

Smart Factory Web – an IIC Testbed to Enable Smart Manufacturing Collaboration Marketplaces

#1 Newsletter 4-2017

Dear Sir/Madam,

Welcome to the newsletter #1 on the Smart Factory Web (SFW)! You are receiving this newsletter as you have shown interest in collaborating with this initiative by having filled out the application form on <http://www.smartfactoryweb.com> or by personal contact with the SFW marketing and development team. The Smart Factory Web is an approved IIC Testbed with the goal to provide a software portal and environment and experiment with the technical foundations to enable marketplaces for smart factories and smart manufacturing supply chains.

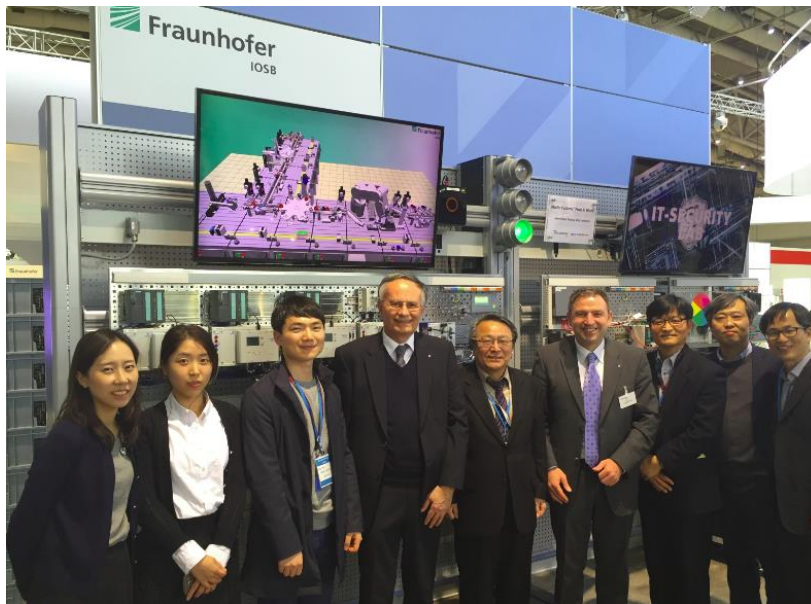
A lot has happened since its inception and public presentation in early 2016. We can look back to a whole year full of highlights. Let me summarize the major milestones and the upcoming events and activities.

#1.1 April 2016 - Hanover Trade Fair 2016

The Hanover Trade Fair was the first event at which the development of the Smart Factory Web as an IIC testbed candidate was publicly announced and presented. Its idea raised a lot of interest in the community of the Industrial Internet and Industrie 4.0.

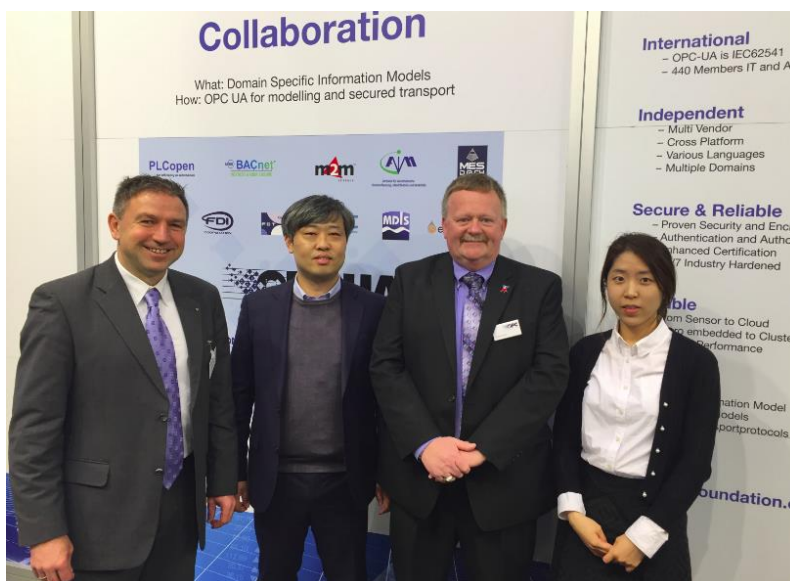


The Smart Factory Web Team of KETI and Fraunhofer IOSB during the Hanover Trade Fair 2016.



Reception of a Korean Delegation from MOTIE, KASF and KAST during the Hanover Trade Fair 2016.

