further information

RoX – 8ra

Home – project-rox

RoX – Digitales Ökosystem für KI-basierte Robotik startet jetzt – Fraunhofer IML

RoX

2.1.5 Wind-X

Industry

Wind

Duration

November 2024 – July 2027

Content

The Wind-X project aims to promote the wind industry through a data ecosystem for innovative and sustainable wind turbines throughout their entire life cycle. Experience, technologies and solutions from Catena-X, Gaia-X and other Manufacturing-X initiatives are being transferred to the wind industry.

The overall goal of Wind-X is to develop a federal, decentralised data space for the wind industry based on a cloud-edge infrastructure. This is intended to simplify cooperation and information exchange between companies in the wind industry. Specifically, companies will be empowered to exchange information without losing control or ownership, so that they can use it for new business models in specific use cases.

Two of these use cases, 'Traceability for Sustainability and Logistics' and 'Digital Twins in Production and in the Field,' will be implemented as part of the project to demonstrate the functionality and added value of such a data space. In particular, the establishment of cloud-edge infrastructure in companies and the evaluation of which functionalities operate in the edge and which in the cloud offer companies in the wind industry a competitive advantage in the future.

Participating companies and organisations

- Bachmann electronic GmbH
- BIBA – Bremer Institut für Produktion und Logistik GmbH
- BREB GmbH & Co. KG
- Cuxport GmbH
- Eickhoff Antriebstechnik GmbH
- Flender GmbH
- GE Renewable Energy Germany GmbH
- Hahn Projects GmbH
- Mews Deutschland GmbH
- RITTAL GmbH & Co. KG
- RWTH Aachen University
- Schaeffler Technologies AG & Co. KG
- SWMS Consulting GmbH
- thyssenkrupp rothe erde Germany GmbH
- Turkish Wind Energy Association (TWEA)
- **VDMA e.V.**
- Vestas Wind Systems A/S
- Weidmüller Interface GmbH & Co. KG
- wpd windmanager GmbH & Co. KG
- WRD Wobben Research & Development GmbH
- ZF Wind Power Antwerpen NV

Sources and further information

Wind-X – 8ra

Wind-X | IAT | RWTH Aachen University | DE

Wind-X – Hahn Projects

3. Kopa35c Funding Initiative

3.1 Ongoing Projects

3.1.1 Antrieb 4.0

Industry
Machinery

Duration
January 2023 – December 2025

Content

Antrieb 4.0 is researching solutions for drive systems based on a shared database. The goal is to achieve industry-wide compatibility between manufacturers for the selection, commissioning, operation and servicing of drives. The keys to success: interoperability, common standards and a shared data space that enables the cross-industry collection of data and the development of intelligent services in the form of two practical use cases.

Therefore, a shared data space for smart drive solutions will be created over the course of the project. This data space enables horizontal integration and system-wide data collection. Data security is ensured through the use of various security concepts. The use of different AI methods also supports the testing of promising, intelligent and predictive smart services. Procurement, commissioning, production and service can be greatly simplified along the entire value chain.

Participating companies and organisations

- ABB AG
- Baumüller Nürnberg GmbH
- Bosch Rexroth AG
- Danfoss GmbH
- ESR Pollmeier GmbH
- Fraunhofer-Institut für Integrierte Schaltungen (IIS)
- Fraunhofer-Institut für Integrierte Systeme und Bauelemententechnologie IISB
- KEB Automation KG
- KEBA AG
- KSB SE & Co. KGaA
- Lenord, Bauer & Co. GmbH
- Lenze SE
- Meta-Level Software AG
- Mitsubishi Electric Corporation
- Pepperl+Fuchs SE
- Pilz GmbH & Co. KG

- SICK AG
- Siemens AG
- TU Darmstadt
- WITTENSTEIN SE
- ZVEI e.V.

Sources and further information

Forschungsverbund

Industry 4.0 – Fachgebiet für Leistungselektronik und Antriebsregelung – TU Darmstadt

Reallabor Antrieb 4.0

3.1.2 Fluid 4.0

Industry
Manufacturing

Duration
January 2024 – July 2026

Content

The Fluid 4.0 project is funded by the European Union (NextGenerationEU) and supported by the Federal Ministry for Economic Affairs and Energy to enable the industry-wide exchange of information on the product life cycle of fluid technology products and systems. The focus is on the digitalisation of products using the Asset Administration Shell (AAS) and the development of use cases, primarily in the field of sustainability (energy monitoring, carbon footprints and circular economy).

The objectives of Fluid 4.0 are to develop interfaces and AAS submodels for system management of the four defined industry-relevant use cases, to exchange them via a cross-industry data room, and to develop an interaction concept between the administration shells at various levels. Demonstrators are being developed to ensure the sustainable establishment of the technologies and the associated necessary knowledge transfer in the use cases, which will be available as open test environments. Established infrastructure and concepts (administration shells, ECLASS, IDTA submodels, Catena-X, Manufacturing-X, etc.) will be used or adopted.

Participating companies and organisations

- em engineering methods AG
- Achenbach Buschhütten GmbH & Co. KG
- Argo-Hytos Group AG
- Bosch Rexroth AG
- Bucher Hydraulics GmbH
- Bürkert Fluid Control Systems GmbH & Co. KG
- CETOP (European Fluid Power Committee, AISBL)
- Construction Future Lab gGmbH
- Danfoss GmbH
- Emerson Electric Co.
- Festo SE & Co. KG
- Fluidon Gesellschaft für Fluidtechnik mbH
- Fraunhofer-Institut für Integrierte Schaltungen (IIS)
- G. Siempelkamp GmbH & Co. KG
- HAWE Hydraulik SE
- Herbert Hänchen GmbH
- HYDAC GmbH
- IAI Industrieroboter GmbH
- IDTA – Industrial Digital Twin Association e.V.
- IfaS – Institut für angewandtes Stoffstrommanagement (Deutschland)
- IQstruct Engineering GmbH
- J. Schmalz GmbH
- Kern Technik GmbH & Co. KG
- Liebherr-International Deutschland GmbH
- Meta-Level Software AG
- Parker-Hannifin Corporation
- Röcher GmbH & Co. KG
- RWTH Aachen University
- SMS group GmbH
- TU Dresden – Institut für Fluid-Mechatronische Systemtechnik
- **VDMA e.V.**
- Wacker Neuson SE

Sources and further information

Fluid 4.0 – Smart Circular Economy für die Fluidbranche

Joint Research Project Fluid 4.0 – Revolutionizing Fluid Engineering: Implementation of digitalization for fluid power 4.0 in the cross-industry and cross-manufacturer data space using asset administration shells, submodels and demonstrators.

3.2 Completed Projects**3.2.1 Catena-X****Industry**

Automotive

Duration

August 2021 – July 2024

Content

Catena-X is a cross-sector data ecosystem for the automotive industry. The goal of the project is to enable standardised and secure data exchange between manufacturers, suppliers, service providers and other stakeholders along the entire value chain. The use of common standards such as International Data Spaces (IDS) and Gaia-X is intended to ensure data sovereignty – each company retains control over its data and decides for itself how it is used.

The network pursues an approach of increasing transparency and efficiency in areas such as supply chains, sustainability, recycling and product development. To this end, applications are being developed that are interoperable across company boundaries and are open to both large corporations and small and medium-sized enterprises. In the long term, Catena-X aims to strengthen the competitiveness of the European automotive industry, enable innovation in the field of digital services and lay the foundation for new business models.

Participating companies and organisations

- 23 Technologies GmbH
- 4zero-Solutions GmbH
- abat AG
- ABH Inc.
- Accenture plc
- Adastra GmbH
- Agridence Rubber Pte Ltd.
- Allgemeiner Deutscher Automobil-Club e.V. (ADAC)
- Amazon Web Services EMEA SARL
- apheris AI GmbH
- Apiida AG
- Apliko GmbH
- ARENA2036 e.V.
- Arxum GmbH
- Asahi Kasei Europe GmbH
- Asuene Inc.
- August-Wilhelm-Scheer Institut für digitale Produkte und Prozesse gGmbH
- Automotive Artificial Intelligence (AAI) GmbH
- Automotive Cells Company SE

