Smart Factory Web – an IIC Testbed traveling around the world

#2 Newsletter 10-2017

Dear Sir/Madam,

Welcome to the newsletter #2 on the Smart Factory Web (SFW)! You are receiving this newsletter as you have shown interest in learning more about 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 and a platform to experiment with the technologies needed to enable marketplaces for smart factories, cross-factory data interchange and smart manufacturing supply chains.

In this newsletter, we show the response the SFW concept has received from presentations at numerous trade events across the globe.

2.1 Short introduction to Smart Factory Web (SFW)

The Smart Factory Web aims to achieve flexible adaptation of production capabilities and sharing of assets in a web of Smart Factories to improve order fulfilment. This requires a modelling language for assets and standards for the exchange of plant engineering and production process information that are accepted in the international industrial manufacturing community. The standard IEC 62714 AutomationML applied in combination with the communication standard IEC 62541 OPC-UA can fulfil these requirements. These standards also contribute to solve the needs for plug-and-work in industrial plants. Plug-and-work is designed to adapt or even replace plant assets efficiently with a minimum of engineering effort. The SFW currently comprises four model factories: two in Germany and two in Korea.
In the first phase of the project “Geospatial Mapping and Factory Information” a methodology has been developed to describe factory assets and display them on a map.

Figure 1.: Interactive map of SFW with KETI’s Ansan factory

2.2. Progress the Project has Made

Current status of Korean model factories (Pangyo and Ansan)

KETI's Ansan model factory (link) is a **large-scale factory** of approximately 1,700sqm size. Pre/digital-production lines are deployed for major manufacturing businesses. OPC UA was implemented as communication environment and an AutomationML model of the factory is under development.

Figure 2.a: Ansan model factory

KETI has implemented two production lines named A and B at the Ansan model factory. The objective of line A (lead by Siemens) is to introduce and demonstrate the latest smart factory technologies of the leading global member companies. The main theme of line A is 'Factory Digitalization' connecting virtual and physical world. The hexagonal based flexible production line was accomplished by integrating smart machine tools, robots and process equipment. This task will be completed by 2019. Line B (Lead by LSIS) is designed to demonstrate equipment and solutions of the Korean member companies. Line B features a modular system structure for flexible and fast configuration. In addition, line B includes a camera-based quality inspection of vehicle pistons that will be developed and synchronized with operational factories.

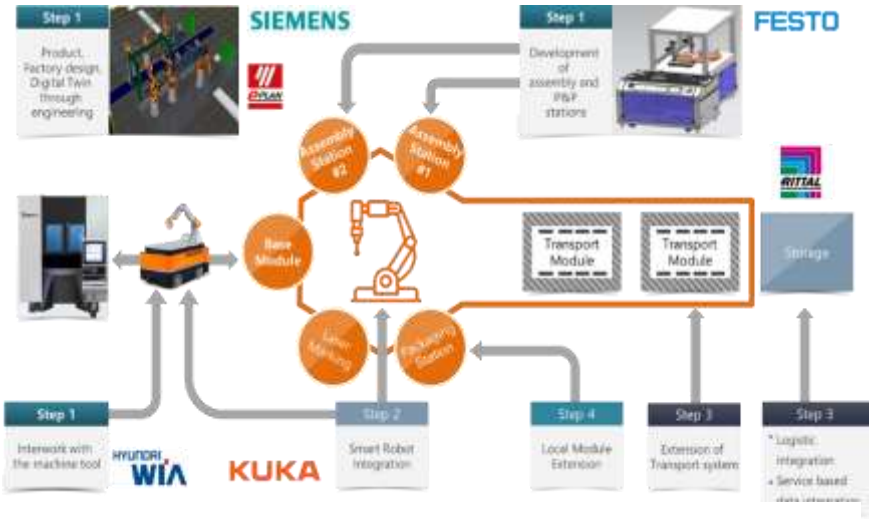

Figure 2.b: Layout and tasks of the Ansan model factory

The **Pangyo model factory** is a **lab-scale factory** consisting of modular and expandable equipment. Currently an AutomationML model is being developed and the OPC UA communication environment is being implemented.

