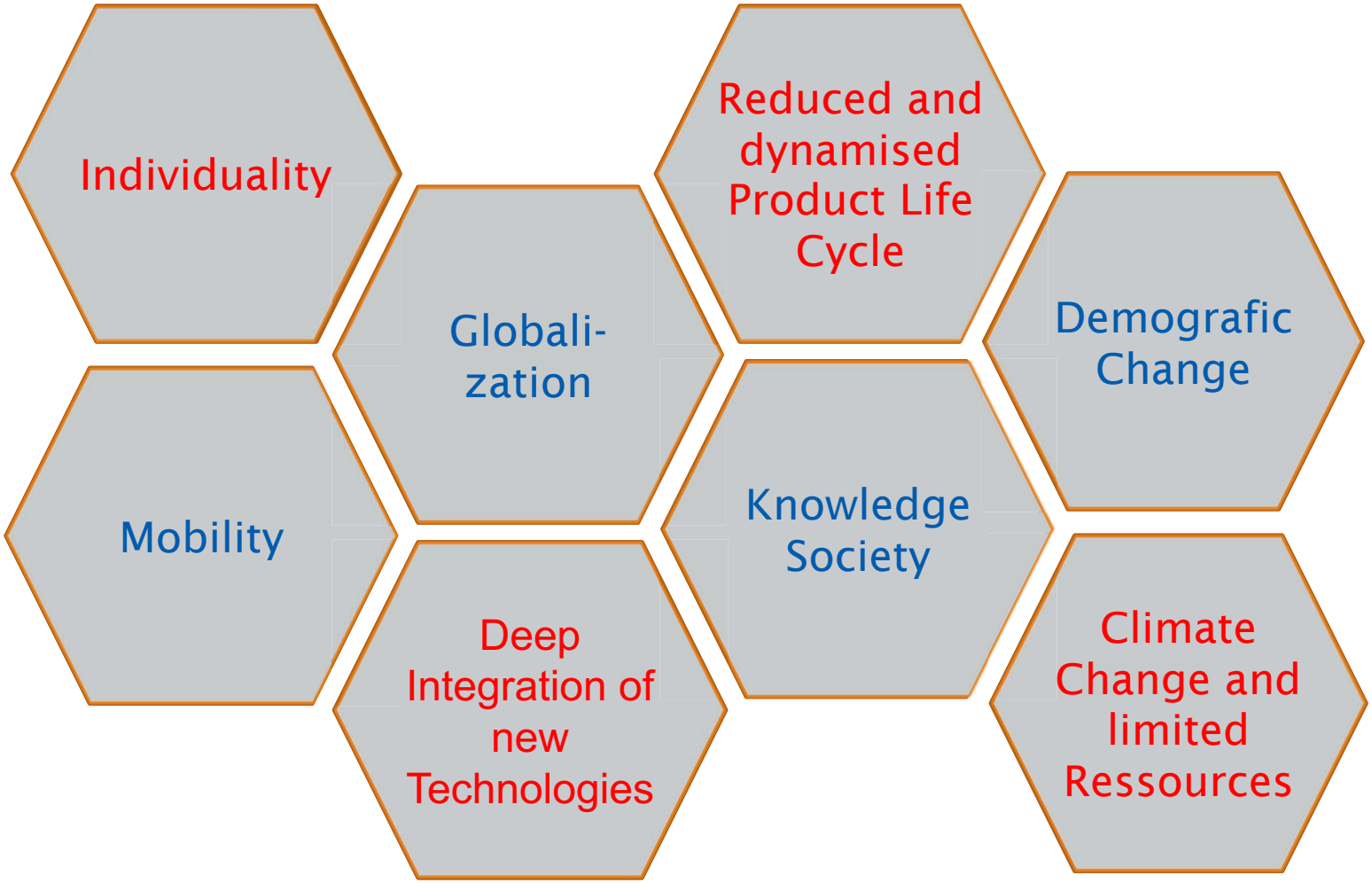
Technische Hochschule Wildau
Technical University of Applied Sciences