- Avery Dennison Corporation
- AVL List GmbH
- BASF SE
- BMW AG
- BearingPoint GmbH
- Bechtle GmbH & Co. KG
- BigchainDB GmbH
- Brain of Materials AG
- Brembo S.p.A.
- Capgemini Deutschland GmbH
- Carbmee GmbH
- Carbon Minds GmbH
- Catenate GmbH
- CatX Service GmbH
- CCT Composite Coating Services GmbH
- CDQ AG
- Celonis Deutschland GmbH
- CGI Deutschland B.V. & Co. KG
- ChainTraced AB
- Circularise B.V.
- CircularTree GmbH
- Circulor GmbH
- Circunomics GmbH
- Cofinity-X GmbH
- Consileon Business Consultancy GmbH
- Contemporary Amperex Technology GmbH
- Continental AG
- CONWEAVER GmbH
- CRU Group
- csi entwicklungstechnik GmbH
- D&TS GmbH
- Daato Technologies GmbH
- DatafabriQ UG
- DCCS GmbH
- Deloitte GmbH Wirtschaftsprüfungsgesellschaft
- Denso Automotive Deutschland GmbH
- Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)
- dotD, Inc.
- Dun & Bradstreet Deutschland GmbH
- Encory GmbH
- Eviden Germany GmbH
- Fagor Ederlan S.Coop.
- Faurecia SE
- Fetch.ai Research and Development GmbH
- Flex Ltd.
- Ford Werke GmbH
- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.
- FRED GmbH
- Fujitsu Limited
- GALIA Association
- German Edge Cloud GmbH & Co. KG
- Gestamp Automoción S.A.
- Google Germany GmbH
- Grammer AG
- Gris Umformtechnik GmbH
- Hanselmann & Compagnie GmbH
- HELLA GmbH & Co. KGaA
- Henkel AG & Co. KGaA
- Huawei Technologies Düsseldorf GmbH
- Hünsberg GmbH
- IAV GmbH Ingenieurgesellschaft Auto und Verkehr
- IBM Deutschland GmbH
- ILL.DIGITAL AG
- imds professional GmbH & Co. KG
- Infor (Deutschland) GmbH
- INFORM Institut für Operations Research und Management GmbH
- Ingenics AG
- inno-focus businessconsulting GmbH
- inpro Innovationsgesellschaft für fortgeschrittene Produktionssysteme in der Fahrzeugindustrie mbH
- IntegrityNext GmbH
- Intelizign Engineering Services GmbH
- INTERX Co., Ltd.
- iPoint-systems GmbH
- ISTOS GmbH
- itemis AG
- KUMASoft GmbH
- Lights DS GmbH
- Lisa Dräxlmaier GmbH
- LRP Autorecycling Leipzig GmbH
- Magna International GmbH
- Manufacture 2030 Ltd.
- material.one AG
- Materna Information & Communications SE
- Mercedes-Benz AG
- Microsoft Corporation
- MiPart GmbH
- msg systems AG
- mts Consulting & Engineering GmbH
- National Instruments Dresden GmbH
- Nelsen Consulting GmbH
- NQC Ltd.
- NTT Docomo Business Inc.
- Odette Sweden AB
- OmegalambdaTec GmbH
- Optel Group GmbH
- orca. GmbH
- Pagero AB
- Palantir Technologies GmbH
- Peer Ledger Inc.
- Plateforme de la Filière Automobile
- Prewave GmbH
- PRS Technologie Gesellschaft mbH
- REGUL.AI GmbH
- Renault SAS
- Reply S.p.A.

- Rico Auto Industries Ltd.
- RIDDLE&CODE GmbH
- Robert Bosch GmbH
- SISeven GmbH
- SAP SE
- Schaeffler AG
- SCHUFHA Holding AG
- Scoutbee GmbH
- Sharemundo GmbH
- Shenzhen Precise Testing Technology Co., Ltd.
- Siemens AG
- Smoods GmbH
- Sovity GmbH
- Sphera Solutions Inc.
- Spherity GmbH
- SPREAD GmbH
- SprintEins GmbH
- SSC Services GmbH
- Stellantis N.V.
- SupplyOn AG
- Sustamize GmbH
- Taelim Co., Ltd.
- tec4u Solutions GmbH
- tec4u Ingenieurgesellschaft mbH
- Think.iT GmbH
- Threedy GmbH
- thyssenkrupp Materials Services GmbH
- Trumpf SE + Co. KG
- T-Systems International GmbH

- TÜV SÜD Auto Service GmbH
- TWAICE Technologies GmbH
- Unity AG
- Up2parts GmbH
- UWS Business Solutions GmbH
- Valeo SE
- Verband der Automobilindustrie e.V. (VDA)
- Verband Schmierstoff-Industrie e.V.
- Vitesco Technologies GmbH
- Volkswagen AG
- Volvo Car AB
- Volvo Purchasing Group AB
- WITTE Automotive GmbH
- Workerbase GmbH
- Zettl Automotive GmbH
- ZF Friedrichshafen AG

Sources and further information

[Home – Catena-X](#)

[Catena-X – Ein Datenökosystem für die Automobilindustrie](#)

Project future

Catena-X will continue commercially in the form of the Catena-X association and the Cofinity-X operating company.

4. Federal Government Funding Initiative

4.1 Ongoing Projects

4.1.1 DaFox

Industry

Manufacturing

Duration

April 2024 – March 2026

Content

The DaFoX-OWL project aims to support companies in the East Westphalia-Lippe region in accessing the Factory-X data room. The focus is on onboarding for companies which supply data and increasing regional awareness of this data ecosystem.

The project is coordinated by the Heinz Nixdorf Institute and Fraunhofer IEM and funded by the Federal Ministry of Education and Research. It will run from April 2024 to March 2026 and has a funding volume of around €420,000. Associated partners include it's OWL, OWL Maschinenbau and other regional players.

At the heart of the project is a transformation path that supports companies – especially small and medium-sized enterprises – in familiarising themselves with Factory-X and developing concrete application scenarios. This path comprises five steps: informing, qualifying, designing, implementing and networking. Various formats are offered for this purpose, including a YouTube series ('TechTalk'), training courses and certifications, ideation and implementation workshops, make-a-thons, demonstrators and networking events.

These measures are designed to enable companies to recognise the advantages of data spaces, develop their own use cases and actively participate as data providers in the Factory X ecosystem. In the long term, DaFoX-OWL aims to increase the visibility of Factory X in East Westphalia-Lippe, strengthen the participation of SMEs and thus promote the establishment of a well-functioning industrial data space in Germany.

Participating companies and organisations

- Fraunhofer-Institut für Entwurfstechnik Mechatronik IEM
- Heinz Nixdorf Institut (HNI)
- it's OWL
- Mediaprint GmbH & Co KG
- Merten GmbH
- owl maschinenbau e.V.

Sources and further information

DaFoX-OWL: On-Boarding von Datengebenden und Steigerung der Bekanntheit des Datenraums Factory-X in der Region Ostwestfalen-Lippe – Fraunhofer IEM

4.2 Completed Projects

4.2.1 DIONE-X

Industry

Cross-cutting

Duration

October 2022 – September 2024

Content

This project aims to highlight the potential of open data exchange in accordance with Gaia-X standards and guidelines, particularly regarding data sovereignty, for machining production, and to translate this into transferable IT solutions. This is to be tested and prototyped in three use cases by an interdisciplinary project consortium of various users representative of a value-added network in the machining industry in the industry 4.0 data space. Process and machine data provided by manufacturing end users in machining production and subsequently processed using machine learning will serve as the basis for developing these application scenarios.

Participating companies and organisations

- AI Digital Deutschland GmbH
- ADAMOS GmbH
- Berger Holding GmbH & Co. KG
- DMG MORI AG
- EIT Manufacturing Central gGmbH
- Gühring KG
- Hessenmetall e.V.
- Hochschule für angewandte Wissenschaften Kempten
- KWS Kölle GmbH & Co. KG
- Munsch Chemie-Pumpen GmbH
- Promicron GmbH
- PTKA – Projektträger Karlsruhe am Karlsruher Institut für Technologie (KIT)
- Schubert Fertigungstechnik GmbH
- Software AG
- Technische Universität Darmstadt (TU Darmstadt)
- **VDMA e.V.**
- VDW e.V.

Sources and further information

DIONE-X

DIONE-X – Produktionsmanagement, Technologie und Werkzeugmaschinen – TU Darmstadt

4.2.2 Fair Data Spaces**Industry**

Cross-cutting

Duration

May 2021 – May 2024

Content

The FAIR Data Spaces project aims to establish a shared cloud-based data space for business and science by merging the 'Gaia-X' and 'National Research Data Infrastructure (NFDI)' initiatives. 'FAIR' stands for the guiding principles for the responsible handling of research data. According to these principles, research data should be discoverable, accessible, interoperable and reusable. The project aims to identify and exploit synergies between the Gaia-X and NFDI initiatives, and to bring the two initiatives closer together in terms of content. In addition, the sovereign exchange of data between industry and science at the national and European level is to be promoted and demonstrated in specific applications and fields of work. The exchange of data can create added value for many stakeholders, especially from industry.

Participating companies and organisations

- Atos Information Technology GmbH
- Eberhard Karls Universität Tübingen (EKUT)
- European Molecular Biology Laboratory (EMBL)
- FIZ Karlsruhe – Leibniz-Institut für Informationsinfrastruktur GmbH
- Fraunhofer-Institut für Angewandte Informationstechnik FIT
- Fraunhofer-Institut für Software- und Systemtechnik ISST
- Heidelberger Akademie der Wissenschaften (HAdW)
- Justus-Liebig-Universität Gießen (JLU)
- Nationale Forschungsdateninfrastruktur (NFDI) e.V.
- Philipps-Universität Marburg (UMR)
- RWTH Aachen University
- Technische Informationsbibliothek (TIB)
- Universität zu Köln (UzK)
- Ruprecht-Karls-Universität Heidelberg – Universitätsklinikum Heidelberg (UKHD)
- Universität Leipzig (UL)
- Westfälische Wilhelms-Universität Münster (WWU)
- ZBW – Leibniz-Informationszentrum Wirtschaft

Sources and further information

FAIR Data Spaces – Building a joint cloud-based data space for industry and science – Fraunhofer ISST

FAIR Data Spaces – ITM

4.2.3 Fed-X-Pro**Industry**

Manufacturing

Duration

October 2022 – December 2024

Content

In the BMFTR-funded research project Federated Services based on OPC UA and Gaia-X in production 'Fed-X-Pro', the IWU in Chemnitz is testing how machine tools can learn together in order to address the challenge of using tools cost-effectively. At the same time, 'Fed-X-Pro' represents a use case for the digital asset administration shell (AAS) and Gaia-X technology. It thus provides a guide that breaks down what an open exchange of data between different partners beyond 'on-premises' options can look like – while maintaining complete data sovereignty. Specifically, the project aims to merge production and measurement data with data from the manufacturing execution system (MES) and make it fully available throughout the product life cycle of each tool and work-piece. The information from the respective production

steps thus makes it possible to draw conclusions about workpieces, measuring machines and machine tools, as well as about specific machining tools.

Motivated to improve their own QA standards and meet increasing customer requirements for traceability of influencing factors across the entire value chain of their products, the manufacturing companies in the consortium are making part of their infrastructure available and supplying a wide variety of machine and tool data from production, which is supplied on the control side using OPC UA. This includes, among other things, the position and speed data of the encoder systems as well as the axis and spindle motor currents. Some of this data is used to train local AI client models for the machines, which transfer knowledge learned (but not training data) to a higher-level global model through federated learning in the form of aggregated model parameters. The models are trained to provide application-dependent forecasts of the remaining tool life. The forecasts are intended to enable each tool to be used as long as possible without negatively affecting the workpieces or causing tool breakage.

