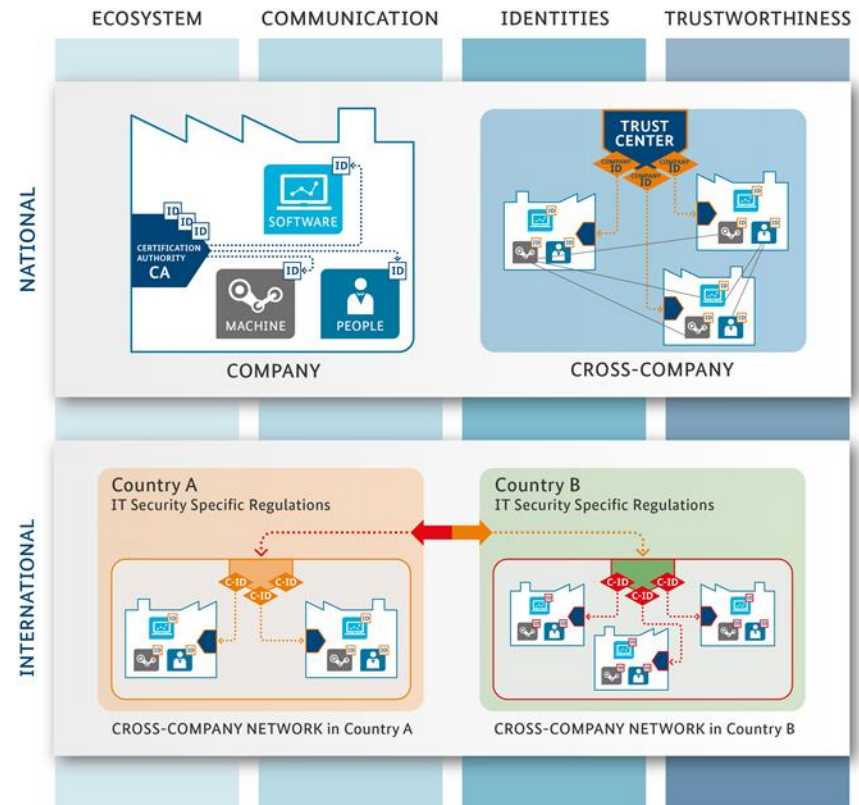# Challenges of security aspects of global industrial value chains

Michael Jochem, Robert Bosch GmbH
Berlin, 2018/05/15

Introduction

▶ Concept of the Conference

▶ PI4.0 identified 4 key topics
   ▶ Secure ecosystem
   ▶ Secure communication
   ▶ Secure identities
   ▶ Trustworthiness

▶ The four issues have been selected to provide a framework for this international discussion
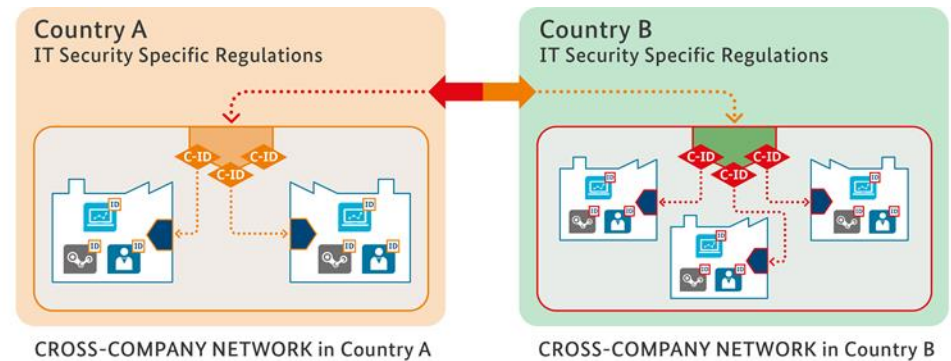
Use Case Shoe Machine Production

▶ Machines and solutions for the footwear manufactures and shoe brands
   ▶ Order-controlled production of individual shoes (lot size one production)
   ▶ Platform for different show brands
   ▶ Advantages for shoe brands
      ▶ Integration of external production modules to increase production capacity
   ▶ Advantages for shoe manufacturers
      ▶ Increase of efficiency by offering free capacities

▶ Challenges
   ▶ Tenant separation
   ▶ Transfer of the data record to the right partners regardless of the country in which they are located.
   ▶ Protection of the customer specific shoes design and digital twin over the complete supply chain
   ▶ Handling of personally identifiable information (PII)

Challenges for a secure ecosystem

▸ Comprehensive security
architectures for all parties
involved (customer,
manufacturer and supplier),
regardless of the country in
which they are located.

▸ Framework to ensure
standardized, interoperable
security policies

▸ Protection of the digital twin
and the physical instance

Country A
IT Security Specific Regulations

Country B
IT Security Specific Regulations

CROSS-COMPANY NETWORK in Country A

CROSS-COMPANY NETWORK in Country B

Challenges for a secure communication

▸ **Confidentiality and integrity** of data exchange across company boundaries require interoperable **security policies** and recognized bodies as well as **transparent governance structures** for the allocation of identities.