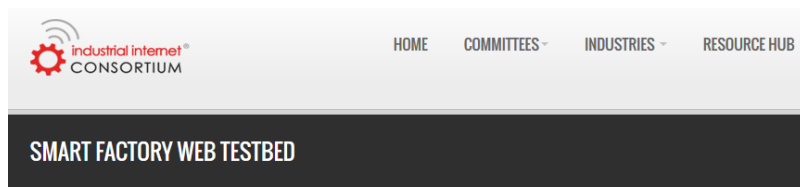
Furthermore, there were first talks with the OPC Foundation and its president Thomas Burke about a representation of the OPC Foundation in South Korea.



Visit of SFW team members at the booth of the OPC Foundation during the Hanover Trade Fair 2016, received by its president Thomas Burke.

#1.2 September 2016 - IIC Testbed Acceptance

The months after HMI 2016 were dedicated to attaining IIC acceptance of the Smart Factory Web testbed proposal following the IIC testbed approval process. Several presentations were given to the IIC Testbed Working Group, Security working group and testbed subcommittee of the Steering Committee until final testbed acceptance was reached on 19th September 2016 during the IIC quarterly meeting at Heidelberg/St. Leon-Rot, Germany.



COLLABORATIVE FACTORY NETWORK

FAST FACTS

MEMBER PARTICIPANTS:

Fraunhofer IOSB, Korea Electronics Technology Institute (KETI)

MARKET SEGMENT:

Manufacturing: industrial automation

CHALLENGE:

The Smart Factory Web aims to form a network of smart factories with capabilities and sharing of resources and assets to improve order fulfillment and production efficiency.

Announcement and description of the SFW as IIC testbed on the IIC Web site at <http://www.iiconsortium.org/smart-factory-web.htm>.

In the resulting press release the importance of this achievement was stressed by the SFW team members:

- “The German model factories currently involved in the SFW are also members of the Labs Network Industrie 4.0. It is planned to propose the Smart Factory Web as a joint IIC-Industrie 4.0 testbed. This is where we can investigate and demonstrate the compatibility between IIRA and RAMI4.0, the respective reference architecture models of IIC and Industrie 4.0” says Kym Watson, deputy head of the department Information Management and Production Control (ILT) at Fraunhofer IOSB, who led the Smart Factory Web team through the IIC testbed approval process.
- According to Byunghun Song, head of the KETI Smart Factory ICT Center, “the Smart Factory Web is the first testbed in Korea approved by the IIC. This will have great influence on the distribution of the smart factory technology in Korea, especially, as it will enable interoperability between IIC and Industrie 4.0”.
- “The Smart Factory Web is open to other companies. Providers of factory components, in software or hardware, and operators of smart factories around the world are invited to contribute to the Smart Factory Web if they comply with the idea of a collaborative factory network based upon open standards”, emphasizes Thomas Usländer, spokesperson of the Fraunhofer IOSB business unit Automation and head of the department ILT at Fraunhofer IOSB, who originally launched the testbed idea.
- “In addition to the technological innovations the Smart Factory Web will enable new business models when implementing the Industrie 4.0 use

case 'Order driven adaptive production' in the manufacturing domain. This will also strengthen and promote the "it's OWL initiative", states Jürgen Jasperneite, head of the Fraunhofer IOSB Application Center Industrial Automation (INA) in Lemgo, Germany.

#1.3 September 2016 – March 2017 – IIC Quarterly Meetings

The status of the SFW testbed was presented at the IIC quarterly meetings, respectively. These were the following:

- Sep 2017 at Heidelberg/St. Leon-Rot, Germany, organized by SAP/Bosch
- Dec 2017 at Coronado, California, USA
- March 2017 at Reston, Virginia, USA

#1.4 April 2016 – Opening Ceremony of the SmartFactoryOWL, Lemgo, Germany



Opening Event of the SmartFactoryOWL at Fraunhofer IOSB-INA in Lemgo, one of the core partners in the Smart Factory Web IIC Testbed

In the presence of a multitude of high-level political and industrial representatives, the SmartFactoryOWL was officially opened. The various innovative production plant scenarios are organized in a modular manner and thus provide an ideal test environment for the Smart Factory Web testbed. See

more information and photos at

<https://www.iosb.fraunhofer.de/servlet/is/62924/> .