Participating companies and organisations

- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.
- GROB-WERKE GmbH & Co. KG
- Gühring KG
- Hochschule für Technik und Wirtschaft Dresden (HTW)
- Katulu GmbH
- Simplifier AG
- UKM Technologies GmbH
- VPD GmbH

Sources and further information

Federated Services auf Basis von OPC UA und GAIA-X in der Produktion (Fed-X-Pro) | Zukunft der Wertschöpfung

Projektabschluss Fed-X-Pro: Federated Services für Werkzeugmaschinen auf Basis von OPC UA und GAIA-X – Sichere und vertrauenswürdige Dateninfrastruktur in der Produktion – Kognitive Produktion

4.2.4 GRIPSS-X

Industry

Manufacturing

Duration

November 2022 – October 2024

Content

The GRIPSS-X project, funded by the Federal Ministry of Research, Technology and Space (BMFTR), stands for Gaia-X-Ready Industrial Product-Service Systems – smart tools for service-centric applications in value creation networks. It is part of the overarching ‘Future of Value Creation’ funding programme.

The primary goal of GRIPSS-X and all participating consortium partners is the vision of an open value creation platform (GRIPSS-X platform) that reduces coordination efforts in the commissioning of industrial services using Gaia-X building blocks and artificial intelligence. Issues related to the necessary processes, structural and procedural organisation, maturity levels and economic implications are considered in the design of such a solution.

Particular emphasis is placed on the extraction of order-relevant performance characteristics, the self-description of industrial service providers and service matching. With regard to self-description graphs, heterogeneous service offerings are to be converted into clear semantics, making it possible to bring together clients and contractors more quickly for service matching. In terms of the sovereign cloud stack, the sovereignty of data exchanged with other data ecosystems is to be ensured in the future.

Participating companies and organisations

- Adesso SE
- Fraunhofer-Institut für Software- und Systemtechnik ISST
- Hahn Projects GmbH
- ImpressSol GmbH
- LFO – Lehrstuhl für Unternehmenslogistik, Technische Universität Dortmund
- Wagner GmbH
- Weber Engineering GmbH & Co. KG
- Weldotherm Gesellschaft für Wärmetechnik mbH
- Weldotherm Wärmetechnischer Dienst GmbH

Sources and further information

GRIPSS-X: Innovative Ko-Produktion für industrielle Dienstleistungen – Fraunhofer IML

GRIPSS-X: Qualitätssicherung durch Validierung | Zukunft der Wertschöpfung

GRIPSS-X – Hahn Projects

4.2.5 URANOS-X

Industry

Manufacturing

Duration

October 2022 – December 2024

Content

The goal of the URANOS-X project is to analyse and consolidate requirements, transferable solution patterns and methods for enabling manufacturing companies to use Gaia-X. For this purpose, insights from experienced

companies and organisations (known as leaders) are used to prepare Gaia-X beginners (known as learners). Furthermore, the results will also be prepared for other social actors, such as politicians and associations (so-called listeners).

Participating companies and organisations

- Forschungsinstitut für Rationalisierung e.V.
- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.
- OFFIS e.V. – Institut für Informatik
- Universität Paderborn

Sources and further information

FIR an der RWTH Aachen – URANOS-X

Untersuchung von Anforderungen, Lösungsmustern und Methoden zur Befähigung produzierender Unternehmen für GAIA-X (URANOS-X) | Zukunft der Wertschöpfung

Projekt OFFIS

5. Additional Projects

5.1 Ongoing Projects

5.1.1 ACCURATE

Industry

Manufacturing

Duration

December 2023 – November 2026

Content

The ACCURATE project aims to increase the competitiveness of European manufacturing companies and value chains. This is to be achieved by improving sustainability, performance stability, resilience and the ability to cope with unforeseen events. The objective of ACCURATE is to realise MaaS (Manufacturing as a Service) value chains whose capacity, profitability and sustainability are robust against long-term and short-term external disruptions. The plan is to provide a federated MaaS framework, a data space and an ecosystem based on multi-level digital twin models of MaaS value chains. The development aims to create a collaborative, human-centred decision-making support system that enables robust planning, resilient operations and responsive value networks, which also incorporates the ability to restore industrial systems.

Participating companies and organisations

- Aarhus University
- Airbus Atlantic SAS
- Continental Automotive Romania SRL
- deltaDAO AG
- EnginSoft S.p.A.
- Fraunhofer-Institut für Arbeitswirtschaft und Organisation IAO
- Hochschule für Wirtschaft und Recht Berlin (HWR Berlin)
- Institut Mines-Télécom (IMT)
- Institute of Entrepreneurship Development (IED)
- SOFTWARE IMAGINATION & VISION SRL
- TRONICO SAS

Sources and further information

Transforming EU Manufacturing & Value Chains – ACCURATE Project

[EU Funding & Tenders Portal](#)

5.1.2 energy data-X

Industry

Energy

Duration

October 2023 – September 2026

Content

The goal of energy data-X is to promote the energy transition by creating a shared data space for innovative, data-driven business models and standardised, efficient data exchange within the energy industry and related sectors. Data security and individual decisions on data exchange are to be guaranteed in accordance with the European Gaia-X standards.

energy data-X aims to create a shared data space for the German energy industry in Gaia-X. The data remains decentralised with the data owners, but can be provided and exchanged independently in accordance with the compliance rules that have been developed. This creates the basis for improved processes and innovative data-driven applications and business models in the energy industry. This is expected to make a significant contribution to the achievement of German and European energy and climate targets.

Participating companies and organisations

- 50Hertz Transmission GmbH
- Amprion GmbH
- ARGE Netz GmbH & Co. KG
- Atos SE
- Bundesanzeiger Verlag GmbH
- DKE – Deutsche Kommission Elektrotechnik Elektronik Informationstechnik in DIN und VDE e.V.
- EWE Netz GmbH
- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.
- International Data Spaces Association e.V.
- Power Plus Communication AG

- Schneider Electric SE
- Spherity GmbH
- TenneT TSO GmbH
- TransnetBW GmbH
- Westnetz GmbH

Sources and further information

energy data-X – energy data-X

energy data-X

energy data-X

5.1.3 FURNITURE-X

Industry

Furniture

Duration

since February 2026

Content

FURNITURE-X, founded in February 2024, is a consortium that is committed to the practical and comprehensive introduction of the digital product passport in the furniture industry.

The need for action is clearly defined: the furniture industry will be one of the first industries to be legally required to introduce the digital product passport by 2030. The complexity along the value chain increases the time pressure, as the products are highly varied and the standardisation of product data content continues to be low.

With a total of around 16,000 companies in Germany associated with the furniture industry, it is all the more important to bring together the most important industry organisations in order to come to terms with the digital product passport. The Association of the German Furniture Industry (VDM), the Data Competence Centre (DCC), which improves data exchange as a standardisation organisation for formats and processes, the Trade Association for Home and Office Furnishings (BVDM), the Association of Small and Medium-Sized Businesses (ZGV), Morphe as the driving force behind the establishment of ECLASS standards in the interior industry, and Integrated Worlds as the operator of the central data exchange platform IWOurn, have all been involved with FURNITURE-X from the outset. Numerous companies along the entire home and living value chain – from the preliminary stages of the supply industry to retail companies – have already confirmed their participation in FURNITURE-X.

Industry-wide initiatives are being considered and potential synergies are being exploited through cooperation with the Wuppertal Institute and the FIR (Research Institute for Rationalisation e.V.) at RWTH Aachen University.

In addition to building knowledge within the industry, FURNITURE-X's activities also include networking with similar initiatives in other industries, raising awareness of the topic among industry players, adapting suitable technological foundations for the industry (e.g.; the Asset Administration Shell as a standard for digital twins or the mechanisms of the Gaia-X-Federations data initiative), and actively participating in the DIN (German Institute for Standardisation) and DKE (German Commission for Electrical Engineering) standardisation committees.

Participating companies and organisations

- BVDM – Handelsverband Möbel und Küchen e.V.
- Daten Competence Center e.V. (DCC)
- Der Mittelstandsverbund – ZGV e.V.
- FIR e.V. an der RWTH Aachen
- Integrated Worlds GmbH
- Morphe
- Verband der Deutschen Möbelindustrie e.V. (VDM)
- Wuppertal Institut für Klima, Umwelt, Energie gGmbH

Sources and further information

FURNITURE-X – Moebel Digital

5.1.4 SM4RTENANCE

Industry

Manufacturing

Duration

October 2023 – September 2026

Content

The European SM4RTENANCE project was launched to address the growing challenges facing the manufacturing industry, including the increasing complexity of production facilities, rising sustainability requirements and the need for efficient and predictive maintenance. Until now, data exchange between manufacturers, operators, suppliers and service providers has been highly fragmented and characterised by isolated solutions. As a result, there is still great untapped potential for optimising plant availability, reducing maintenance costs and increasing resource efficiency.

The goal of the project is to establish a federated data space landscape for manufacturing that enables the trustworthy and secure exchange of information throughout the entire life cycle of production facilities. This is intended to create a new basis for implementing collaborative services for predictive maintenance, dynamic asset management and circular value creation in industry.

The expected output of SM4RTENANCE includes the establishment of an interoperable data space infrastructure, the development of a service portal for data exchange and collaboration, the integration of existing industry standard approaches such as the Asset Administration Shell and International Data Spaces, and testing in real industrial application scenarios. The project thus contributes to making the European manufacturing industry more resilient, sustainable and competitive.