▸ Trust Centers offers "Trusted Services"
  ▸ Multiple instances in one country required (no-single-point-of-failure)
  ▸ Company-IDs

▸ Identification and authentication of the relevant participants

CROSS-COMPANY
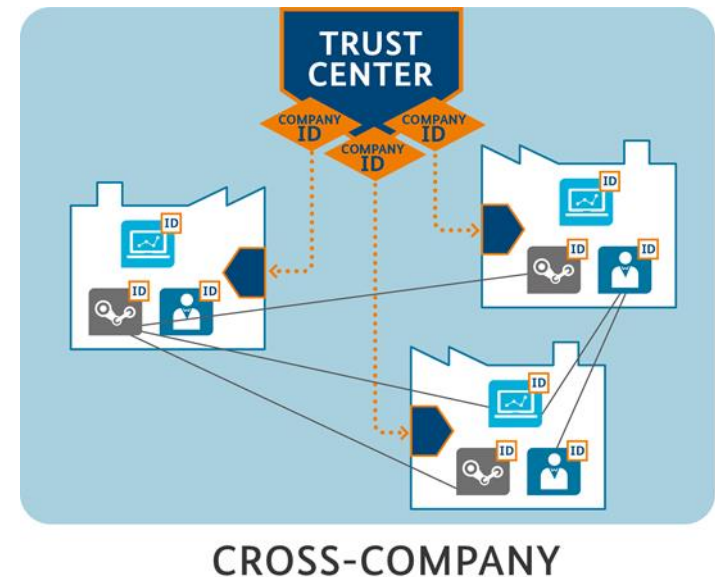
Challenges for secure identities

▶ Within a company, manufacturer or supplier, each participant (people, machines and software) must know who they are talking to.

▶ The interactors of Industrie 4.0 must be provided with identities.
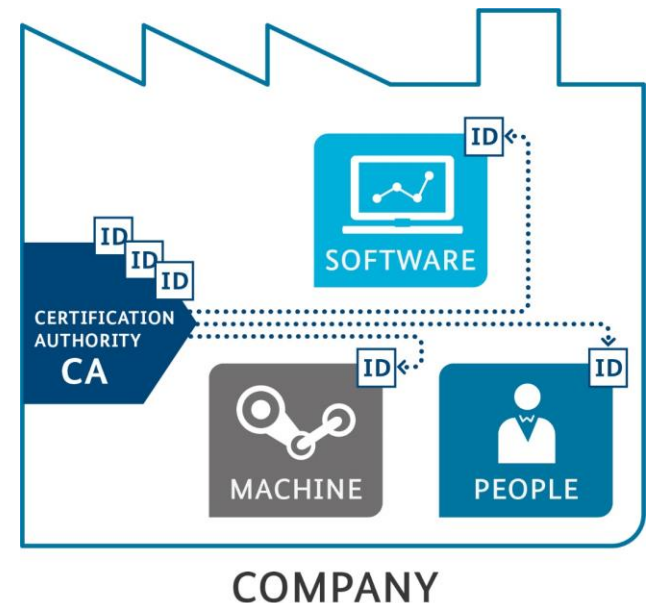
Challenges for trustworthiness

▶ For a successful, trustworthy exchange of information, there must be confidence in the security of the communication link and in the secure processing of the information by the respective communication partners (suppliers or manufacturers)

▶ How can the degree of trustworthiness be evaluated and automatically passed on to potential partners?

CROSS-COMPANY
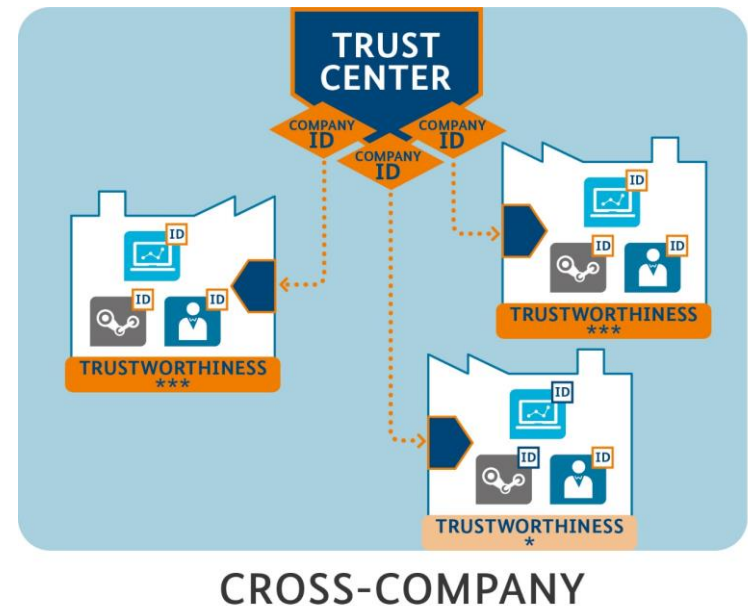
Plattform Industrie 4.0
Working Group „Security of Networked Systems"

Thank you for your attention!

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