AI – Artificial Intelligence
Industrial applications

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Overview

1. Digitalization and AI
2. Industrial Examples of AI
3. Vision for an AI PPP in Europe
Digitalization and AI is disrupting entire customer value chains.

Enabling the next level of...

- ...productivity and time-to-market...
- ...flexibility and resilience...
- ...availability and efficiency...

Design and engineering
Automation and operation
Maintenance and services

Data analytics
Artificial Intelligence
Simulation tools
Cloud & platform technology
Secure connectivity
Cyber-Security
AI is based on a portfolio of technologies that are combined to generate value.

From an industrial point of view, AI means algorithm-based and data-driven computer systems that enhance machines and people with digital capabilities such as perception, reasoning, learning and even autonomous decision making.
Perception/Cognition/Decision/Knowledge are key elements

**Perception**

Signals and data
- e.g. temperature, acceleration, pressure, force, magnetic field, …

**Cognition**

- Knowledge

**Decision**

- Speed
- Flexibility
- Quality
- Efficiency
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Our IoT operating system MindSphere – enhanced by Edge and mendix

Applications
Powerful industry solutions with advanced analytics

Open PaaS
Develop robust industrial IoT solutions faster with global scalability

Connectivity
Connect products, plants, systems, machines and enterprise applications

Edge Management
Edge Device Management, Edge App Management, and Edge App Store

Edge Apps
Applications for intelligent data use

Edge Devices
Secure, future-proof basis for running edge applications
Building a world-class ecosystem

Examples

Partner Types

- Consulting and Strategy
- Application Developers
- System Integrators
- Technology
- Hybrid OT
- Connectivity
Edge computing – much more than a cloud gateway

Analysis and (pre-)processing on the shop floor

Low-latency and processing of high bandwidth data

IT/OT convergence

Data security and privacy
Siemens closes the gap!

MindSphere

Industrial Edge

Control level
Siemens Industrial Edge brings IT mechanisms into the OT world

Edge Management System
Central infrastructure to manage Edge devices

Edge Apps
Applications for intelligent data use

Control level + Edge Devices
Secure, future-proof basis for running Industrial Edge applications
X-ray-based PCB quality assurance

Siemens Electronics Factory Amberg, Germany

Challenge

Production output of SMT line limited by time consuming X-ray Quality tests

Every further X-ray machine requires additional invest of €500,000
Minimization of necessary X-ray tests by up to 30%

Quality rate of 100%

Reduced capital invest for further X-ray machines of €500,000
Magazine optimization

HELLER GmbH
• Up to 20% increased productivity

Magazine optimization

HELLER GmbH
Cycle-time reduction enabled by program focused optimization of tool magazine right at the machine
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AI strategies ...
The vision for an AI PPP in Europe

BDVA/euRobotics AI visioning paper: http://www.bdva.eu/downloads
Big Picture ...

vertical markets

society

manufacturing
energy
mobility
health-care
...

requirements
impact

activities in the market

business perspective

usage perspective

functional perspective

Business Model Navigator

AI driven value chain

Reference architectures

activities in the market

other stakeholder, e.g. HPC, Plattform Industrie 4.0, etc.

exchange

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Thank you!
Siemens Corporate Technology –
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