

Transforming manufacturing through industrial data sharing

Industrial data holds great potential to relaunch European manufacturing industries.

Digital platforms are fostering data access and exchange among industries, creating a collaborative environment that accelerates innovation.

This is encouraging more and more companies to take up technologies such as artificial intelligence and Industrial Internet of Things.

72%

of manufacturers are considering sharing data with other manufacturers to improve operations¹

¹Source: World Economic Forum, [Share to Gain: Unlocking Data Value in Manufacturing](#), 2020

What is...

...industrial data?

It's data derived from machinery and plants in different industrial sectors.

...a digital industrial platform?

It's an online intermediary service that connects two or more industrial actors and facilitates data and information exchange.

Why...

...is data sharing crucial for the future of industry?

It unlocks new data analytics opportunities to reduce carbon footprint, boost productivity and fuel innovation in Europe.

Industrial data sharing: what can the EU do?

1

Encourage data access and use through fair and transparent contractual arrangements

This ensures that customers and business partners can determine and control which data is accessed and for what purpose it is used.

2

Ensure data security throughout the product's lifecycle, from design to management

A basic requirement for data sharing and use is security – of access, processing, storage, and handling of data.

3

Support the portability and interoperability of data to enhance competitiveness

Interoperable data formats and information models based on freely accessible standards will enable different applications, promoting competition and collaboration.

4

Promote transparent operations of digital industrial platforms

Industrial platform users should track and control the use and exploration of their data in industrial platform operations through suitable opt-in/opt-out functions.

5

Enable fair competition between digital industrial platforms

The design of industrial platforms should encourage fair competition by ensuring migration capability of data and simultaneous use of multiple platforms.

1

**Encourage data access
and use through
fair and transparent
contractual
arrangements**

In principle, each company should be able to decide how to handle the data it generates.

In an industrial context, this is best achieved through fair contracts that take the interest of all involved parties into account.

Usually, these address important issues of know-how protection and data confidentiality, while ensuring that more sensitive types of data sharing – such as localisation – remain voluntary.

Skywise by Airbus

Created by **Airbus**, Skywise is the leading Enterprise Data Platform for the aviation industry. It includes 100+ airlines of every size and geography.

The platform is designed to handle integrations of commercial and operational systems, processing large volumes of data,

both structured (operational and maintenance data) and unstructured (technical documents). It provides tools for users to prepare, aggregate, analyze data and templates to create applications inside the platform.

Further information: skywise.airbus.com



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Advanced analytics for remote performance management by SAS

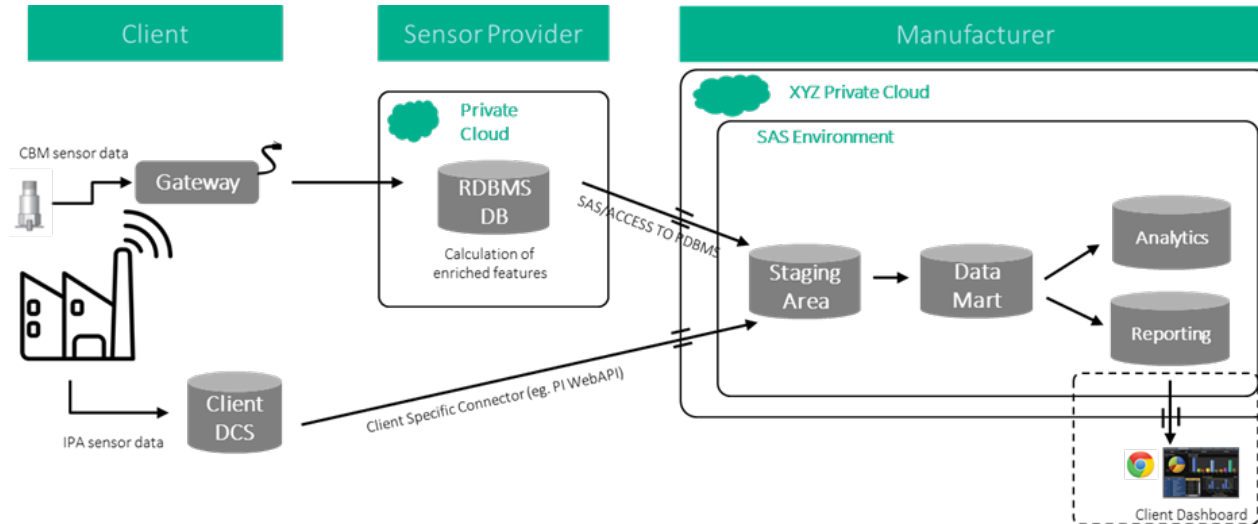
SGP Dry Cooling designs and manufactures Air Cooled Condensers for the energy sector. SAS helps SPG Dry Cooling to offer substantial performance benefits by maximising generation output and reducing operating costs. It offers cloud-based advanced analytics solutions to recognise degraded assets and offer corrective measures to mitigate performance losses.