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

InnoTesting 2018
Wildau, 22. February 2018

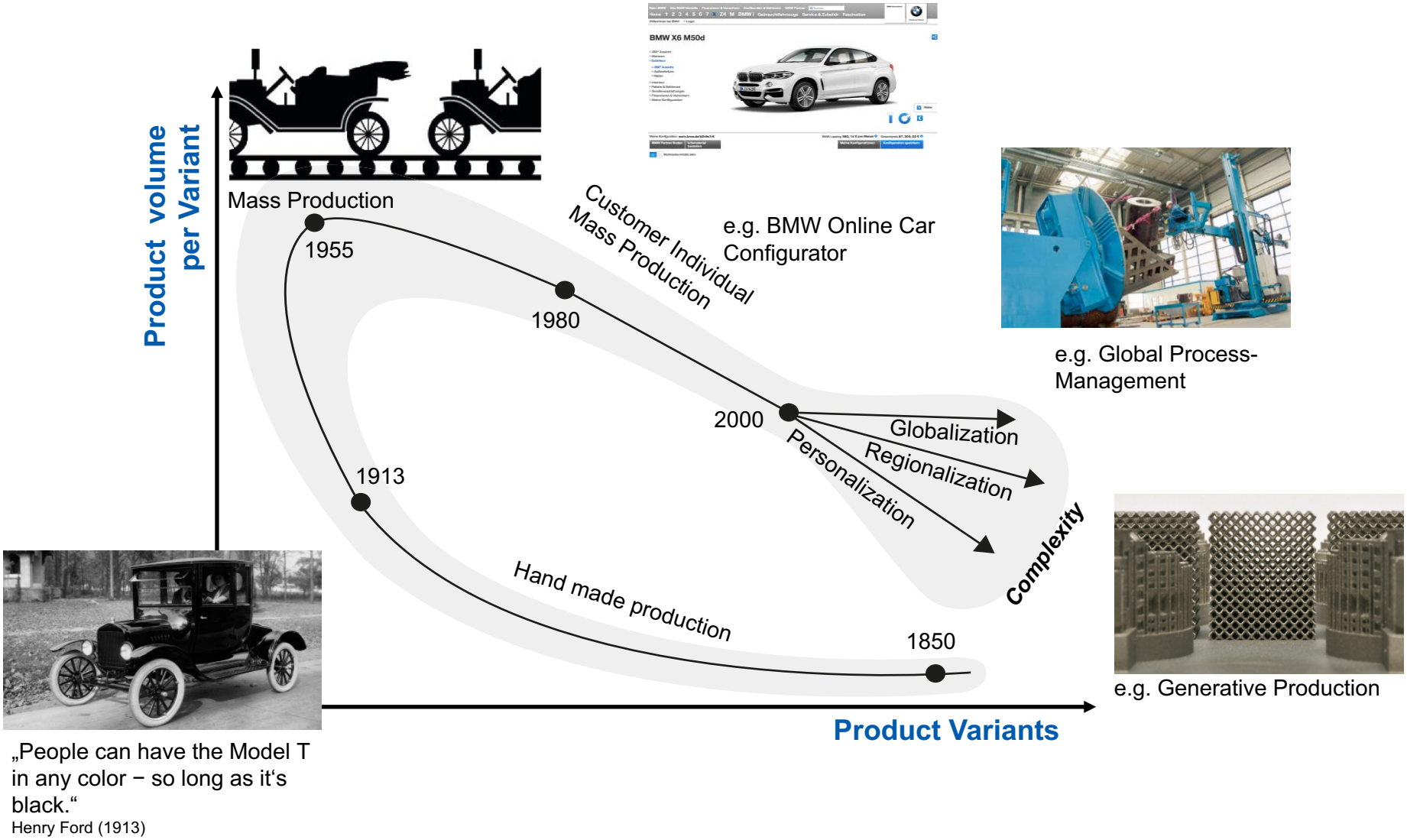
Prof. Dr.-Ing. Jörg Reiff-Stephan

Megatrends driving the Future



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.

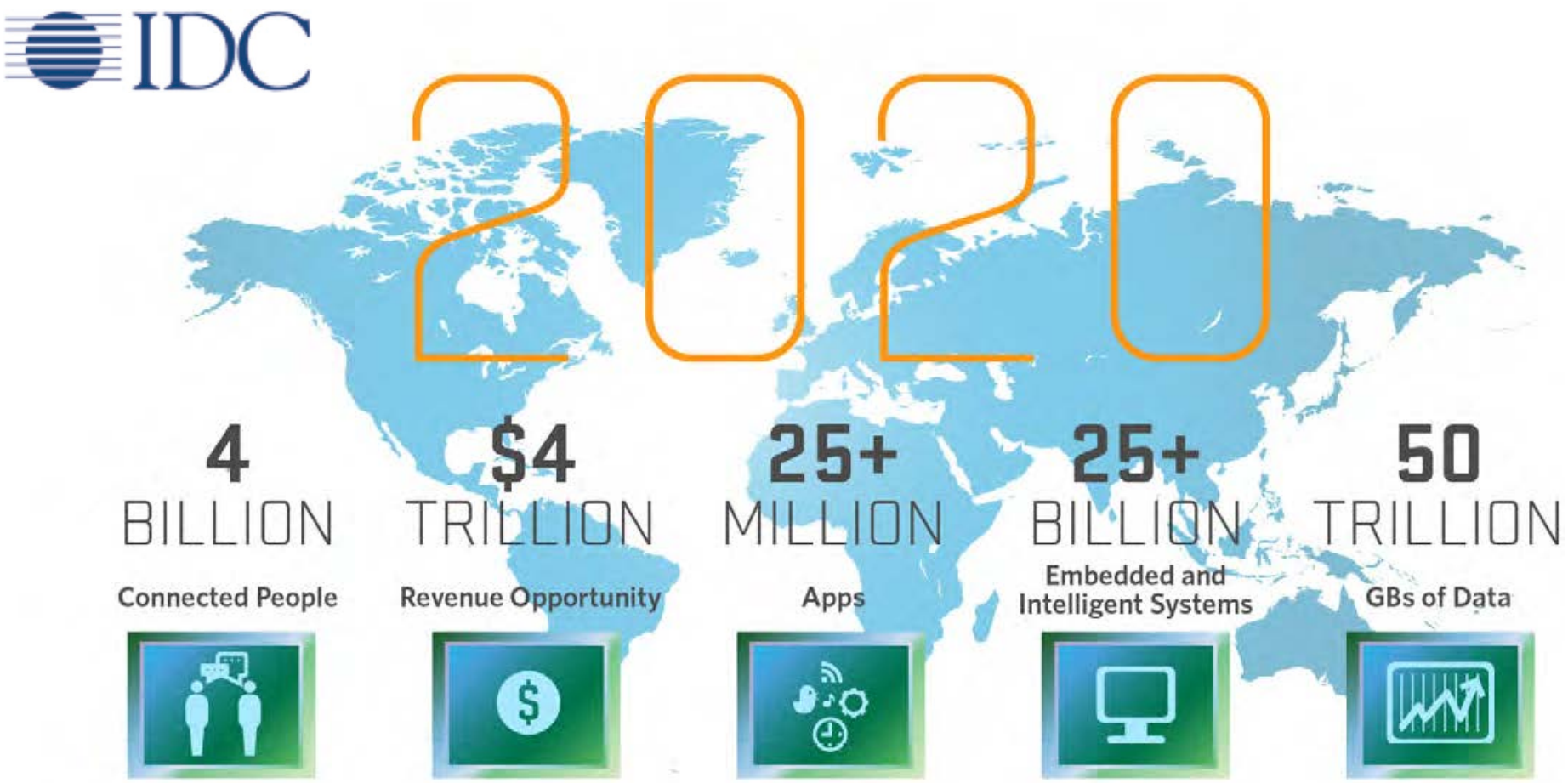
- **Adaptivity**
  Flexible production facilities to each new requirements.