Participating companies and organisations

- AFNeT Services
- Atlantis Engineering S.A.
- AVL Deutschland GmbH
- BAIDATA Association
- Belgian Maintenance Association vzw (BEMAS)
- CARSA S.A.
- CEA
- Centre for Research and Technology Hellas (CERTH)
- Comau S.p.A.
- Core Group GmbH
- Datapixel S.A.
- Dawex Systems SAS
- Domina Data Management S.r.l.
- EIT Manufacturing Central gGmbH
- EFNMS AISBL – European Federation of National Maintenance Societies
- Fill Gesellschaft m.b.H.
- FIWARE Foundation e.V.
- International Data Spaces Association e.V.
- Ijssel B.V.
- Industrie 4.0 Austria – Verein zur Förderung der Digitalisierung in der Industrie
- Innovalia Association
- Intellimech S.c.a.r.l.
- Itema Lab S.r.l.
- MADE – Competence Center Industry 4.0 S.c.a.r.l.
- NTT DATA Corporation
- OTE Group – Hellenic Telecommunications Organization S.A.
- Piacenza 1733 S.p.A.
- Prima Industrie S.p.A.
- Fraunhofer-Institut für Optronik, Systemtechnik und Bildauswertung IOSB
- Schneider Electric SE

- Siemens AG
- Smart Connected Supplier Network (SCSN Foundation)
- SQS – Software Quality Systems S.A.
- Sovity GmbH
- Syxis S.A.
- TNO – Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek
- TOP-IX Consortium (Torino Piemonte Internet eXchange)
- Trimek S.A.
- TXT e-solutions S.p.A.
- Unimetrik Ltd.
- University of Oslo
- VDI e.V.
- **VDMA e.V.**
- VTT Technical Research Centre of Finland Ltd.

Sources and further information

SM4RTENANCE – Vertrauenswürdiger Datenaustausch für die Fertigungsindustrie – Fraunhofer IOSB

Home – SM4RTENANCE

5.1.5 UNDERPIN

Industry

Cross-cutting

Duration

December 2023 – November 2025

Content

UNDERPIN is a research and innovation project (2023–2025) funded by the EU as part of the Digital Europe programme. Its focus is on establishing a European data space for manufacturing that enables companies to exchange data securely and independently across organisational boundaries.

Specifically, the consortium is developing a technical and organisational infrastructure that ensures data sovereignty, interoperability, security and governance. This should form the foundation for the development of applications for dynamic asset management and predictive and prescriptive maintenance.

Practical applicability will be tested in two pilot areas:

1. Refineries, where methods for the early detection of anomalies in production processes will be tested.

2. Wind farms, where data from SCADA systems, maintenance reports and weather information will be used to predict failures and optimise operations.

In addition to technical implementation, UNDERPIN also addresses issues of data governance, legal frameworks, business and operator models, and opportunities to apply the results in other industrial environments beyond the pilot industries.

The project thus contributes to laying the foundations for a European Manufacturing Data Space that facilitates innovation in Industry 4.0 and strengthens the competitiveness of European manufacturing.

Participating companies and organisations

- AIT Austrian Institute of Technology GmbH
- ATHENA RC – Athena Research and Innovation Center in Information, Communication and Knowledge Technologies
- Harokopio University of Athens (HUA)
- INNOV-ACTS Ltd.
- Motor Oil (Hellas) Corinth Refineries S.A.
- Ontotext AD
- Semantic Web Company GmbH
- Space Hellas S.A.
- Tiko Pro d.o.o.
- Watermelon Ltd.

Sources and further information

UNDERPIN project – UNDERPIN Project

5.2 Completed Projects

5.2.1 Cooperants

Industry

Aerospace

Duration

January 2022 – December 2024

Content

COOPERANTS (Collaborative Processes and Services for Aeronautics and Space) is a unique consortium of industry, SMEs and research institutes in the aerospace sector. The partners' goal is to improve digital collaboration by creating a shared data space that complies with Gaia-X specifications.

The national consortium is developing new, more efficient and decentralised working methods and processes across the entire life cycle of space and aircraft. With a Gaia-X-compatible service infrastructure, COOPERANTS enables the secure exchange of heterogeneous data from different system landscapes and creates the basis for the operation of innovative, collaborative smart services.

Participating companies and organisations

- Airbus Defence and Space GmbH
- Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (DFKI)
- Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)
- Fraunhofer-Institut für Werkzeugmaschinen und Umformtechnik IWU
- FZI Forschungszentrum Informatik
- Itemis AG
- neusta aerospace GmbH
- OHB System AG
- RADIUSMEDIA KG
- ScopeSET Technology Deutschland GmbH
- Valispace GmbH
- ZARM Technik AG

Sources and further information

Start – COOPERANTS

5.2.2 Data4Industry-X

Industry

Automotive and power generation

Duration

since February 2024

Content

Data4Industry-X is a data exchange solution for industry that focuses on trustworthiness, security, compliance and data sovereignty. The project was originally developed to meet the requirements of the automotive and energy generation industries and is designed to support the digital transformation of industrial processes and contribute to the achievement of sustainability goals.

The solution connects industrial data ecosystems using the OPC UA protocol and building on Eclipse Dataspace components. This creates an interoperable basis that both facilitates the use of existing data and enables new forms of data exchange.

Data4Industry-X is part of the European Manufacturing-X initiative and relies on Gaia-X-specifications to promote common standards for the cross-cutting exchange of industrial data. The goal is to create the basis for a sustainable and internationally connectable ecosystem in the field of industrial data exchange.

Participating companies and organisations

- CEA
- Dawex Systems SAS
- ProSyst Software GmbH
- Schneider Electric SE
- Valeo SE

Sources and further information

Data4Industry-X, the trusted Industry Data Space solution for Industry

Data4Industry-X verbindet industrielle Daten-Ökosysteme durch die Nutzung des OPC UA Protokolls und von Eclipse Dataspace Komponenten

5.2.3 Data Space 4.0

Industry

Manufacturing

Duration

October 2022 – December 2023

Content

Data Space 4.0 is an industrial community supported by national Industry 4.0 initiatives, the Digital Factory Alliance and European Data Space stakeholders. The project is funded by the European Commission's Digital Europe programme.

The goal of Data Space 4.0 is to strengthen cooperation in the manufacturing industry and lay the foundations for a sovereign European manufacturing data space. Harmonised yet autonomous approaches for the introduction and further development of this data space are being defined for this purpose.

Participating companies and organisations

- Agenda Industria 4.0 Comunitat Valenciana
- Alliance Industrie du Futur
- Atlantis Engineering S.A.
- BAIDATA Association
- bitkom e.V.
- Brainport Industries
- CECIMO – European Association of the Machine Tool Industries and related Manufacturing Technologies AISBL
- Comau S.p.A.
- CEA
- Confederazione Generale dell'Industria Italiana (Confindustria)
- École Nationale Supérieure des Mines de Paris
- EFFRA AISBL – European Factories of the Future Research Association
- EFNMS AISBL – European Federation of National Maintenance Societies
- Engineering – Ingegneria Informatica S.p.A.
- Eurecat – Technology Centre of Catalonia
- FIWARE Foundation e.V.
- Fondazione Politecnico di Milano
- GAIA Cluster ICTA
- Generalitat Valenciana
- IDC Italia S.r.l.
- IDTA – Industrial Digital Twin Association e.V.
- Indústria 4.0 Portugal
- Industrie 2025
- Industry Commons Foundation
- Innovalia Association

- International Data Spaces Association e.V.
- IOF – Institute of Optics and Fine Mechanics
- LNI 4.0 – Labs Network Industrie 4.0 e.V.
- MADE – Competence Center Industry 4.0 S.c.a.r.l.
- MedTech F&E GmbH
- Plattform Industrie 4.0 Österreich
- Procacciò 4.0
- Produktion2030
- Siemens AG
- SMACC – Smart Machines and Manufacturing Competence Centre
- Smart Industry
- SQS – Software Quality Systems S.A.
- Standardization Council Industrie 4.0
- Switzerland Innovation
- TICE.PT – Polo das Tecnologias de Informação, Comunicação e Electrónica
- UNINOVA – Instituto de Desenvolvimento de Novas Tecnologias
- Unparallel Innovation Lda
- VDI/VDE-IT GmbH (VDI/VDE Innovation + Technik GmbH)
- **VDMA e.V.**
- VTT Technical Research Centre of Finland Ltd.
- World Economic Forum
- World Manufacturing Foundation
- ZVEI e.V.

Sources and further information

[Manufacturing DataSpace CSA](#)

5.2.4 Int:net

Industry

Electricity and energy infrastructure

Duration

May 2022 – April 2025

Content

The energy transition towards a climate-neutral European future by 2050 affects not only the energy sector, but also areas such as transport, construction, agriculture, and industrial production. For the transition to succeed, energy-related processes and products in these sectors must be networked and coordinated.

The int:net (Interoperability Network for the Energy Transition) project aims to bring these domains together and take the standardisation and interoperability of energy services to a new level. To this end, an open, industry-wide community is being established that connects all relevant players in the European energy sector.

This network will promote the development, testing, and deployment of interoperable energy services. It will be accompanied by a FAIR-based knowledge platform and a series of events. The int:net community is designed to continue beyond the project duration and contribute to the long-term harmonisation of the European interoperability landscape.

Participating companies and organisations

- AIT Austrian Institute of Technology GmbH
- B.A.U.M. Consult GmbH
- Bundesministerium für Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie (BMK)
- DKE – Deutsche Kommission Elektrotechnik Elektronik Informationstechnik in DIN und VDE e.V.
- EPRI Europe DAC
- European Distribution System Operators for Smart Grids (E.DSO) AISBL
- European Network of Transmission System Operators for Electricity (ENTSO-E) AISBL
- European University Institute (EUI)
- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.
- Fundación TECNALIA Research & Innovation
- OFFIS e.V. – Institut für Informatik
- RWTH Aachen University
- Trialog SAS

Sources and further information

[Home – Int:net](#)

5.2.5 Marispace-X

Industry

Maritime

Duration

January 2022 – December 2024

Content

The goal of Marispace-X is to establish a maritime data ecosystem that enables stakeholders from industry, science, public authorities, and NGOs to manage, share, and analyse data obtained from the sea in a sovereign, secure, and efficient manner based on European standards and values. This opens up new insights and supports the development of innovative solutions and services for the major challenges of our time.