In this use case, data from sensors is loaded onto the private cloud platform. Through APIs, the exchange is made from the data historian of the operator to the private cloud platform of the manufacturer.

Data is captured from both existing sensor measurements on the installation as newly installed IoT connected sensors. Data analytics and artificial intelligence models are applied to predict and optimize output of the equipment.

Together with application domain knowledge, SAS helps to show the outcome of these models in a visual exploration environment that can be accessed by operators of the equipment.

Further information: acc-360.com/remote-performance-management



2

**Ensure data security
throughout the
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from design
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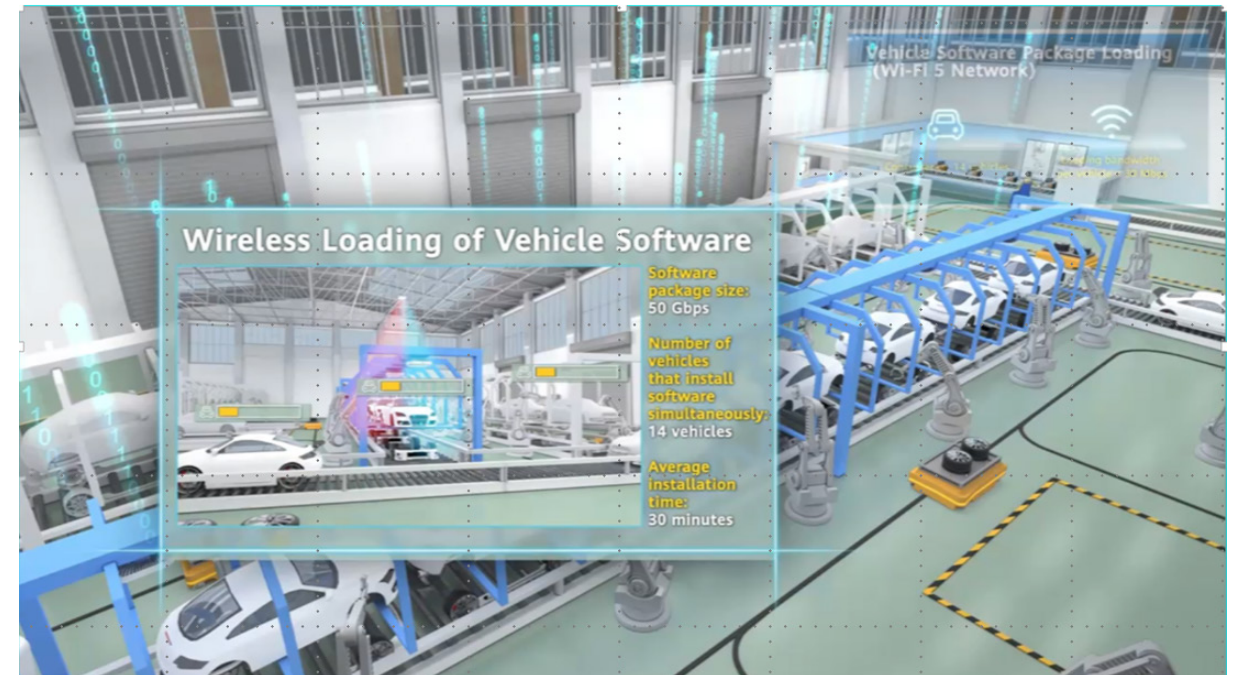
Sharing and use of data is possible only when these exchanges are fully secure – including access that is protected against misuse, safe processing, storage, and handling of data, and maintenance of its integrity and confidentiality. Companies in the tech industries are approaching this issue in a holistic manner, from security by design in the development phase to security lifecycle management throughout the entire product and data lifespan.

Huawei's 5G-enabled Mobile Condition Monitoring

Transportation time in logistics is up to now considered as “dead time” as no value creation can be done. But with sensor integration and provided 5G connectivity as part of “brownfield updating” of trucks, mobile robots and drones, transportation time can now be used for value adding processes – fusing logistics with manufacturing. Data may be sent to AI service providers, i.e. offering machine learning solutions for new upcoming usecases including but not limited to the full spectrum of quality control of carried goods, environment surveillance of workplaces and dynamic tracing of goods and material on the shopfloor.

The use case is supporting the portability and interoperability of data to enhance competitiveness.

