PLATTFORM INDUSTRIE 4.0

Platform Industrie **4.0**

Brief introduction of WG 3

"Security of networked systems"

Michael Jochem, Robert Bosch GmbH, Chair of WG3

Platform Industrie 4.0

Five things we do.

1. Focus on the **needs of businesses** and of end users
2. Create a **central point of contact** (for international partnerships and alliances)
3. Ensure acceptance through high **transparency and participation**
4. Develop a common language, **objective and key messages**
5. Establish **clear structures** and reliable processes for the day-to-day work of the platform

The **Platform Industrie 4.0** is the moderator of and catalyst for the exchange amongst all societal actors in the pre-competitive phase

The new Platform Industrie 4.0

Structure

Chair
Ministers Zypries, Wanka

Representatives from business, trade union, academia
Political integration

Technical and practical competences, decision-making

Political direction, societal actors, multipliers

Market-linked activities

Steering Committee (business)

- Led by businesses, with the participation of BMWi, BMBF
- Chairs of working groups and other guests/ ambassadors

Development of industrial strategy, technical coordination, decision-making and implementation

Working Groups

- Reference Architectures, Norms and Standardisation
- Research and Innovation
- Security of Interconnected Systems
- Legal Framework
- Employment, Apprenticeships and Life-Long Learning
- Others, as needed

Working bodies with technical and practical competences; departments involved: BMWi, BMBF, BMI, BMJV, BMAS

Strategy Committee (Politics, industry associations, trade union, academia)

- Chair: Secretary of State Machnig, Secretary of State Schütte
- Representatives of the Steering Committee
- Representatives of the Federal Chancellery, BMI
- Representatives of the Federal States Working Group
- Representatives of the industry associations (VDMA, ZVEI, BITCOM, BDI, VDA, BDEW)
- Representatives of the trade union (IG Metall)
- Representatives of the academia (FhG)

Agenda-Setting, political steering, multipliers

Industrial consortia and initiatives

Market implementation: Testing, Use Cases

International standardisation

Standardisation bodies (DKE and others), consortia

Academic Advisory Board

Project office as service provider
Coordination of the network, organisation, project management, internal and external communication

The Working Groups
Five thematic priorities

Working Group 1:

Reference Architectures, Norms and Standardisation

Chair:
Kai Garrels,
ABB STOTZ-KONTAKT GmbH

Working Group 2:

Research and Innovation

Chair:
Johannes Diemer,
Hewlett Packard

Working Group 3:

Security of Interconnected Systems

Chair:
Michael Jochem
Robert Bosch GmbH

Working Group 4:

Legal Framework

Chair:
Dr. Hans-Jürgen Schlinkert,
ThyssenKrupp

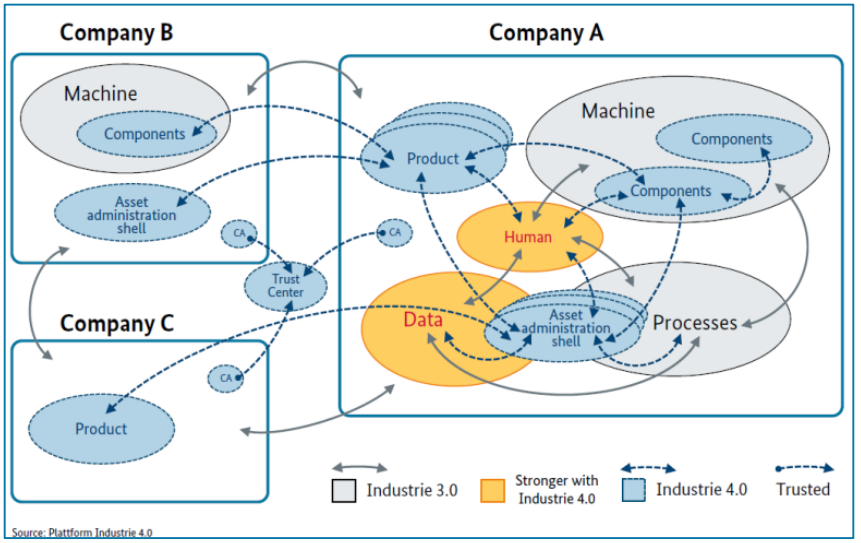
Working Group 5:

Employment, Apprenticeships and Life-Long Learning

Chair:
Konrad Klingenburg
IG Metall

Arbeitsgruppe 3
Challenges of Industrie 4.0

- Increasing flexibility and customer-specific production by
  - ad-hoc networking to value creation networks across company boundaries
  - direct data exchange of all entities (people, machines, processes etc.)
  - → **Increasing of the attack area**



Boundary Conditions of Industrie 4.0

- Data exchange between the entities bases on trust of the partners
- Legally relevant communication between machines entities will be necessary to realize ad-hoc networks

Traditional machine suppliers rarely have core competences in the relevant technical and organizational fields of security

Working group 3
Identified key topics

- **Secure communication for Industrie 4.0**
  - What are the essential requirements for dynamic value creation networks across companies and how to build an infrastructure for this?
- **Trustworthiness**
  - How to determine the trustworthiness of an I4.0 component, e.g. With a uniform metric, which level of trust is required within a value creation network.
  - How to determine the real trust level along the value creation network?
- **Identities and their protection / verification**
  - What is a secure identity?
  - Why are secure identities important?
  - How can you verify if an identity is secure?
- **Integrity of data and systems**
  - What is the integrity of data and systems?
  - How to ensure the integrity?
- **Legal contracts**
  - Knowledge of the skills and possibilities (of trustworthiness) of the individual participants

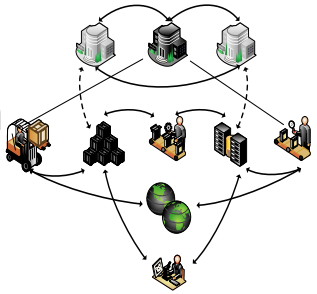
Publications by WG 3

Title	Publication	Document type
IT security in Industry 4.0	CeBit 2016	Guidelines
Secure identities	HMI 2016	Working paper
Secure communications between companies	HMI 2016	Working paper
Security in RAMI	HMI 2016	Guidelines
IT security in Industry 4.0 – Fields of action for operators	IT Summit 2016	Guidelines

Publications by WG 3

Title	Publication	Document type	
Industrie 4.0 security in vocational and advanced training: New issues for business organisation and expertise	IT Summit 2016	Working paper	
Security of the Asset Administration Shell (only available in German)	HMI 2017	Discussion paper	
Application scenario in practice: order-controlled production of a customized bicycle handlebar	HMI 2017	Working paper	
Secure Communication for Industrie 4.0 (only available in German)	Digital Summit 2017	Discussion paper	

Summary
Core messages of WG 3



- **Security is the “enabler” of Industry 4.0 in the value creation networks!**
  Industry 4.0 is only possible with adequate security
- **Security by design**
  Security must be a fundamental component of development, deployment and operation
- **Security concerns all of us!**
  It is a joint task that requires cooperation between departments and across company boundaries throughout the entire value creation network. Security becomes a cross-sectional task
- **Security is a “moving target”**
  We are never done. The core questions – “What should I expect?” and “Which measures must be taken?” – must be re-evaluated again and again