By establishing this digital ecosystem for the oceans, Marispace-X is addressing several of the current decade's key issues (climate change, marine conservation, and digital transformation) through four specific use cases:

1. Internet of Underwater Things: Data-driven underwater technologies and sensor networks form the basis of a sustainable, digitalised blue economy.
2. Offshore wind: Offshore wind farms are key to climate neutrality. Marispace-X is developing solutions for joint data collection, management, and intelligent plant control.
3. Ammunition in the sea: Over 1.6 million tons of old ammunition are located in German waters. Intelligent data analysis and data management processes are intended to help tackle this problem effectively.
4. Biological climate protection: Marine plants have a high CO₂ storage potential. This use case creates the basis for determining and optimising the binding capacity of macrophytes.

In addition, Marispace-X enables new approaches in maritime big data processing through the analysis of sensor data via edge, fog, and cloud computing.

Participating companies and organisations

- Atlas Elektronik GmbH
- Develogic Subsea Systems GmbH
- Fraunhofer-Institut für Graphische Datenverarbeitung IGD
- Gabler Maschinenbau GmbH
- GEOMAR Helmholtz-Zentrum für Ozeanforschung Kiel (Stiftung des öffentlichen Rechts)
- GMT – Gesellschaft für Maritime Technik e.V.
- High-Performance Center Sustainable Ocean Business
- IHK Schleswig-Holstein
- Instituto de Pesquisas Tecnológicas do Estado de São Paulo (IPT Brazil)
- Intel Corporation
- IONOS SE
- K.U.M. Umwelt- und Meerestechnik Kiel GmbH
- Labs Network Industrie 4.0 e.V.
- Maritimes Cluster Norddeutschland e.V.
- Microsoft Corporation
- Ministerium für Energiewende, Landwirtschaft, Umwelt, Natur und Digitalisierung Schleswig-Holstein (MELUND SH)
- north.io GmbH
- NVIDIA Corporation
- Ocean Data Alliance
- OFFCON GmbH
- Ørsted Wind Power A/S
- Quality Positioning Services B.V. (QPS)
- SatRevolution S.A.
- SeaAhead BlueTech Innovation Inc.
- Siemens Gamesa Renewable Energy GmbH & Co. KG
- SINTEF Digital (Teil der SINTEF Stiftung, Norwegen)
- Stackable GmbH
- Stiftung OFFSHORE-WINDENERGIE
- Subsea Europe Services GmbH
- TenzorGEO Ltd.
- thyssenkrupp Marine Systems GmbH
- TransMarTech Schleswig-Holstein GmbH
- Christian-Albrechts-Universität zu Kiel (CAU Kiel)
- Universität Rostock
- Wallaby Boats GmbH
- WINDEA Offshore GmbH & Co. KG

Sources and further information

[Marispace-X](#)

5.2.6 SCSN

Industry

Manufacturing

Duration

Since 2014

Content

The Smart Connected Supplier Network (SCSN) is an open data ecosystem modelled on Gaia-X that enables fast, secure, and efficient data exchange in production environments. The goal is to improve industry-wide communication in the high-tech supply chain, increase transparency and interoperability, and thus boost productivity by up to 20% – primarily through reduced administrative effort and better collaboration. Around 300 manufacturing companies are already connected.

SCSN is supported by manufacturing companies and their IT partners. Unlike centralised platforms, there is no central authority that controls the data. A non-profit foundation regulates the exchange agreements, while implementation is carried out by the participating IT providers. Semantic aspects are considered along with technical and legal aspects.

In addition to the network, SCSN is also an open communication standard for the exchange of order-related data – especially in industries with a high degree of variety and complex supply chains, such as high-tech plant engineering in the Eindhoven region. SCSN defines a universal language with standardised message types for this purpose.

A leading partner is Brainport Industries, which supports the further development of content and the expansion of SCSN to other industries.

Participating companies and organisations

- Brainport Industries

Sources and further information

Home – Smart Connected Supplier Network –
het netwerk voor de maakindustrie

Project future

SCSN emerged from, among other things, the ‘Schakels in de Keten’ (Links in the Chain) innovation project, which is part of the Factory of the Future innovation program supported by the province of North Brabant. An independent management organisation was founded for the long-term security of the developments that arose from this project: the Smart Connected Supplier Network Foundation.

5.2.7 TANGO

Industry

Cross-cutting

Duration

September 2022 – August 2025

Content

TANGO is a European Union research project running from September 2022 to August 2025. It is funded under Horizon Europe and supported by a consortium of partners from 13 European countries.

The project is developing a technology platform for data rooms that enables secure, compliant, and energy-efficient data handling. The focus is on data protection, data sovereignty, traceability of data flows, and trustworthy access and identity solutions.

The results will be tested in several fields, including hospitality, mobility, Industry 4.0, finance, public administration, and retail. The goal is to create a technical basis for the controlled and transparent exchange of data between different organisations and industries.

Participating companies and organisations

- ABI Lab – Centro di Ricerca e Innovazione per la Banca
- Anysolution S.L.
- Asociación Hotelera de Playas de Muro
- Atos IT Solutions and Services Iberia S.L.
- Cesgarden S.L.
- CEA
- DIADIKASIA Business Consulting S.A. (DBC)
- eco – Verband der Internetwirtschaft e.V.
- Exus Software Monoprosopi Etairia Periorismenis Efthinis (M.E.P.E.)
- Flanders Make vzw
- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.
- Fujitsu Technology Solutions (Luxembourg) S.A.
- Fujitsu Technology Solutions GmbH
- Future Needs Management Consulting Ltd.

- IDIADA Automotive Technology S.A.
- International Data Spaces Association e.V.
- KU Leuven – Katholieke Universiteit Leuven
- LSTech España S.L.
- METRO AEBE – METRO Anonymi Emporiki kai Viomichaniki Etaireia Eidon Diatrofis kai Oikiakis Chríseos S.A.
- Netcompany–Intrasoft S.A.
- Norbloc AB
- NTT DATA Corporation
- University of Thessaly (Πανεπιστήμιο Θεσσαλίας)
- Quadible Ltd.
- Ria Stone – Fábrica de Louça de Mesa em Grés S.A.
- Squad IT Lda.
- Squaredev Ltd.
- EGI Foundation
- SV Innovate R&D EU Ltd.
- Technische Universiteit Delft
- Teknologian tutkimuskeskus VTT Oy
- The Lisbon Council for Economic Competitiveness asbl
- The University of Manchester
- Universidad de Murcia
- University of Greenwich
- University of Piraeus Research Center
- VISARIGHT GmbH
- XLAB Razvoj Programske Opreme in Svetovanje d.o.o.

Sources and further information

[Home](#) | [TANGO Project](#)

[TANGO](#) | Institut für Konstruktionstechnik und Technisches Design | Universität Stuttgart

5.2.8 X-KIT

Industry

Agriculture

Duration

September 2022 – January 2025

Content

The X-KIT project (Gaia-X and AI projects: transfer & networking) supports 36 AI research projects funded by the BMLEH as a networking and transfer project (subproject 1) and contributes to the further development of the Gaia-X domain of agriculture (subproject 2). Launched in September 2022, X-KIT will receive approximately €1.9 million in funding from the BMLEH through January 2025; the project is being carried out by the Federal Office for Agriculture and Food.

Seven partners are working together under the consortium management of Fraunhofer IESE. The goal is to support the funded AI projects through exchange and coordination while further developing the Gaia-X infrastructure for the agricultural sector.

The focus is on making the best possible use of synergies between the projects and designing compatible solutions. The goal is to fully exploit the potential of digitalisation for agriculture, food, and rural areas – also with a view to healthy and sustainable nutrition.

Participating companies and organisations

- Fraunhofer-Institut für Intelligente Analyse- und Informationssysteme IAIS
- Fraunhofer-Institut für Experimentelles Software Engineering IESE
- Fraunhofer-Institut für Fabrikbetrieb und -automatisierung (IFF)
- Fraunhofer-Institut für Graphische Datenverarbeitung IGD
- Fraunhofer-Institut für Großstrukturen in der Produktionstechnik IGP
- Fraunhofer-Institut für Optronik, Systemtechnik und Bildauswertung IOSB
- KTBL – Kuratorium für Technik und Bauwesen in der Landwirtschaft e.V.

Sources and further information

[X-KIT \(Gaia-X und KI-Projekte: Transfer & Vernetzung\)](#) – Fraunhofer IESE

[BMLEH – Praxisberichte – X-KIT – Vernetzung und Austausch sind wichtig](#)

6. Participating companies and organisations

1,2,3 ...