To overcome the existing restrictions of current distrust for collaborative data sharing, device manufacturers (i.e. camera manufacturers) may have AI models integrated on the device, e.g. for predictive maintenance or anomaly detection. The provision of pre-trained AI solutions by the device manufacturer is federated to the device owners' facilities so that the data produced on OEM premises does not need to be shared, but only the spotted anomalies and fine-tuned (re-trained) models. This requires trustworthy federated learning.



3

**Support the portability
and interoperability
of data to enhance
competitiveness**

In manufacturing, it's important to be able to use data across different generation and application contexts in parallel. Data exchange or data pooling among different actors is achieved through interoperable data formats and information models based on freely accessible standards, thus promoting competition and collaboration.

Microsoft Connected Factory Solution

Interoperability between devices and assets is critical for today's factories, which are increasingly bringing new and legacy systems online and modernizing their plants and facilities.

Microsoft's Azure IoT Suite Connected Factory solution enables manufacturers to take advantage of the Open Platform

Communications Unified Architecture (OPC UA) interoperability standard that simplifies interoperability and enables manufacturers to get a head start on transforming their assets into smart factories.

Further information: azure.microsoft.com/en-us/features/iot-accelerators/connected-factory/



4

Promote transparent operations of digital industrial platforms

An industrial platform interconnects different actors who can pursue different interests, including the platform operator itself. Maximum transparency on the content and functionality of the industrial platform – say, the order of search results – is necessary to all platform users. Through suitable opt-in/opt-out functions, users can track and control the use and exploration of their data at any time.

DISRUPT cloud platform by Arçelik

Arçelik is part of an EU-funded project h2020

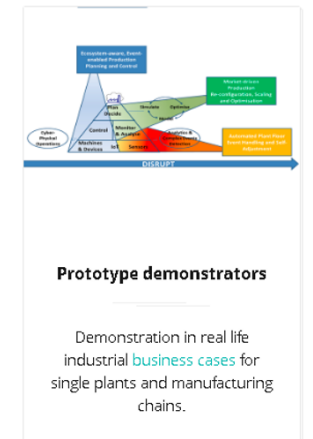
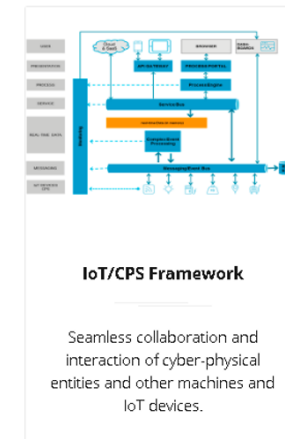
DISRUPT is an EU-funded project on digital automation, launched in 2016 by **Arçelik** in collaboration with a consortium of partners.

DISRUPT proposes a holistic approach to ICT-enabled manufacturing by integrating data analytics, complex event processing and cyber-physical operations, empowered by

decision support tools.

The system incorporates not only the structure of the plant floor but also the manufacturing chain and the characteristics of the production processes from cradle to grave and how each part of the corresponding ecosystem interacts with the others.

Further information: disrupt-project.eu



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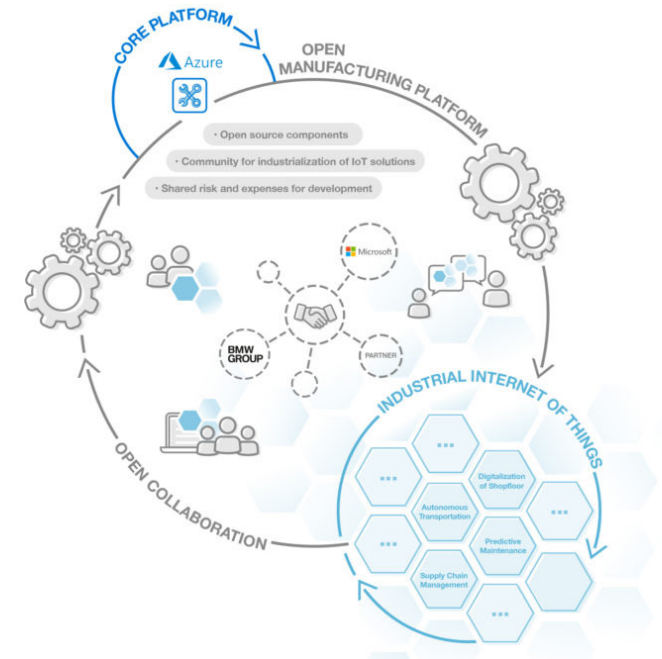
Microsoft Open Manufacturing Platform

The Open Manufacturing Platform (OMP) is an alliance founded in 2019 and co-launched by **Microsoft**.