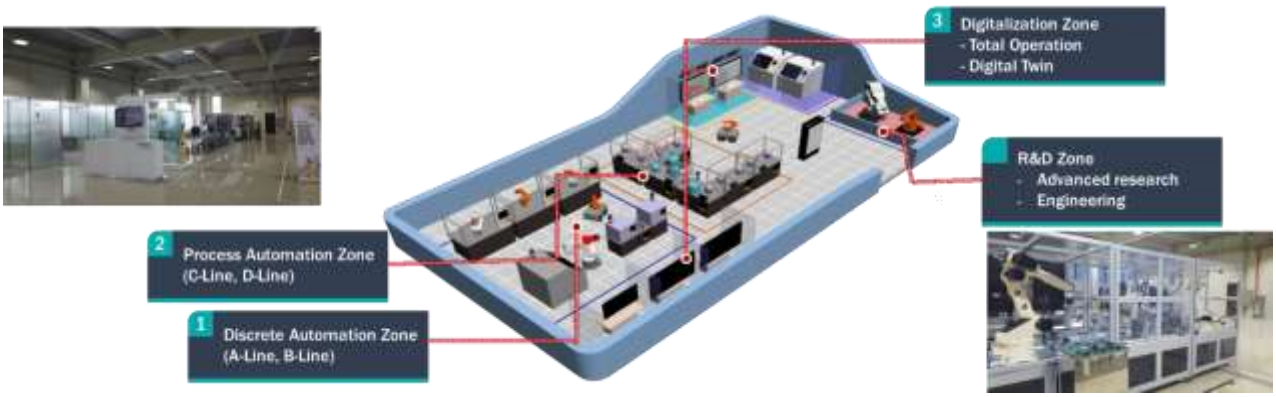

Figure 3.: Pangyo model factory

2.3 September 2017 – IIC Meeting, Singapore

At the IIC Q3 meeting, held in Singapore on 11 Sep to 14 Sep 2017, one of the Smart Factory Web networked model factories located in Korea was specifically introduced showing the project status. It also provides guidelines how other factories in the world can be connected and how the SFW portal can support collaboration with each other.

Figure 4.: The Smart Factory Web poster session and testbed presentation given by Soojin Ji of KETI at the IIC Q3 meeting 2017

2.4 October 2017 – IoT Solutions World, Barcelona

Figure 5.: Sascha Heymann of Fraunhofer presenting the Smart Factory Web

The Smart Factory Web testbed was shown as part of the IIC Pavilion. There were in-depth presentations and discussions with 43 visitors from 20 different countries in four continents. The international coverage was therefore excellent. In addition, the benefits of IIC membership and the IIC testbed program were explained to several visitors.

2.5 September 2017 – Industry of Things World, Berlin

The Industry of Things World 2017 (http://industryofthingsworld.com/en) is a yearly conference with high-level presentations and round tables dedicated to the next technological revolution – the Internet of Things. 1000+ active players of the Industrial IoT scene attended the event in September 2017, shared their challenges and issues and their knowledge and solutions with our community.

Fraunhofer IOSB's Thomas Usländer talked about "Smart Factory Web - an IIC Testbed on Production Market Places" on day 1 of the conference.

2.4 October 2017 – IIC Webinar

Fraunhofer IOSB's Kym Watson talked about*: Leveraging Modern IIoT Concepts in the Smart Factory PART 1: Interoperability, Connectivity, Data Sharing & Security; Featured Testbed – Smart Factory Web*.

A recording can be downloaded at: **http://www.iiconsortium.org/webinars/index.htm**

2.6 What's next

Conference: **OMG: MBE, Automation & IOT in SMART Manufacturing**
Place: Burlingame, CA, USA**. December 6, USA**
Presentation: *Asset Model Engineering and Plug & Work in the Smart Factory Web using the IEC standards AutomationML and OPC UA* **Dr. Kym Watson**

The Smart Factory Web will be shown at the IIoT World Tour Event co-hosted by IIC and the Plattform Industrie 4.0 in San Francisco on December 8, 2017 http://www.iiconsortium.org/iiot-world-tour/index.htm. The German model factories in the Smart Factory Web are also members of the Labs Network I4.0. The Smart Factory Web is therefore in an ideal position to offer joint testbed activities as well as to investigate and demonstrate architectural compatibility between IIRA and RAMI4.0.

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.