4 zero-Solutions GmbH	18
23 Technologies GmbH	18
50Hertz Transmission GmbH	25

A

AI Digital Deutschland GmbH	22
Aarhus University	25
abat AG	18
ABB AG	15, 17
ABH Inc.	18
ABI Lab – Centro di Ricerca e Innovazione per la Banca	32
Accenture plc	18
Achenbach Buschhütten GmbH & Co. KG	18
ADAMOS GmbH	22
Adastra GmbH	18
Adesso SE	10, 13, 23
Adolf Würth GmbH & Co. KG	15
Advanced-Materials-Concepts GmbH	5
AFNeT Services	27
Agenda Industria 4.0 Comunitat Valenciana	29
Agridence Rubber Pte Ltd.	18
Airbus Aerostructures GmbH	5
Airbus Atlantic SAS	25
Airbus Defence and Space GmbH	28
Airbus Operations GmbH	5
AIT Austrian Institute of Technology GmbH	28, 30

Allgemeiner Deutscher Automobil-Club e. V. (ADAC)	18
Alliance Industrie du Futur	29
Amazon Web Services EMEA SARL	18
Amprion GmbH	25
Anysolution S.L.	32
apheris AI GmbH	18
Apiida AG	18
Apliko GmbH	18
ARENA2036 e. V.	10, 13, 18
ARGE Netz GmbH & Co. KG	25
Argo-Hytos Group AG	18
Arvato Systems GmbH	10
Arxum GmbH	18
Asahi Kasei Europe GmbH	18
ASCO Industries NV/SA	5
Asociación Hotelera de Playas de Muro	32
Asuene Inc.	18
ATHENA RC – Athena Research and Innovation Center in Information, Communication and Knowledge Technologies	28
Athinia Technologies LLC	12
Atlantis Engineering S.A.	27, 29
Atlas Elektronik GmbH	31
Atos Information Technology GmbH	22
Atos IT Solutions and Services Iberia S.L.	32
Atos SE	25
August-Wilhelm Scheer Institut für digitale Produkte und Prozesse gGmbH	9, 19

Automotive Artificial Intelligence (AAI) GmbH	19	BREB GmbH & Co. KG	16
Automotive Cells Company SE	19	Brembo S.p.A.	19
Avery Dennison Corporation	19	Bucher Hydraulics GmbH	18
AVL Deutschland GmbH	27	buildingSMART Deutschland e. V.	13
AVL List GmbH	19	Bundesanzeiger Verlag GmbH	25
B		Bundesministerium für Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie (BMK)	30
Bachmann electronic GmbH	16	Bürkert Fluid Control Systems GmbH & Co. KG	18
BAIDATA Association	27, 29	BVDM – Handelsverband Möbel und Küchen e. V.	26
BASF SE	6, 7, 9, 19	C	
B.A.U.M. Consult GmbH	30	Capgemini Deutschland GmbH	5, 15, 19
Baumüller Nürnberg GmbH	17	Carbmee GmbH	19
Bayern Innovativ GmbH	10, 11	Carbon Minds GmbH	19
BDI e. V.	10, 11	CARSA S.A.	27
BDLI e. V.	11	Catenate GmbH	19
BearingPoint GmbH	19	Catena-X e. V.	9
Bechtle GmbH & Co. KG	19	CatX Service GmbH	19
Beckhoff Automation GmbH & Co. KG	10	CCT Composite Coating Services GmbH	19
Belgian Maintenance Association vzw (BEMAS)	27	CDQ AG	19
Berger Holding GmbH & Co. KG	9, 22	CEA	27, 29, 32
Bergische Universität Wuppertal	13	CECIMO – European Association of the Machine Tool Industries and related Manufacturing Technologies AISBL	29
BIBA – Bremer Institut für Produktion und Logistik GmbH	16	Celonis Deutschland GmbH	19
BigchainDB GmbH	19	Centre for Research and Technology Hellas (CERTH)	27
bitkom e. V.	29	Cesgarden S.L.	32
BMW AG	7, 19	CETOP (European Fluid Power Committee, AISBL)	18
Boehringer Ingelheim Pharma GmbH & Co. KG	15	CGI Deutschland B.V. & Co. KG	19
Bosch Rexroth AG	17, 18	ChainTraced AB	19
BOS GmbH & Co. KG	8		
Brain of Materials AG	19		
Brainport Industries	9, 29, 32		

Christian-Albrechts-Universität zu Kiel (CAU Kiel)	31	Daten Competence Center e.V. (DCC)	26
Circularise B.V.	19	Dawex Systems SAS	27, 29
CircularTree GmbH	19	DAW SE	6
Circulor GmbH	19	DCCS GmbH	19
Circunomics GmbH	19	DECKEL MAHO Pfronten GmbH	5
Codewerk GmbH	9	Deloitte GmbH Wirtschaftsprüfungsgesellschaft	19
Cofinity-X GmbH	6, 7, 19	deltaDAO AG	25
Comau S.p.A.	27, 29	Denso Automotive Deutschland GmbH	19
Confederazione Generale dell'Industria Italiana (Confindustria)	29	Der Mittelstandsverbund – ZGV e.V.	26
Consileon Business Consultancy GmbH	19	Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (DFKI)	15, 28
Construction Future Lab gGmbH	18	Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)	5, 12, 15, 19, 28
CONTACT Software GmbH	8	Develogic Subsea Systems GmbH	31
Contemporary Ampere Technology GmbH	19	DHL Customer Solutions & Innovations	12
Continental AG	19	DIADIKASIA Business Consulting S.A. (DBC)	32
Continental Automotive Romania SRL	25	Diehl Aviation Laupheim GmbH	5
Contrans Logistik GmbH	13	Digital Data Chain Consortium GbR	10
CONWEAVER GmbH	19	DIHK Service GmbH	11
Core Group GmbH	27	DKE – Deutsche Kommission Elektrotechnik Elektronik Informationstechnik in DIN und VDE e.V.	25, 30
Covestro AG	6	DMG MORI AG	9, 22
CRU Group	19	Domina Data Management S.r.l.	27
csi entwicklungstechnik GmbH	19	dotD, Inc.	19
Cuxport GmbH	16	Dräxlmaier GmbH & Co. KG	7
D		D&TS GmbH	19
Daato Technologies GmbH	19	Dun & Bradstreet Deutschland GmbH	19
Danfoss GmbH	17, 18	Dürr Systems AG	15
DAS Environmental Expert GmbH	12	E	
DatafabriQ UG	19	Eberhard Karls Universität Tübingen (EKUT)	22
Datapixel S.A.	27		

École Nationale Supérieure des Mines de Paris	29	Evonik Industries AG	6
eco – Verband der Internetwirtschaft e.V.	32	EWE Netz GmbH	25
EFFRA AISBL – European Factories of the Future Research Association	29	Expo21XX GmbH	12
EFNMS AISBL – European Federation of National Maintenance Societies	27, 29	Exus Software Monoprosopi Etairia Periorismenis Efthinis (M.E.P.E.)	32
EGI Foundation	32	F	
Eickhoff Antriebstechnik GmbH	16	Fagor Ederlan S.Coop.	19
EIT Manufacturing Central gGmbH	22, 27	Faurecia SE	19
ELG Utica Alloys International GmbH	5	Festo SE & Co. KG	9, 18
Elmos Semiconductor SE	12	Fetch.ai Research and Development GmbH	19
em engineering methods AG	18	Fill Gesellschaft m.b.H.	27
Emerson Electric Co.	18	FIR e.V. an der RWTH Aachen	26
Empolis Information Management GmbH	9	FIWARE Foundation e.V.	27, 29
Encory GmbH	19	FIZ Karlsruhe – Leibniz-Institut für Informationsinfrastruktur GmbH	22
Engineering – Ingegneria Informatica S.p.A.	29	FKM Elemente GmbH	15
EnginSoft S.p.A.	25	Flanders Make vzw	32
EPLAN GmbH & Co. KG	9	Flender GmbH	16
EPRI Europe DAC	30	flexis GmbH	14
Erdbeerhof Glantz	11	Flex Ltd.	19
ESR Pollmeier GmbH	17	Fluidon Gesellschaft für Fluidtechnik mbH	18
ESTAINIUM Association e.V.	9	Fondazione Politecnico di Milano	29
Eurecat – Technology Centre of Catalonia	29	Ford Werke GmbH	19
European Competence Center GmbH (EECC)	13	Forschungsinstitut für Rationalisierung e.V.	24
European Distribution System Operators for Smart Grids (E.DSO) AISBL	30	Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.	5, 7, 13, 15, 19, 23, 24, 26, 30, 32
European Molecular Biology Laboratory (EMBL)	22	Fraunhofer-Institut für Angewandte Informationstechnik FIT	22
European Network of Transmission System Operators for Electricity (ENTSO-E) AISBL	30	Fraunhofer-Institut für Arbeitswirtschaft und Organisation IAO	25
European University Institute (EUI)	30		
Eviden Germany GmbH	10, 19		

Fraunhofer-Institut für Elektronische Mikrosysteme und Festkörper-Technologien (EMFT)	12	G	
Fraunhofer-Institut für Entwurfstechnik Mechatronik IEM	21	Gabler Maschinenbau GmbH	31
Fraunhofer-Institut für Experimentelles Software Engineering IESE	7, 33	GAIA Cluster ICTA	29
Fraunhofer-Institut für Fabrikbetrieb und -automatisierung (IFF)	12, 33	GALIA Association	19
Fraunhofer-Institut für Graphische Datenverarbeitung IGD	31, 33	GalvanoPro GmbH	11
Fraunhofer-Institut für Großstrukturen in der Produktionstechnik IGP	33	gemineers GmbH	5
Fraunhofer-Institut für Integrierte Schaltungen (IIS)	12, 17, 18	Generalitat Valenciana	29
Fraunhofer-Institut für Integrierte Systeme und Bauelementetechnologie IISB	17	GEOMAR Helmholtz-Zentrum für Ozeanforschung Kiel (Stiftung des öffentlichen Rechts)	31
Fraunhofer-Institut für Intelligente Analyse- und Informationssysteme IAIS	33	GE Renewable Energy Germany GmbH	16
Fraunhofer-Institut für Optronik, Systemtechnik und Bildauswertung IOSB	27, 33	German Edge Cloud GmbH & Co. KG	7, 9, 19
Fraunhofer-Institut für Software- und Systemtechnik ISST	7, 9, 10, 22, 23	Gestamp Automoción S.A.	19
Fraunhofer-Institut für Werkzeugmaschinen und Umformtechnik (IWU)	12, 28	Gesundheitsforen Leipzig GmbH	10
Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration (IZM)	12	GKN Aerospace Germany GmbH	5
FRED GmbH	19	Gluth Systemtechnik GmbH	15
Fujitsu Limited	19	GMT – Gesellschaft für Maritime Technik e.V.	31
Fujitsu Technology Solutions GmbH	32	Google Germany GmbH	19
Fujitsu Technology Solutions (Luxembourg) S.A.	32	Grammer AG	19
Fundación TECNALIA Research & Innovation	30	Grant Thornton AG	9
Future Needs Management Consulting Ltd.	32	Gris Umformtechnik GmbH	19
FZI Forschungszentrum Informatik	28	GROB-WERKE GmbH & Co. KG	23
		G. Siempelkamp GmbH & Co. KG	18
		Gühning KG	22, 23
		H	
		Hadi-Plast GmbH	8
		Hahn Projects GmbH	16, 23
		Hanselmann & Compagnie GmbH	19
		Harokopio University of Athens (HUA)	28
		HARTING Stiftung & Co. KG	15