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

Expectations to IoT

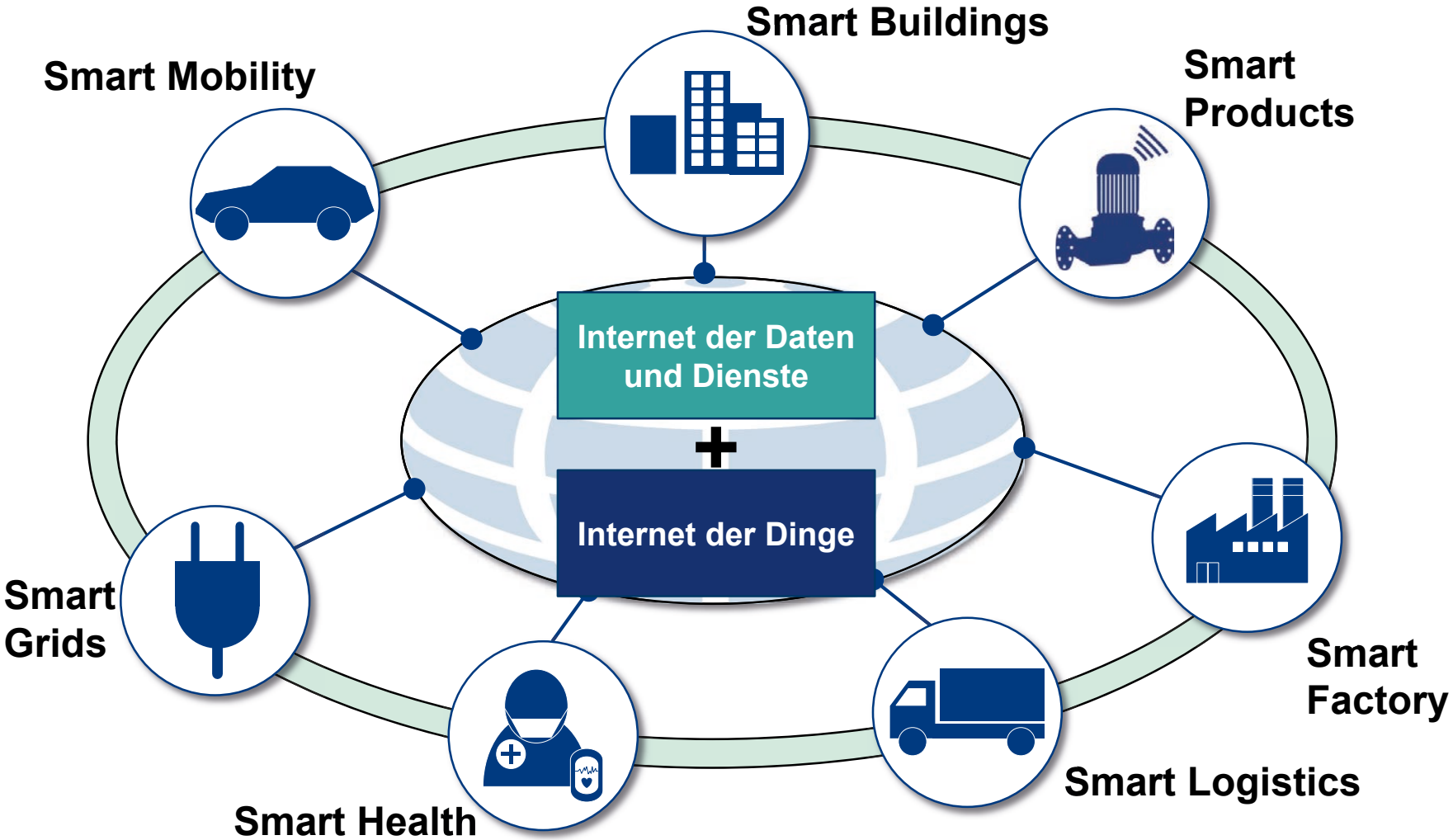
IDC --- Amerikanisches IT-Marktforschungs- und Beratungsunternehmen

