Industrial Value Chain with FIWARE and IDSA Reference Architecture

IDSA Winterdays, Bezons, 04.12.2019

Ulrich Ahle
CEO FIWARE Foundation
Founding Member of the Board of IDSA
ulrich.ahle@fiware.org
Agenda

- The Challenge
- prostep IVIP
- FIWARE
- The Solution
Agenda

- The Challenge
- prostep IVIP
- FIWARE
- The Solution
Digital Feedback and Forward Loops for Manufacturing Excellence: The Challenge

- The digital twin has largely been a PLM concept for design and performance simulation of discrete products.
- New kinds of digital twins are becoming available.
- Desire to obtain a better understanding of the product performance in operation through IoT.
- Interoperability proves to be a key challenge for Industrie 4.0.
- Digital twins have been developed as siloed solutions.
- Trusted data exchange among digital twins breaking these silos opens manufacturers the door to unprecedented insights, visibility and automation opportunities leading to efficiency improvements in product design, product performance and manufacturing process operations.
Digital twins have been developed as siloed solutions.
prostep IVIP, FIWARE and IDS have the potential to solve challenges in manufacturing excellence and break down the silos.
"B2B platforms are the next battle Europe cannot afford to lose"

FIWARE and IDS: Digitising the European Industry

„Promising digital industrial platforms building on European strengths:“

- RAMI 4.0
- Industrial Data Space (now International Data Spaces)
- FIWARE

FIWARE is providing a source based implementation of the International Data Spaces concepts
Agenda

The Challenge

prostep IVIP

FIWARE

The Solution
prostep IVIP Association: Driving standards in Engineering IT since 1993

Leading Worldwide-acting Neutral & Non-Profit Network
- 180 Members from Industry, IT and Research
- Driven & Funded by its Members
- Know-how exchange in non-competitive areas
- Sharing risks and funds, instead of doing it alone
- Best practices, even beyond branches and continents

Digital Transformer in Product Creation & Production
- Defining Standards & Interfaces for Digital Processes
- Safeguarding industrial Benefits & Interoperability

Expert in IT-Standards & Industrial Implementation
- Be sure, that your results become standard and are supported by IT interoperable
Way of working in the prostep IVIP Association

Application Projects
Scope: Users defining requirements, Use Cases, Usage Guidelines etc.
Duration: following project’s agenda, in general 3 years

Implementation Support
Scope: Interoperability between software products, trust by NDA
Duration: as long as necessary
Benchmarks: Neutral tests of software products

Standardization
Scope: Creating & enhancing standards according to industrial needs
Duration: Long-term commitment, pure standardization work in ISO etc.
Agenda

The Challenge
prostep IVIP
FIWARE
The Solution
This is FIWARE!

- A framework of open source platform components to access and manage heterogeneous context information through open APIs.


- Generic Enablers and Solutions to provide Smart Services with the FIWARE Context Broker as main component.
Once context information is gathered, a lot of useful complementary FIWARE enablers can be used:

- Advanced Web-based UI (AR, 3D)
- Open data publication
- Data/Apps visualization
- IoT-enabled Context Information Management
- Complex Event Processing
- Multimedia processing
- Big Data Analysis
FIWARE: STANDARDIZATION ON A GLOBAL SCALE

FIWARE Context Broker
Technology has been chosen in 2018 as new CEF (Connecting Europe Facility) Building Block by all European member states.

Existing CEF Building Blocks so far:
• eDelivery
• eInvoicing
• eID
• eSignature
• eTranslation.

Joint Collaboration Program together with TM Forum:
• to support the adoption of a reference architecture and compatible common data models
• Using FIWARE NGSI and TM Forum Open APIs
• Common Data Models will be public and royalty-free

ETSI published on January 24th, 2019 “NGSI-LD” the new Context Information Management Standard API. The rationale is to reinforce the fact that this specification leverages on the … FIWARE NGSIv2 to incorporate the latest advances from Linked Data.
A COMPLETE REFERENCE ARCHITECTURE FOR SMART INDUSTRY
Today market research and strategic consulting company PAC has published the PAC RADAR IoT Platforms in Europe 2018. It is the biggest market analysis of the vendor landscape around all kinds of IoT platforms. PAC screened more than 120 platforms, evaluated 43 of them in seven different segments and through this approach identified the best-in-class providers in different areas. Across all seven segments only 12 players achieved a “Best in Class” ranking: AWS, Bosch Software Innovations, FIWARE, GE Digital, Harman, IBM, Itron, Microsoft, PTC, SAP, Siemens and Software AG.