It helps manufacturing companies accelerate innovation at scale through cross-industry collaboration, knowledge and data sharing as well as access to new technologies.

The platform allows industrial manufacturers to work together to break down data silos and overcome the challenges of complex, propriety systems that slow down production optimization.

Further information: open-manufacturing.org



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Schneider Electric Exchange

Schneider Electric Exchange is a first-of-its-kind, open business platform dedicated to solving real-world sustainability and efficiency challenges by empowering digital collaboration. It brings experts and peers together in a new digital ecosystem, unifying different fields of disciplines in one collaborative community.

Through ready-to-use Analytics, Datasets, APIs and Toolkits, Exchange enables End Users, Technology Suppliers, System Integrators to work collaboratively and make the most of the data.

Further information: exchange.se.com

Accelerating with Schneider Electric Exchange



Technical resources & toolbox

Best-in-class management of API, data science, data sets, and SDKs



Public & private communities

Collaborators co-innovating digital solutions, all content indexed and searchable



Digital marketplace

Full publisher lifecycle management capability and a global payment integrating lead generation

5

**Enhance fair competition
between digital
industrial platforms**

Industrial data sharing should enable fair competition to accelerate innovation, rather than monopolisation of data – for example, by preventing users from switching to other industrial platforms. This is possible by ensuring migration capability of data as well as the simultaneous use of multiple industrial platforms.

SERENA predictive maintenance by Dell Technologies and other European partners

Dell Technologies has joined forces with European manufacturers, leading academic institutes and systems integrators, as part of the H2020 SERENA project¹, to develop technologies that enable predictive maintenance of industrial equipment.

The project partners are working on a reference implementation for a holistic edge to cloud solution, which is technology- and deployment environment-agnostic. Machine learning models are trained in the cloud from raw sensor data collected at the edge; the models can then be distributed to edge devices or the cloud, as appropriate, and used to produce “smart data”, which is highly condensed and can be used to estimate the Remaining Useful Life (RUL) of the equipment.

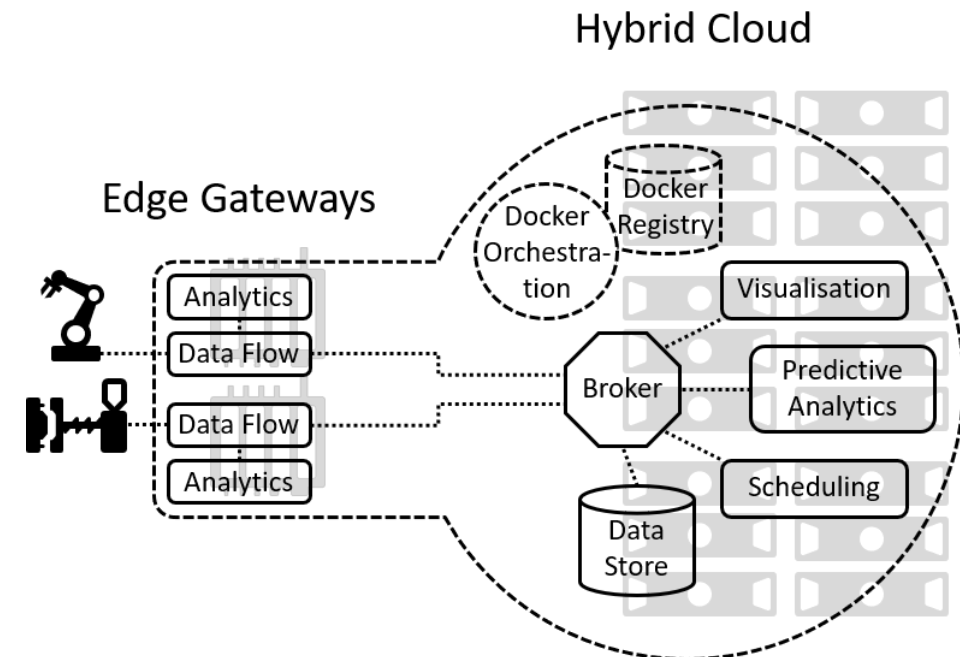
The initial concept is being considered for maintenance of industrial manufacturing robots. Objective is to help

manufacturers reduce their overall maintenance costs and improve productivity.

The SERENA system has been designed from the ground up to be platform- and location-agnostic, and has been deployed on virtual environments, private and third-party clouds. It has also shown how parts of the same system can be distributed and communicated across various types of environments, thus giving the customer the ability to deploy the solution however and wherever they want, without the fear of vendor lock-in.

Further information: serena-project.eu

¹ The SERENA project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 767561.



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