On the way to Industrie 4.0 - Driving the Digital Enterprise

Dr. Helmut Figalist @ VDMA Informationstag, Industrie 4.0 Konkret - September 2015
The Internet is revolutionizing the business world and creates major challenges for manufacturing companies.
Industrie 4.0
Defining the way forward for industry in the Internet age

An initiative of the German industry sponsored by the German Government

Cornerstones of the initiative Industrie 4.0

– Horizontal integration of the value-add networks
– Seamless integration of the engineering of the entire value-add chain
– Vertical integration and networked production systems
Key areas where an Industrie 4.0 solution will need to provide significant progress

Reducing the time to market
- Shorter innovation cycles
- More complex products
- Larger data volumes

Enhancing flexibility
- Individualized mass production
- Volatile markets
- High productivity

Increasing efficiency
- Energy and resource efficiency as key competitive factors
Development Production

In the past: 8 Years  11 Years
Now: 3 Years  6-8 Years
Industrial integration:
Company-wide challenges require Holistic Solutions

Transformational technologies + Integrated Value Chain = maximum results
Industrie 4.0 affects all aspects of the industrial value chain – Siemens focusses on selected domains

Domains covered by Siemens DF and PD portfolios
“Digital Enterprise” Software Suite –
The Siemens answer to Industrie 4.0 requirements
Seamlessly Integrated

PLM Software Portfolio
- Product Planning, Design, Test and Simulation
- Production Planning, Engineering and Simulation

MES/MOM Software Portfolio
- Planning & Scheduling
- Quality Management
- Manufacturing Execution
- Manufacturing Intelligence
- SCADA / HMI

Integrated Automation Portfolio
- Integrated engineering and runtime for controllers, distributed I/O, HMI, drives, motion control and motors
- Industrial Safety and Security

Top-down Product-driven
Seamlessly Integrated
Bottom-up Process-driven

“Digital Enterprise” Software Suite –
The Siemens answer to Industrie 4.0 requirements
**Manufacturer experiments with “smart factory”**

“At a Siemens factory in Amberg, machines have begun to self-replicate. Regulating the ultra-efficient production lines are the very same automation devices ... that are spat out at the end. One line, which operates 24 hours a day, requires no human intervention at all ...” – FT, April 10, 2014

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teamcenter managed product variants shipped to customers worldwide each year</td>
<td>1000+</td>
</tr>
<tr>
<td>Monthly production of SIMATIC products</td>
<td>~1 Million</td>
</tr>
<tr>
<td>Process items entered in SIMATIC IT each day</td>
<td>~50 Million</td>
</tr>
<tr>
<td>Automation level</td>
<td>~75%</td>
</tr>
<tr>
<td>Quality rate</td>
<td>~12 dpm</td>
</tr>
</tbody>
</table>
Siemens PLM Software enables integrated design, manufacturing and production lifecycles

Industria de Turbo Propulsores (ITP) has digitalized product/process definition and production execution, with a direct connection and feedback loop between the two worlds.
Digitalization in manufacturing: the Maserati Ghibli

At its new factory in Turin, Maserati proves that high quality and maximum efficiency can be combined. From design to execution planning everything is done digitally. The results: a simplified, streamlined development and manufacturing process that makes the factory more flexible.
Thank you!