without Smart Phones und PCs/Laptops/Tablets



Source: Mario Morales, IDC

Smarteness: Cyberphysical Systems



Quelle: SMART SERVICE WELT, 2015

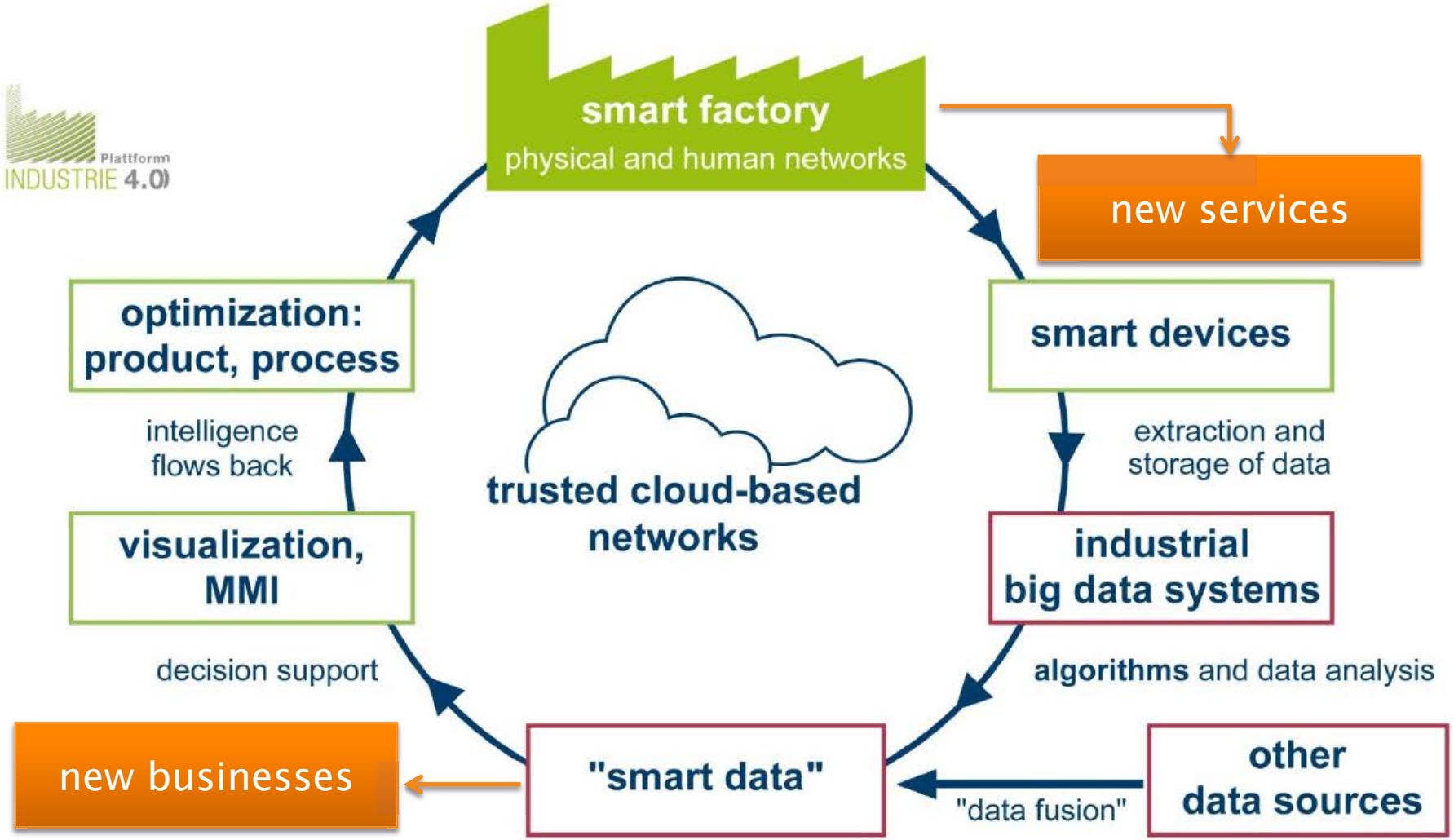
IoT Produkte

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



Quelle: acatech, 2013

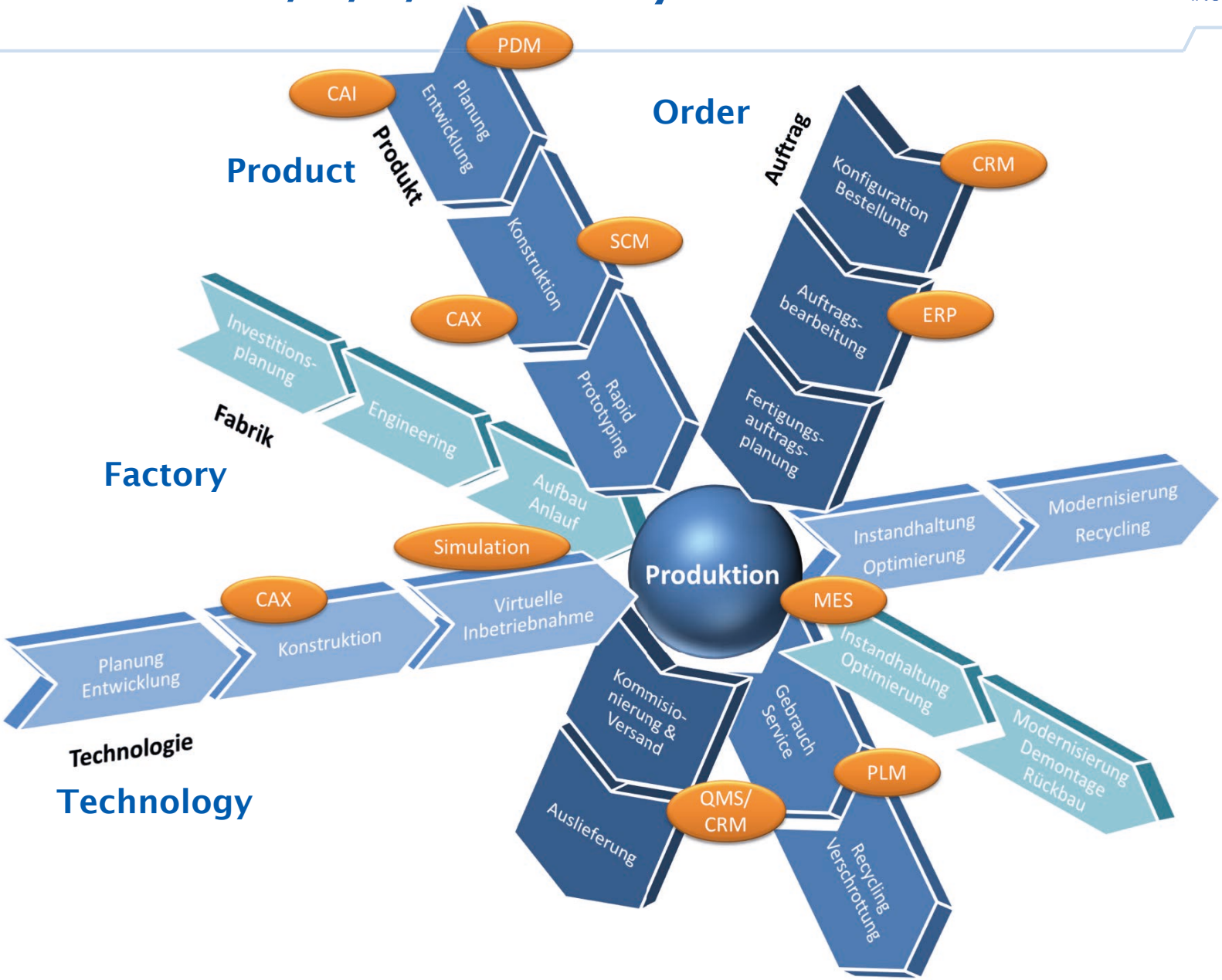
SILVA Light – Functionality

New Business Idea – Data Perception and Provisioning as a Service → 1,5 EUR p.d.

Smartphone, SILVA Light App + Cloud storage SILVA Light + Portal SCIP Light + Cloud storage SCIP Light + Smartphone/Tablet, SCIP Light App

- **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.

