Labs Network Industrie 4.0 e.V.

Industry 4.0 Use Cases and Testbeds with SME in Manufacturing and Service

June 7th 2018
Opportunities for SMEs

- Strategic importance: 89%
- Increased production flexibility: 72%
- Potential of new business models: 20%

Sources: bitkom; Industrie 4.0: Status Quo und Perspektiven 2017 (only available in German; English translation: Industry 4.0: Status Quo and Outlook 2017)
Plattform Industrie 4.0 in Germany

The digital transformation needs a broad-based foundation
Plattform Industrie 4.0 in Germany

Working groups

- 400 participants
- Relevant stakeholders in Germany

WG1: Reference architectures, standards and norms
WG2: Technology and application scenarios
WG3: Security of networked systems
WG4: Legal framework
WG5: Work, education and training
WG6: Digital business models in Industrie 4.0

Representatives from business, trade union, academia, political integration
**Plattform Industrie 4.0**

International cooperations

**Digitising European Industry**

**Alliance Industrie du Futur**

**France**

**Industrial Internet Consortium (IIC)**

Referenzarchitekturen angleichen für mehr Interoperabilität

**Kooperation China**

**PianoIndustria4**

**Italy**

**Robot Revolution Initiative**

**Japan**

Source: Plattform Industrie 4.0
LNI4.0 founders, Nov. 2015

Our network feels connected to the entire German industry!

In cooperation with:
Industrie 4.0 Stakeholders

Input

Output

Digital Transformation

Expert community from industry and academia

VDMA
ZVEI
bitkom
VDI
VDE
Testlabs cooperation (>40 MoU)
>60 Use Cases with >60 SME

www.lni40.de
AI FOR FERRIES (HVAC)

HVAC OPTIMIZATION WITH ARTIFICIAL INTELLIGENCE

- 10% energy cost savings by AI
- Classical HVAC control technology is replaced by AI, prediction and parameter optimization (on-site or cloud)
SENSOR SUPPORTED ASSIST SYSTEMS

- Assist systems based on sensors and AI to increase energy efficiency and optimize process operation
- Predicative maintenance based on operational data and smart services
COMPOSITES 4.0
SMART STRUCTURES

- Smart asset as new business model
- Condition monitoring over the entire lifecycle
- Structure, sensors and wireless technologies embedded
AI IN PRODUCTION

SENSOR-AIDED ASSISTANCE SYSTEMS

- Forecasts optimize crop yields and production costs
- Smart services on production machines
- Local implementation of AI methods without constant cloud connection
TESTBED TSN
TIME-SENSITIVE NETWORKING

- Continuous validation of IEEE 802.1
- TSN product development of 29 companies on neutral ground
- Testbed for standardization validation
TESTBED C2C

Cloud to Cloud (and Edge to Cloud)

- Based on SME requirements
- Interoperability validation 19 companies on neutral ground
- Testbed for standardization (example DIN SPEC 92222)
Agile testing!