Fraunhofer

PRESS RELEASE

Hannover Messe 2017: Sovereign control over data

Industrial Data Space empowers new business models

Sharing and utilizing data together with business partners – a delicate subject for companies that fear losing control over their own data. This may be about to change, however; with the Industrial Data Space, companies can share data while stipulating who is allowed to use it and for what purpose. At the Hannover Messe, the Fraunhofer-Gesellschaft is premiering the reference architecture model for this concept, which will form the basis for many new data-centric business models.

Companies earn their money with products, services, or solutions, while data is often simply a by-product or waste product of their day-to-day business. This maxim sounds so logical, so familiar – but is no longer true. Just as the digital transformation mega-trend is changing business processes, it is also transforming the role that data plays in companies. This role is increasingly being viewed as an asset and a strategic resource.

Yet, when working with their business partners, how can companies use this resource and share data without losing control over their own data? The Fraunhofer-Gesellschaft's answer to this question is the Industrial Data Space. Basically, it is a shared, protected data space in which business partners can exchange their data according to certain rules and use it together.

Each company determines in advance which uses of its data are permitted as part of the collaboration and which are prohibited. Only certified parties are allowed into the protected data space, and only once their identity has been verified. In short, the Industrial Data Space offers the best of both worlds: data can be used freely within the collaboration, but the companies keep full control. Each company retains its sovereignty over its data at all times.

Successful pilot project with Salzgitter AG

What sounds good in theory also works well in practice, as is currently being demonstrated in a project implemented by the Fraunhofer Institute for Software and Systems Engineering ISST together with Salzgitter AG, a steel group. Their aim is to exchange

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warehouse data between customer and supplier systems via the machine interface in an automated, secure and encrypted process using smart data apps. Customers can inquire if a certain type of steel is available at a particular date, and the supplier system reports how much will be on hand. Mapping the master data is done automatically. Prof. Heinz Jörg Fuhrmann , Chairman of the Executive Board of Salzgitter AG, describes the advantage of the Industrial Data Space: "It completely eliminates the laborious manual process of data synchronization."

Connectors manage the Industrial Data Space

Smart data apps make the solution easy to operate. However, these aren't the usual apps that transmit their data over the Internet; instead, they provide various functions as well as some user interfaces. Underlying these apps is a crucial software component: the connector. Connectors form the core of the Industrial Data Space architecture. They are tasked with organizing the exchange of data and ensuring the security of the entire shared data space. The Fraunhofer Institute for Applied and Integrated Security AISEC is developing the security technology for the connectors.

In addition to managing warehouse data, the researchers are also employing the Industrial Data Space to develop solutions for real-time monitoring of transports with an eye to improving delivery processes. They plan to equip food transports with sensors that transmit parameters such as temperature, vibration and light via the connectors. As a result, food retailers can ensure that the goods arrive unopened and fresh. If the cooling function failed at some point during the journey, the retailer can take action early on and reorder.

Industrial Data Space connects industries

Another benefit of the Industrial Data Space is that it is well positioned to connect different sectors together because partners can jointly manage their data and tap innovative potential. Viewing data as a strategic resource even gives rise to new business models. "We can imagine that the Industrial Data Space will produce a kind of marketplace in which companies use data as a medium of exchange," says Prof. Boris Otto, head of research for the Industrial Data Space and director of Fraunhofer ISST.

The Fraunhofer researchers are developing prototype connectors and apps for the reference architecture of the Industrial Data Space. "We will have a wide range of variants from many different providers that all work together. This ensures the functioning of the Fraunhofer reference architecture model, including the certification process," says Prof. Otto. An initial reference model for the Industrial Data Space architecture will debut at the Hannover Messe 2017. In addition, Fraunhofer ISST will present the initiative at the Hannover Messe 2017 and CeBIT 2017, and Fraunhofer AISEC will showcase a trusted connector at both events.

Overall, twelve Fraunhofer Institutes are involved in the initiative. It is sponsored by the German Federal Ministry of Education and Research (BMBF), which began supporting the Industrial Data Space research project in October 2015 for a period of three years.

Connectors: Key components of the Industrial Data Space

Developed by Fraunhofer, the connectors serve as the core components in the Industrial Data Space reference architecture. They form the interface between companies and enable each to exercise control over the exchange of data. To do so, they verify the identity of all participants, check the authenticity of the software components, monitor the integrity of the data packets and manage the assignment of rights for data access. To ensure the greatest possible compatibility, the connectors support proven web standards and protocols.

At present, companies can choose from two connector prototypes. The basic version offers the protected data space as well as all functions necessary for day-to-day operations.

The high-security version, developed by the Fraunhofer Institute for Applied and Integrated Security AISEC, offers still more detailed functions and a level of security that meets even the strict requirements of business-critical applications. For this, the Fraunhofer experts use the hardware-based Trusted Platform Module (TPM).

Industrial Data Space Association

Fraunhofer researchers joined forces with 16 enterprises and the German Electrical and Electronic Manufacturers' Association e.V. (ZVEI) to found the Industrial Data Space Association. This association aims to define the practical requirements of the Industrial Data Space and make it an international standard for data sovereignty. In parallel, the association tests the Industrial Data Space on real-life use cases. Currently, more than 60 international members are active in the association, including Allianz, Bayer, REWE and Chinese IT giant Huawei. The body plans to apply for DIN standardization for parts of the reference architecture models this year.

Among other things, the Industrial Data Space offers solutions for real-time monitoring of food transports. © Fotolia | Picture in color and printing quality: www.fraunhofer.de/en/press