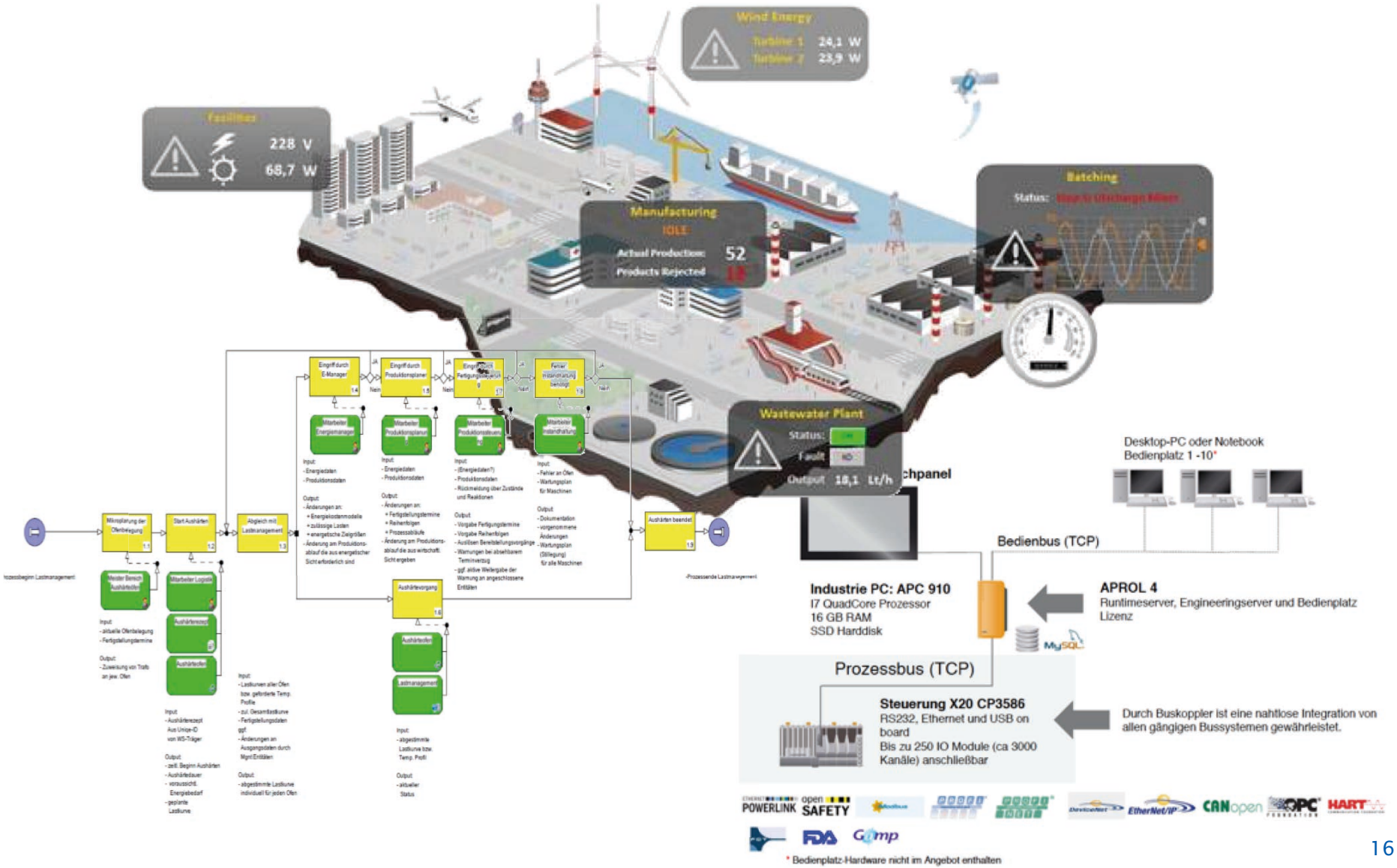
Interaction of F/T/P/O – Lifecycles



Quelle: nach DKE RM, 2013

Data Deployment as Cyber Physical Cockpit

xSCAD – extended SCADA – Prozessleittechnik



Implementation in a Virtual Control Unit

Decentralized Control Management

Office Floor

IT | Logistik | Entwicklung | Personal

Einkauf | Produktion | Vertrieb

LAN / WAN

Energiebörse

Kunde

...