HAWE Hydraulik SE	18	IBM Deutschland GmbH	19
Heidelberger Akademie der Wissenschaften (HAdW)	22	IDC Italia S.r.l.	29
Heinz Nixdorf Institut (HNI)	8, 21	IDIADA Automotive Technology S.A.	32
HELLA GmbH & Co. KGaA	19	IDTA – Industrial Digital Twin Association e.V.	8, 10, 11, 18, 29
Henkel AG & Co. KGaA	6, 7, 19	ifak – Institut für Automation und Kommunikation e.V.	8, 11
Herbert Hänchen GmbH	18	IfaS – Institut für angewandtes Stoffstrommanagement (Deutschland)	18
Hessenmetall e.V.	22	ifm diagnostic GmbH	9
HFK Rechtsanwälte PartGmbH	13	IFW – Leibniz Universität Hannover	9
High-Performance Center Sustainable Ocean Business	31	Igus GmbH	9
Hilscher Gesellschaft für Systemautomation mbH	9	IHK Schleswig-Holstein	31
Hochschule für angewandte Wissenschaften Kempten	8, 22	Ijssel B.V.	27
Hochschule für Technik und Wirtschaft Dresden (HTW)	12, 23	ILI.DIGITAL AG	19
Hochschule für Wirtschaft und Recht Berlin (HWR Berlin)	25	imds professional GmbH & Co. KG	19
Hochschule Karlsruhe – Technik und Wirtschaft (HKA)	8	ImpressSol GmbH	24
HOCHTIEF Engineering GmbH	13	Indústria 4.0 Portugal	29
Hoppecke Batterien GmbH & Co. KG	15	Industrie 4.0 Austria – Verein zur Förderung der Digitalisierung in der Industrie	27
Hortica GmbH	11	Industrie 2025	29
Hottgenroth Software AG	13	Industry Commons Foundation	29
HQ-Dielectrics GmbH	12	Infineon Technologies AG	12
Huawei Technologies Düsseldorf GmbH	19	Infor (Deutschland) GmbH	19
Hüingsberg GmbH	19	INFORM Institut für Operations Research und Management GmbH	19
HYDAC GmbH	18	Ingenics AG	19
I		inno-focus businessconsulting GmbH	19
IAI Industrieroboter GmbH	18	INNOV-ACTS Ltd.	28
IAV GmbH Ingenieursgesellschaft Auto und Verkehr	19	Innovalia Association	27, 30
		Inovex GmbH	9

inpro Innovationsgesellschaft für fortgeschrittene Produktionssysteme in der Fahrzeugindustrie mbH	19	J	
InstaWerk GmbH	9	J. Schmalz GmbH	18
Institute of Entrepreneurship Development (iED)	25	Justus-Liebig-Universität Gießen (JLU)	22
Institut für Steuerungstechnik der Werkzeugmaschinen und Fertigungseinrichtungen (ISW)	9	K	
Institut Mines-Télécom (IMT)	25	Katulu GmbH	23
Instituto de Pesquisas Tecnológicas do Estado de São Paulo (IPT Brazil)	31	KEBA AG	17
Integrated Worlds GmbH	26	KEB Automation KG	17
IntegrityNext GmbH	19	Kern Technik GmbH & Co. KG	18
Intel Corporation	12, 31	Klotz GmbH	14
Intelizign Engineering Services GmbH	19	KSB SE & Co. KGaA	17
Intellimech S.c.a.r.l.	27	KTBL – Kuratorium für Technik und Bauwesen in der Landwirtschaft e. V.	33
International Data Spaces Association e. V.	26, 27, 30, 32	KU Leuven – Katholieke Universiteit Leuven	32
INTERX Co., Ltd.	19	KUMASoft GmbH	19
Intrinsic Innovation GmbH	15	K.U.M. Umwelt- und Meerestechnik Kiel GmbH	31
INVITE GmbH	15	KWS Kölle GmbH & Co. KG	22
IOF – Institute of Optics and Fine Mechanics	30	L	
IONOS SE	31	Labs Network Industrie 4.0 e. V.	9, 31
iPoint-systems GmbH	19	Lehrstuhl für Produktentstehung der Universität Paderborn	9
IQstruct Engineering GmbH	18	Lenord, Bauer & Co. GmbH	17
ISOVOLTA GATEX GmbH	5	Lenze SE	9, 17
IS Predict GmbH	13	LFO – Lehrstuhl für Unternehmenslogistik, Technische Universität Dortmund	24
ISTOS GmbH	19	Liebherr-Aerospace Lindenberg GmbH	5
Itema Lab S.r.l.	27	Liebherr-Electronics and Drives GmbH	13
itemis AG	19, 28	Liebherr-International Deutschland GmbH	18
ITP Aero – Industria de Turbo Propulsores S.A.U.	5	Lights DS GmbH	19
it's OWL	21	Lindner Group KG	13
		Lisa Dräxlmaier GmbH	19

LNI 4.0 – Labs Network Industrie 4.0 e.V.	30	Ministerium für Energiewende, Landwirtschaft, Umwelt, Natur und Digitalisierung Schleswig-Holstein (MELUND SH)	31
LogProIT GmbH	13	MiPart GmbH	19
LRP Autorecycling Leipzig GmbH	19	Mitsubishi Electric Corporation	17
LS Cargo Logistics GmbH	13	Morphe	26
LSTech España S.L.	32	Motor Oil (Hellas) Corinth Refineries S.A.	28
M		msg systems AG	19
Madaster Germany GmbH	13	MT Analytics GmbH	9
MADE – Competence Center Industry 4.0 S.c.a.r.l.	27, 30	mts Consulting & Engineering GmbH	19
Magna International GmbH	19	MTU Aero Engines AG	5
Makadamlabor Schwaben GmbH	13	Munsch Chemie-Pumpen GmbH	22
Manufacture 2030 Ltd.	19	NAMUR e.V.	11
Maritimes Cluster Norddeutschland e.V.	31	Nationale Forschungsdateninfrastruktur (NFDI) e.V.	22
Matchory GmbH	9	N	
material.one AG	19	National Instruments Dresden GmbH	19
Materna Information & Communications SE	13, 19	Nelsen Consulting GmbH	19
Mediaprint GmbH & Co KG	21	NetApp Deutschland GmbH	12
MedTech F&E GmbH	30	Netcompany-Intrasoft S.A.	32
MeisterSystems GmbH	13	neusta aerospace GmbH	28
Mercedes-Benz AG	7, 15, 19	NexCOBOT	11
Merck Electronics KGaA	12	Nexpirit GmbH	9
Merck KGaA	6	Niedersachsen.next GmbH	11
Merten GmbH	21	Norbloc AB	32
META architektur GmbH	13	north.io GmbH	31
Meta-Level Software AG	17, 18	Novelis Koblenz GmbH	5
METRO AEBE – METRO Anonymi Emporiki kai Viomichaniki Etaireia Eidon Diatrofis kai Oikiakis Chríseos S.A.	32	NQC Ltd.	19
Mews Deutschland GmbH	16	NTT DATA Corporation	27, 32
Microsoft Corporation	19, 31	NTT Docomo Business Inc.	19
		NVIDIA Corporation	31

O

Ocean Data Alliance	31
Odette Sweden AB	19
OFFCON GmbH	31
OFFIS e.V. – Institut für Informatik	24, 30
OHB System AG	28
OmegaLambdaTec GmbH	12, 19
Ontotext AD	28
Open Industry 4.0 Alliance e.V.	9
Optel Group GmbH	19
OptWare GmbH	12
orca. GmbH	19
Ørsted Wind Power A/S	31
OTE Group – Hellenic Telecommunications Organization S.A.	27
Otto-Fuchs KG	5
owl maschinenbau e.V.	21

P

Pagero AB	19
PAKIC GmbH	9
Palantir Technologies GmbH	19
Parker-Hannifin Corporation	18
Peer Ledger Inc.	19
Pepperl+Fuchs SE	17
Pfeiffer Vacuum GmbH	12
Philipps-Universität Marburg (UMR)	22
Phoenix Contact GmbH & Co. KG	9
Piacenza 1733 S.p.A.	27
Pierburg GmbH	11
Pilz GmbH & Co. KG	17

Plateforme de la Filière Automobile	19
Plattform Industrie 4.0 Österreich	30
Power Plus Communication AG	26
PRÄWEST Präzisionswerkstätten Dr.-Ing. Heinz-Rudolf Jung GmbH & Co. KG	5
Prenode GmbH	9, 19
Prima Industrie S.p.A.	27
proALPHA Business Solutions GmbH	9
Procacciò 4.0	30
Produktion2030	30
Promicron GmbH	22
PROSTEP AG	8
ProSTEP iVIP Verein e.V.	5
ProSyst Software GmbH	29
PRS Technologie Gesellschaft mbH	20
PSI Software SE	13
PTKA – Projektträger Karlsruhe am Karlsruher Institut für Technologie (KIT)	22