#1.5 November 2016 Joint Korean-German Smart Factory Workshop 2016

The "Joint Korean-German Smart Factory Workshop" was held on November 18, 2016 in the SmartFactoryOWL in Lemgo. The workshop was organized by KETI, Fraunhofer IOSB and KEIT. In addition to the presentations, there was also a lab tour through the SmartFactoryOWL and a Signboard ceremony for Korean-German demo factory collaboration. In this workshop the research activities at the Lemgo location, the joint "Korean-German Joint Research Project" and the new IIC Testbed with the project Smart Factory Web were presented. At the SmartFactoryOWL LabTour, the participants were able to gain a personal impression of the research activities and they were able to try out the new technologies themselves in many places. The workshop was concluded with a celebratory signboard ceremony.

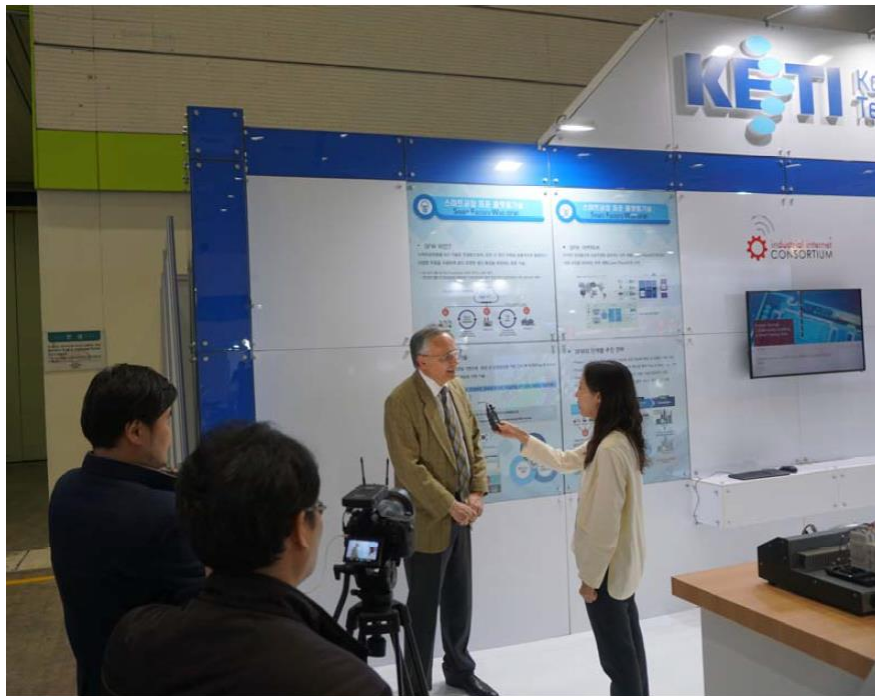


#1.6 OPC Day and Smart Factory Expo, Seoul

KETI played a key role in the establishment of OPC Korea, the regional organization of the OPC Foundation in Korea. Dr. Byunghun Song of KETI is the OPC Council Korea General Manager. The first OPC Day in Korea was held on

March 20, 2017 as part of the Smart Factory Expo March 29-31, 2017 in Seoul. There were 180 attendees at the OPC Day Korea that featured keynotes by Stefan Hoppe (OPC Foundation) on “Industrial interoperability as the enabler of the digitized world; What is semantic interoperability and why do we need this?” and by Kym Watson (Fraunhofer IOSB) on the “Smart Factory Web with OPC UA and AutomationML”. The Global Smart Factory Conference (March 30-31, 2017) with over 600 attendees was a further major event at the Smart Factory Expo. The keynote by Byunghun Song covered a wide range of strategic activities in the Korean Smart Factory Program, including the IIC testbed Smart Factory Web.

The KETI booth at the Smart Factory Expo showcased the Smart Factory Web. In addition, a production line of KETI’s model factory in Ansan was especially transported to the expo to be presented at the booth of KOSF (Korea Smart Factory Foundation).