Public Cloud

Shop Floor

Energiesteller IP

LAN / WAN

Industrie-ofen

Industrial Cloud

viSPS

reglementierter Zugang

Temperatursensorik IP

LAN / WAN

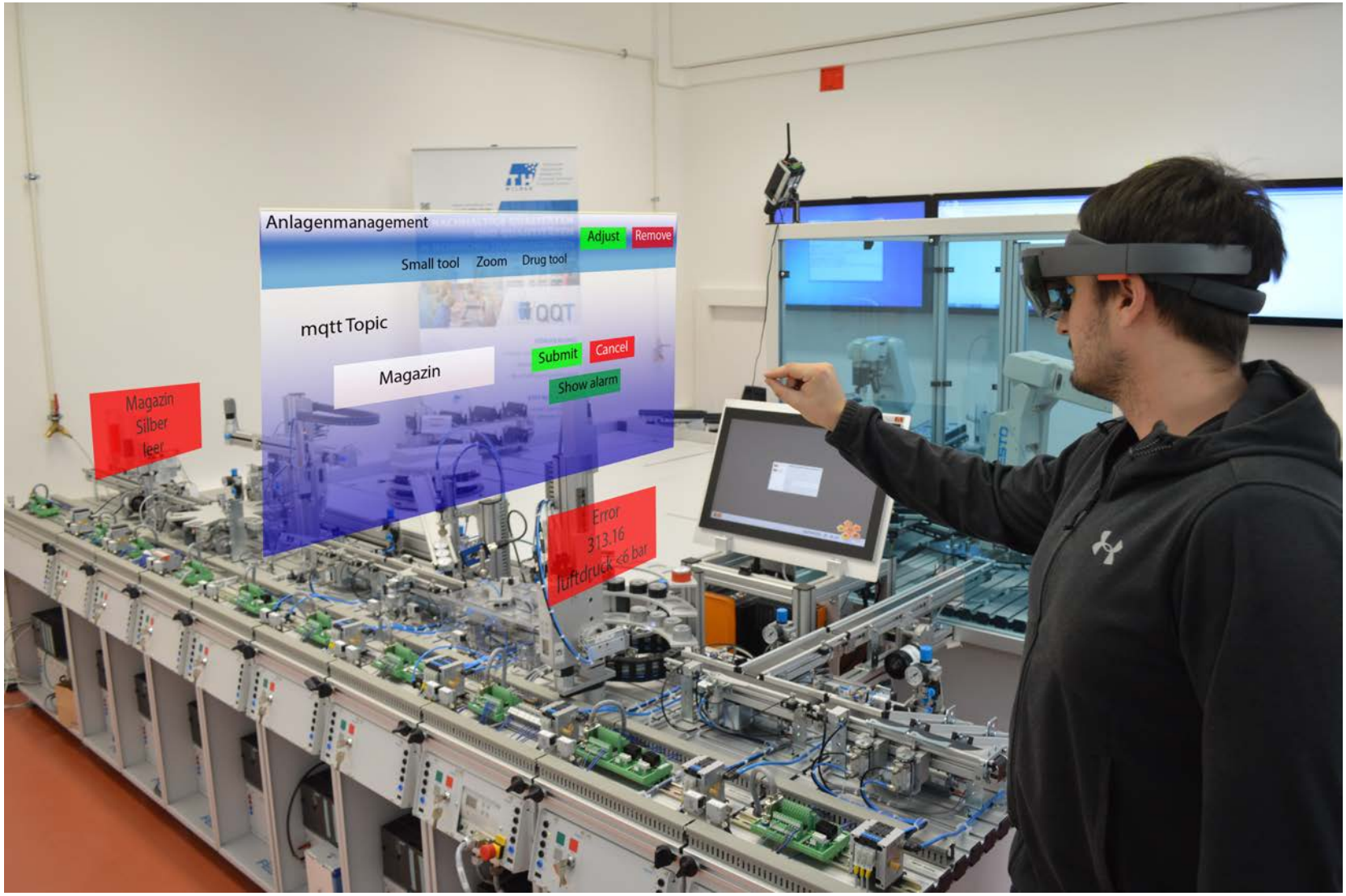
LAN / WAN

Unternehmen

The Technical Entity as Production Partner

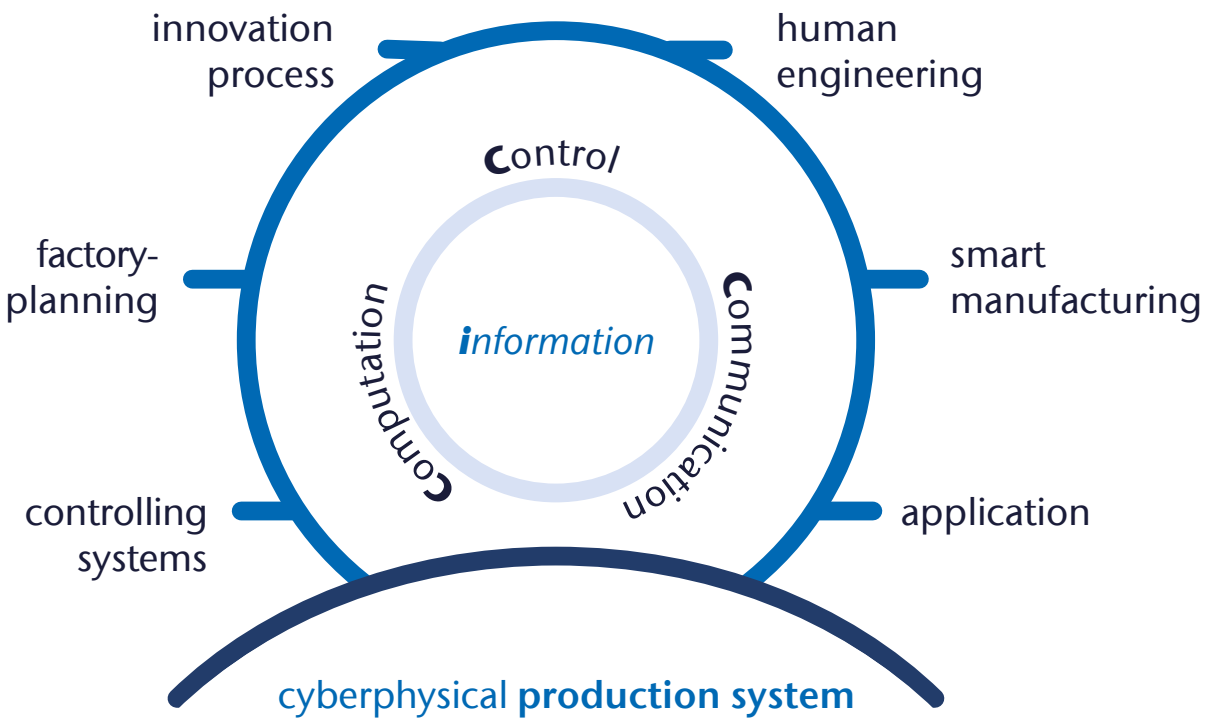
VIZIONZ7

Augmented Reality for Production Applications



