Digital Integration of Information Flow as a Service Along the Value Chain

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Megatrends driving the Future

- Individuality
- Globalization
- Mobility
- Deep Integration of new Technologies
- Reduced and dynamised Product Life Cycle
- Knowledge Society
- Demographic Change
- Climate Change and limited Resources

Quelle: nach Fraunhofer IPK, 2016
Increasing Complexity leads to new Value Chain

"People can have the Model T in any color – so long as it's black."
Henry Ford (1913)
Meet the Needs of „Intelligent Manufacturing“

The aims are sophisticated:

- **Mass Customization**
  
  Benefits of mass production for individual production – even for „Batch Size 1“.

- **Modularization**
  
  Production could be reconfigure in any kind of quantity and execution.

- **Collaboration**
  
  Development and manufacturing run parallel and are complement themselves.

- **Adaptivity**
  
  Flexible production facilities to each new requirements.

- **Point-to-Point-Communication**
  
  Human and machine communication directly – without any hierarchical structure.
Expectations to IoT

IDC --- Amerikanisches IT-Marktforschungs- und Beratungsunternehmen

without Smart Phones und PCs/Laptops/Tablets

Source: Mario Morales, IDC
Smarteness: Cyberphysical Systems

Smart Mobility

Smart Buildings

Smart Products

Internet der Daten und Dienste

Internet der Dinge

Smart Grids

Smart Health

Smart Factory

Smart Logistics

Quelle: SMART SERVICE WELT, 2015
IoT Produkte
Fundamentals of Industrie 4.0

- Application of the Internet of Data, Things, Services and Processes in Production Industry
- Networked, assisted and intelligence for Human, Machines, Objects and IT Systems
- Approach:
  - Horizontal Integration within „Value Stream Networks“
  - Vertical Integration from business over IT-application down to machine functions
  - Digital holistic engineering
  - Decentralized organization of intelligence und functions
  - Socio-technical systems engineering (human engineering)
Information Flow as a Service

... as a base for web-based services
SILVA Light – Functionality

New Business Idea – Data Perception and Provisioning as a Service → 1.5 EUR p.d.

- **Standard Sensors**: The standard smartphone sensors provide a variety of ways to monitor even machines that do not have their own sensors.

- **Wirelessly connected**: It can collect data wirelessly on mobile devices.

- **Display of live Data**: Wherever, it would be needed.
Interaction of F/T/P/O – Lifecycles

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Quelle: nach DKE RM, 2013
Data Deployment as Cyber Physical Cockpit

**xSCAD – extended SCADA – Prozessleittechnik**
Implementation in a Virtual Control Unit
Decentralized Control Management
The Technical Entity as Production Partner
Augmented Reality for Production Applications
Wildau‘er Testcenter for Smart Integration

Prof. Dr.-Ing. Thorsten Brandes (Logistics / SCM)
Prof. Dr. Andreas Foitzik (Microsystems)
Prof. Dr. Markus Frohme (Life Sciences)
Prof. Dr.-Ing. Frank Gillert (Secure Object Identity, AutoID)
Prof. Dr.-Ing. Stefan Kubica (Business Intelligence)
Prof. Dr.-Ing. Thomas Masurat (Production Management)
Prof. Dr. Dana Mietzner (Innovation and Technology Management)
Prof. Dr.-Ing. Gaby Neumann (Intralogistics)
Prof. Dr.-Ing. Jörg Reiff-Stephan (Automation Technology) - Speaker
Prof. Dr. Ralf Vandenhouten (Telematics)
Centre of Competence Cottbus – Hub Wildau
LTAfit L...learn T...train A...assist

Support of BB-SME’s in:
- digitisation activities
- expanding their digital competence
- the implementation of digitisation projects

With the focus on:
- Qualification
- Automation Technology
- Smart Factory
- Logistics
- Cyber-Physical Systems
- Smart Enterprises
- IT Security & Privacy
"Perception and processing of informations describe the most valuable driver of innovation within the industrial world of production."