

Smart Factory Web

Open architecture for resilient and sustainable supply chain management

The Smart Factory Web supports Manufacturing-as-a-Service (MaaS) and supply chain management in an open production ecosystem. The combination of different technologies from Industrie 4.0, IDS and GAIA-X enables an open data space with MaaS services.

Global supply chain management

Sustainable production, high resilience and flexibility, small lot sizes: These requirements are important today not only for production plants, but, because of the globalization, for the entire supply network and existing supply chains. In order to implement these requirements, industry-specific and cross-industry data spaces are needed for networking and data sharing based upon data sovereignty principles. Their design and operational implementation are enabled by the Gaia-X, Catena-X automotive network and Manufacturing-X initiatives.

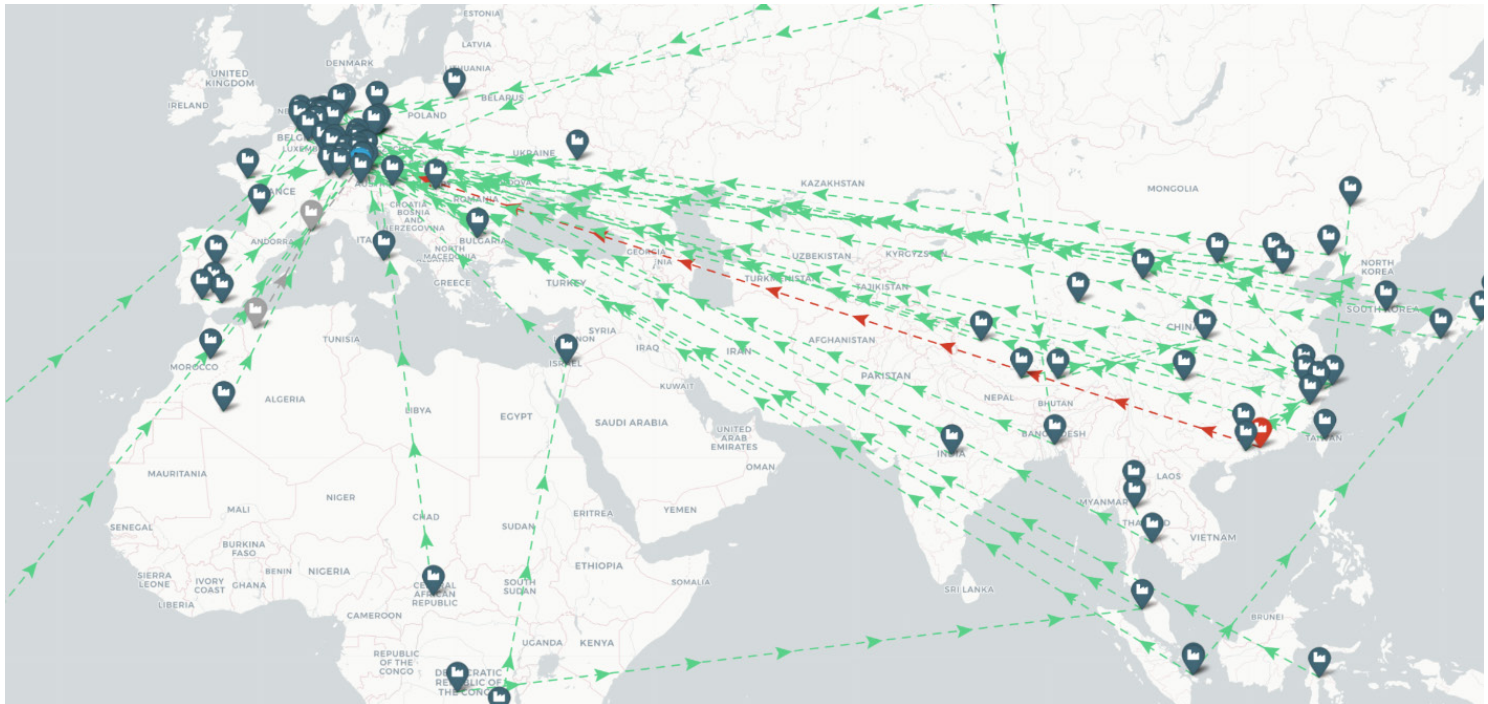
In addition, open services and marketplaces are needed that support the search for suppliers and production capabilities as well as the supplier connection via well-defined, open service interfaces and thereby include sustainability criteria such as CO2 footprints or critical minerals.

Resilience through monitoring

The open marketplaces help participating companies to evaluate each step of the supply chain up to the final product with regard to the required and desired criteria and to make well-founded decisions on order fulfillment. Global, permanent event monitoring and risk assessment can also provide early warning of impending delivery failures and bottlenecks and enable a faster response, e.g. by researching and evaluating alternative supply chains.

In cooperation with





Supply chain of a computer mouse in the Smart Factory Web.

Smart Factory Web: Open, standardized, independent

Current commercial marketplaces from the USA and Asia (e.g. xometry, haizol) do not meet these requirements, but rather lead to further dependencies (platform vendor lock-in) and market dominance due to their closed and proprietary approach. Thus, an open system architecture consistent with the European data strategy and the standardized approaches of Industrie 4.0, the International Data Spaces (IDS) and GAIA-X is required. By means of the Smart Factory Web, Fraunhofer IOSB offers an open architecture as well as a respective reference implementation including a manufacturing capability search engine, multiple knowledge bases and core services. Together they comprise an ecosystem for sustainable and resilient production networks. This reference implementation is the basis for multiple applications, such as an open federated marketplace and a supply chain management tool based upon digital product passports.

Manufacturing-as-a-Service

Smart Factory Web emerged from a testbed of the IoT Industry Consortium (IIC), which includes founding member KETI (Korea Electronics Technology Institute), Microsoft Corporation and SAP SE. In the Catena-X Automotive Network, the Smart Factory Web provides the digital ecosystem for Manufacturing-as-a-Service (MaaS): Through its interoperability, search and management services, it brings together production needs with production suppliers such as on-demand manufacturing platforms and single manufacturers.

More Informationen

Smart Factory Web Project-Site:

<https://www.smartfactoryweb.de>

Smart Factory Web – a network of intelligent factories:

<https://www.iosb.fraunhofer.de/en/projects-and-products/smart-factory-web.html>

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