IoT platforms for smart cities are designed to cover all kinds of use case around the efficient use of existing city infrastructures and the delivery of the collected data to many different users across the city. Leading providers in this space are FIWARE and Itron, but the Urban Software Institute, too, has a very high competence here.
The FIWARE Foundation has been grown as 300+ global members within 3 years!

<table>
<thead>
<tr>
<th>PLATINUM</th>
<th>GOLD</th>
<th>GOLD SEU</th>
<th>ASSOCIATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atos</td>
<td>Infodom</td>
<td>City of Vienna</td>
<td>Cefriel</td>
</tr>
<tr>
<td>Engineering</td>
<td>FUTURE CITY</td>
<td>netzlink</td>
<td>CRS4</td>
</tr>
<tr>
<td>NEC</td>
<td>Smart Cities Lab</td>
<td>Badajoz</td>
<td>ITRI</td>
</tr>
<tr>
<td>Telefonica</td>
<td>Secmotic</td>
<td>wirtschaftsagentur Wien</td>
<td>Université Lumière Lyon 2</td>
</tr>
<tr>
<td>TRIGYN technologies</td>
<td>everis</td>
<td></td>
<td>Université de Lyon</td>
</tr>
<tr>
<td></td>
<td>FundingBox</td>
<td></td>
<td>ESP</td>
</tr>
<tr>
<td></td>
<td>apinf</td>
<td></td>
<td>Universidad de Deusto</td>
</tr>
<tr>
<td></td>
<td>TIG INTEC Group</td>
<td></td>
<td>Deusto</td>
</tr>
<tr>
<td></td>
<td>Mobilepidea</td>
<td></td>
<td>ETRI</td>
</tr>
<tr>
<td></td>
<td>TIS</td>
<td>Intendencia de Montevideo</td>
<td>Istituto Nazionale di Electric Power Industry</td>
</tr>
<tr>
<td></td>
<td>zabala</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Orang</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Digital Dividend: Tech for Good</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stone One</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Isdi</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Web Service Factory</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ubiwhere</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>vm9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EproSimá</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FICODES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NAeva TEC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>pordvlopy</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>proDEVELOP</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Middleware Experts</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>eproSimá</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Middleware Experts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Individual Members: 226
Agenda

The Challenge

prostep IVIP

FIWARE

The Solution
Manufacturing Excellence:
Design for Manufacturability
The Digital Twin PLM use case demonstrates how factories can benefit from an open source FIWARE based implementation of the IDS Reference Architecture enabling manufacturing excellence across the product lifecycle.
The Digital Twin PLM use case demonstrates how factories can benefit from an open source FIWARE based implementation of the IDS Reference Architecture enabling manufacturing excellence across the product lifecycle.
The Digital Twin PLM use case demonstrates how factories can benefit from an open source FIWARE based implementation of the IDS Reference Architecture enabling manufacturing excellence across the product lifecycle.
Die Bilder müsste ein Seitenverhältnis von 16:9 haben!
FIWARE: CONNECTING DIGITAL TWIN DATA ACROSS THE PRODUCT LIFE CYCLE

The Digital Twin PLM use case demonstrates how factories can benefit from an open source FIWARE based implementation of the IDS Reference Architecture enabling manufacturing excellence across the product lifecycle.
ZERO DEFECT MANUFACTURING USE CASE: SMART DECISION WORKFLOW POWERED BY FIWARE-IDS
ZERO DEFECT MANUFACTURING USE CASE: SMART DECISION WORKFLOW POWERED BY FIWARE-IDS
ZERO DEFECT MANUFACTURING USE CASE: SMART DECISION WORKFLOW POWERED BY FIWARE-IDS
ENABLING DATA SOVEREIGNTY AND IMPROVING QUALITY IN INDUSTRIE 4.0

• **Improved performance** of the systems connected to the milling machine and CMM. Each machine can enhance its maintenance and performance by means of using data produced by the other machine.

• **Data control.** Usage of **IDS connectors** at the factory brings the necessary warranty to Innovalia and Georg Fischer that only the measurements they approve can be delivered to the Milling machine Predictive Maintenance system and CMM system correspondingly.

• **Sovereignty of information.** Only selected measurements are delivered outside the factory and only for the purpose of improving the predictive maintenance. None of the used data will be shared with a competitive factory.
Thank you!

Ulrich Ahle
FIWARE CEO
ulrich.ahle@fiware.org

www.fiware.org
Follow @FIWARE on Twitter