Q

Quadible Ltd.	32
Quality Positioning Services B.V. (QPS)	31

R

RADIUSMEDIA KG	28
REGUL.AI GmbH	20
Renault SAS	20
Reply S.p.A.	20
Resonac Holdings K.K.	12
Rheinmetall AG	11
Rheinmetall Waffe Munition GmbH	15

Ria Stone – Fábrica de Louça de Mesa em Grés S.A.	32	Schaeffler Technologies AG & Co. KG	16
Rico Auto Industries Ltd.	20	Scheer GmbH	9
RIDDLE&CODE GmbH	20	Schneider Electric SE	26, 27, 29
RIF Engineering & Consulting GmbH	9	Schubert Fertigungstechnik GmbH	22
RIF Institut für Forschung und Transfer e.V.	15	SCHUFA Holding AG	20
RITTAL GmbH & Co. KG	16	SCHUNK SE & Co. KG	9, 15
Robert Bosch GmbH	7, 10, 14, 20	ScopeSET Technology Deutschland GmbH	28
Robert Bosch Manufacturing Solutions GmbH	14	Scoutbee GmbH	20
Robert Bosch Semiconductor Manufacturing Dresden GmbH	12	SeaAhead BlueTech Innovation Inc.	31
Roboception GmbH	15	Semantic Web Company GmbH	28
robomotion GmbH	15	Semiconductor Equipment and Materials International (SEMI)	12
Roche Diagnostics GmbH	10	Sharecat Solutions AS	10
Röcher GmbH & Co. KG	18	Sharemundo GmbH	20
Rolls-Royce Deutschland Ltd & Co KG	5	Shenzhen Precise Testing Technology Co., Ltd.	20
Roseman Labs	12	SICK AG	9, 17
Rote Liste Service GmbH	10	Siemens AG	6, 7, 9, 12, 15, 17, 20, 27, 30
ruhlamat GmbH	14	Siemens Digital Logistics GmbH	12
Ruhr-Universität Bochum	9, 13	Siemens Gamesa Renewable Energy GmbH & Co. KG	31
Ruprecht-Karls-Universität Heidelberg – Universitätsklinikum Heidelberg (UKHD)	22	Siemens Healthineers AG	10
RWTH Aachen University	16, 18, 22, 30	Siemens Mobility GmbH	15
S		Sika Automotive Deutschland GmbH	6
SISeven GmbH	20	SimPlan GmbH	14
SAFELOG GmbH	15	Simplifier AG	23
Salzgitter AG	15	SINTEF Digital (Teil der SINTEF Stiftung, Norwegen)	31
SAP SE	5, 6, 7, 9, 12, 20	sit.institute GmbH	13
SAS & Co KG	5	SMACC – Smart Machines and Manufacturing Competence Centre	30
SatRevolution S.A.	31	Smart Connected Supplier Network (SCSN Foundation)	27
Schaeffler AG	7, 11, 20		

Smart Demonstration Factory Siegen (SDFS) GmbH	9
SmartFactory KL e.V.	9
Smart Industry	30
Smart Site Solutions GmbH	13
Smoods GmbH	20
SMS group GmbH	18
Soffico GmbH	9
SOFTBAUWARE GmbH	13
Software AG	9, 22
SOFTWARE IMAGINATION & VISION SRL	25
Sonova Holding AG	9
SOTEC GmbH & Co. KG	15
Sovity GmbH	20, 27
Space Hellas S.A.	28
Sphera Solutions Inc.	20
Spherity GmbH	6, 20, 26
SPREAD GmbH	20
SprintEins GmbH	20
SQS – Software Quality Systems S.A.	27, 30
Squad IT Lda.	32
Squaredev Ltd.	32
SSC Services GmbH	20
Stackable GmbH	31
Standardization Council Industrie 4.0	10, 30
Stellantis N.V.	20
Stiftung OFFSHORE-WINDENERGIE	31
STRABAG SE	13
Subsea Europe Services GmbH	31
Sumitomo Corporation	11

SupplyOn AG	5, 20
Sustamize GmbH	20
SV Innovate R&D EU Ltd.	33
Swissbit Germany AG	12
Switzerland Innovation	30
SWMS Consulting GmbH	16
Synapticon GmbH	11
Synergeticon GmbH	5
Systema GmbH	12
Syxis S.A.	27

T

tabya GmbH	13
Taelim Co., Ltd.	20
tec4u Ingenieurgesellschaft mbH	20
tec4u Solutions GmbH	20
Technische Informationsbibliothek (TIB)	22
Technische Universität Darmstadt (TU Darmstadt)	22
Technische Universiteit Delft	33
Teknologian tutkimuskeskus VTT Oy	33
TenneT TSO GmbH	26
TenzorGEO Ltd.	31
Texas Instruments Deutschland GmbH	12
TFS Initiative	6
The Lisbon Council for Economic Competitiveness asbl	33
The University of Manchester	33
Think.iT GmbH	20
Threedy GmbH	20
thyssenkrupp Aerospace Germany GmbH	5

thyssenkrupp Marine Systems GmbH	31	UNIBERG GmbH	13
thyssenkrupp Materials Services GmbH	20	Unimetrik Ltd.	27
thyssenkrupp rothe erde Germany GmbH	16	UNINOVA – Instituto de Desenvolvimento de Novas Tecnologias	30
TICE.PT – Polo das Tecnologias de Informação, Comunicação e Electrónica	30	Unity AG	20
Tiko Pro d.o.o.	28	Universidad de Murcia	33
TNO – Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek	27	Universität Leipzig (UL)	22
toolcraft AG	5	Universität Paderborn	24
TOP-IX Consortium (TOriNO Piemonte Internet eXchange)	27	Universität Rostock	31
TransMarTech Schleswig-Holstein GmbH	31	Universität Stuttgart	9, 14
TransnetBW GmbH	26	Universität zu Köln (UzK)	22
Trialog SAS	30	University of Greenwich	33
Trimek S.A.	27	University of Oslo	27
TRONICO SAS	25	University of Piræus Research Center	33
TROX GmbH	13	University of Thessaly (Πανεπιστήμιο Θεσσαλίας)	32
Trumpf SE + Co. KG	9, 20	Unparallel Innovation Lda	30
T-Systems International GmbH	5, 7, 9, 15, 20	Up2parts GmbH	20
TU Braunschweig	15	UWS Business Solutions GmbH	20
TU Darmstadt	17	V	
TU Dresden – Institut für Fluid-Mechatronische Systemtechnik	18	Valeo SE	20, 29
Turkish Wind Energy Association (TWEA)	16	Valispace GmbH	28
TÜV SÜD Auto Service GmbH	20	VDI e.V.	27
TÜV SÜD Chemie Service GmbH	9	VDI/VDE-IT GmbH (VDI/VDE Innovation + Technik GmbH)	30
TWAICE Technologies GmbH	20	VDMA e.V.	9, 11, 12, 15, 16, 18, 22, 27, 30
TXT e-solutions S.p.A.	27	VDW e.V.	22
U		Verband der Automobilindustrie e.V. (VDA)	20
Uhlmann Pac-Systeme GmbH & Co. KG	9	Verband der Deutschen Möbelindustrie e.V. (VDM)	26
UKM Technologies GmbH	23	Verband Schmierstoff-Industrie e.V.	20
		Vestas Wind Systems A/S	16

VIA IMC GmbH	13	WITTENSTEIN SE	10, 17
VISARIGHT GmbH	33	WMH Westdeutscher Metall-Handel GmbH	5
Vitesco Technologies GmbH	20	Workerbase GmbH	20
Voestalpine BÖHLER Aerospace GmbH & Co KG	5	World Economic Forum	30
Volkswagen AG	7, 20	World Manufacturing Foundation	30
Volvo Car AB	20	wpd windmanager GmbH & Co. KG	16
Volvo Purchasing Group AB	20	WRD Wobben Research & Development GmbH	16
VPD GmbH	23	Wuppertal Institut für Klima, Umwelt, Energie gGmbH	26
VTT Technical Research Centre of Finland Ltd.	27, 30		
W		X	
W2 Healthcare GmbH & Co. KG	10	XLAB Razvoj Programske Opreme in Svetovanje d.o.o.	33
Wacker Chemie AG	6, 15	Y	
Wacker Neuson SE	18	YardStick Robotics GmbH	11, 15
Wagner GmbH	24	Z	
WAGO Kontakttechnik GmbH & Co. KG	15	ZAL GmbH	5
Wallaby Boats GmbH	31	ZARM Technik AG	28
Watermelon Ltd.	28	ZBW – Leibniz-Informationszentrum Wirtschaft	22
Weber Engineering GmbH & Co. KG	24	ZECH Bau Holding GmbH	13
Weidmüller Interface GmbH & Co. KG	16	Zeppelin Rental GmbH & Co. KG	13
Weldotherm Gesellschaft für Wärmetechnik mbH	24	Zettl Automotive GmbH	20
Weldotherm Wärmetechnischer Dienst GmbH	24	ZF Friedrichshafen AG	7, 20
Westfälische Wilhelms-Universität Münster (WWU)	22	ZF Wind Power Antwerpen NV	16
Westnetz GmbH	26	ZVEH e.V. (Zentralverband der Deutschen Elektro- und Informationstechnischen Handwerke)	13
WIK GmbH	11	ZVEI e.V.	10, 11, 12, 17, 30
WINDEA Offshore GmbH & Co. KG	31	ZVSHK e.V. (Zentralverband Sanitär Heizung Klima)	13
WITTE Automotive GmbH	20		

Imprint

VDMA e. V.
Forum Manufacturing-X
Lyoner Str. 18
60528 Frankfurt am Main
Germany

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VDMA e. V.

Project Manager
Marc Hüske

Editors
Marc Hüske, Daniel Koschuk

Design
VDMA DesignStudio

Typesetting and printing
Druck- und Verlagshaus Zarbock GmbH & Co. KG,
Frankfurt am Main

Status: October 2025

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