Wildau'er Testcenter for Smart Integration

VI2IONZ7



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*(Automation Technology) - **Speaker***

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(Telematics)

Centre of Competence Cottbus – Hub Wildau

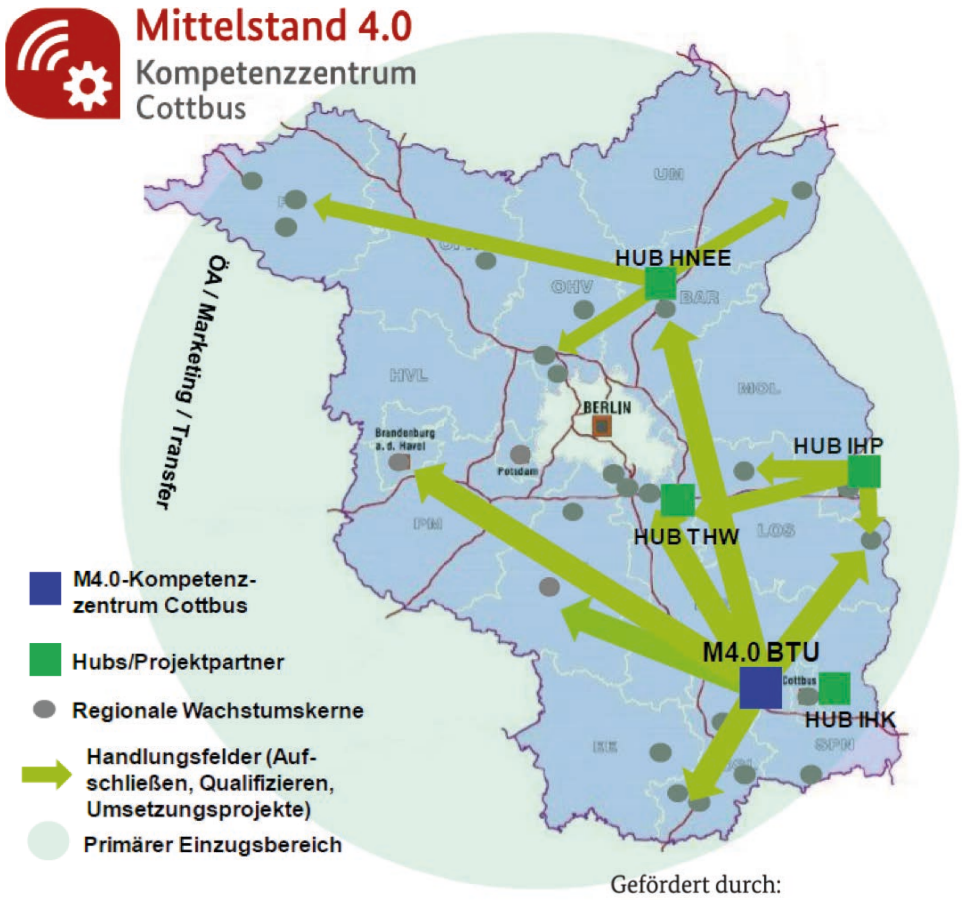
LTA*fit* **L**...learn **T**...train **A**...assist