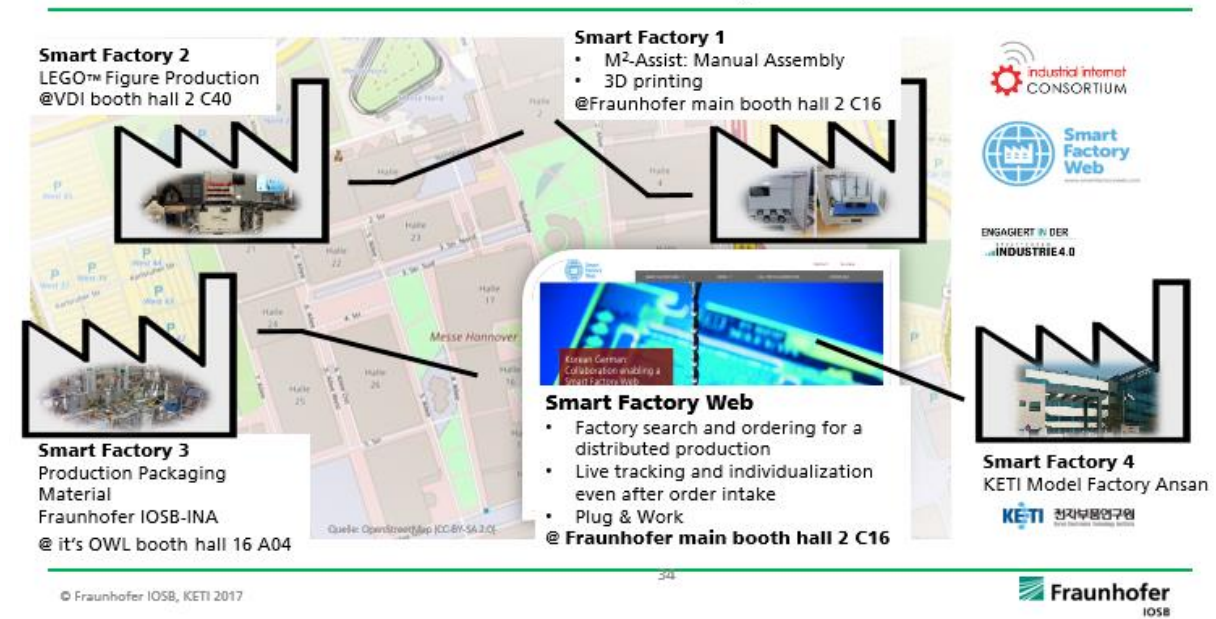
Jieun Jung of KETI interviews Kym Watson at the KETI Booth, Smart Factory Expo

#1.7 Hanover Trade Fair 2017

Again, the Smart Factory Web was presented on the Fraunhofer booth of Hanover Trade Fair 2017. This year, we showed an enhanced Web-based SFW portal that supports not only the registration of smart factories based upon a capability description using a standardized vocabulary for production processes, but also includes the search for matching production capabilities. Furthermore, we interconnected other exhibits of Fraunhofer IOSB, e.g.

assembly stations showing flexible man-machine interactions, via the SFW portal by modelling them as smart factories. The SFW could place orders and display factory status information. In this way we could demonstrate the basic SFW idea of enabling market places for production capabilities through a simple example. There was great interest shown by visitors from all countries with a strong manufacturing sector, especially Germany, Korea, Japan and China.

HMI – a Network of Smart Factory Demos



Network of Smart Factories as demonstrated at the Hanover Trade Fair 2017

#1.8 Other conferences and Trade Fairs

The SFW testbed was presented at the following conferences and trade fairs:

- 19 Jan 2017, Event of the German Society for Project Management (GPM), Fraunhofer IOSB, Germany
- 7 March 2017 – AMI conference “Industry 4.0 for Plastics Processors”
- 5 April 2017 Steinbeis Engineering Day, Stuttgart, Germany
- 10 May 2017, IWOLIA 2017 (International Workshop on Optimisation and Logistics in Industrial Applications), Troyes, France

#1.9 Outlook

The feedback that we get when presenting the SFW idea at fairs and conferences ranges from “very interesting” to “great idea”. When discussing the business needs of our contact persons, we learn the functions that will

have to be implemented step-by-step into the SFW environment. Some of them are planned as evolutions of the IIC testbed anyway, others would extend the scope and the functional power of the SFW portal. Ideas range from supply chain support up to platform capabilities for price and schedule negotiation support in order processes.

Furthermore, as one major next milestone, we are looking forward to the inauguration of the SFW smart factory in Pangyo, South Korea, run by our testbed partner KETI as well as the further development of their model factory in Ansan.

You are kindly invited to discuss your ideas with us! Please contact the SFW team members in Germany and South Korea, respectively, by sending an e-mail to sfw-marketing@iosb.fraunhofer.de .