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



Gefördert durch:

Mittelstand-Digital

Bundesministerium für Wirtschaft und Energie

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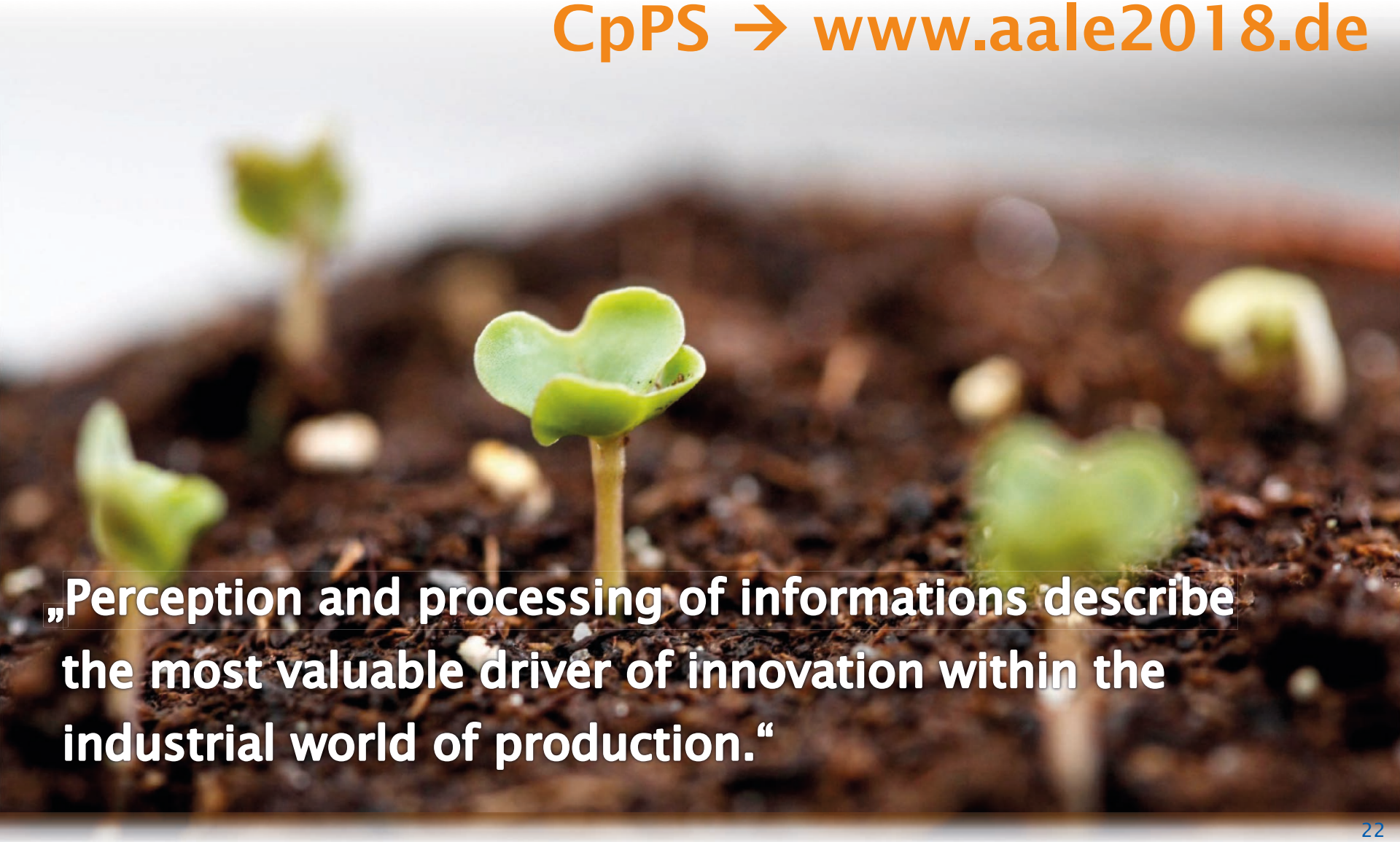
Thanks for Attention!

Technische Hochschule Wildau
Technical University of Applied Sciences

CpPS → www.aale2018.de



„Perception and processing of informations describe the most valuable driver of innovation within the industrial world of production.“