

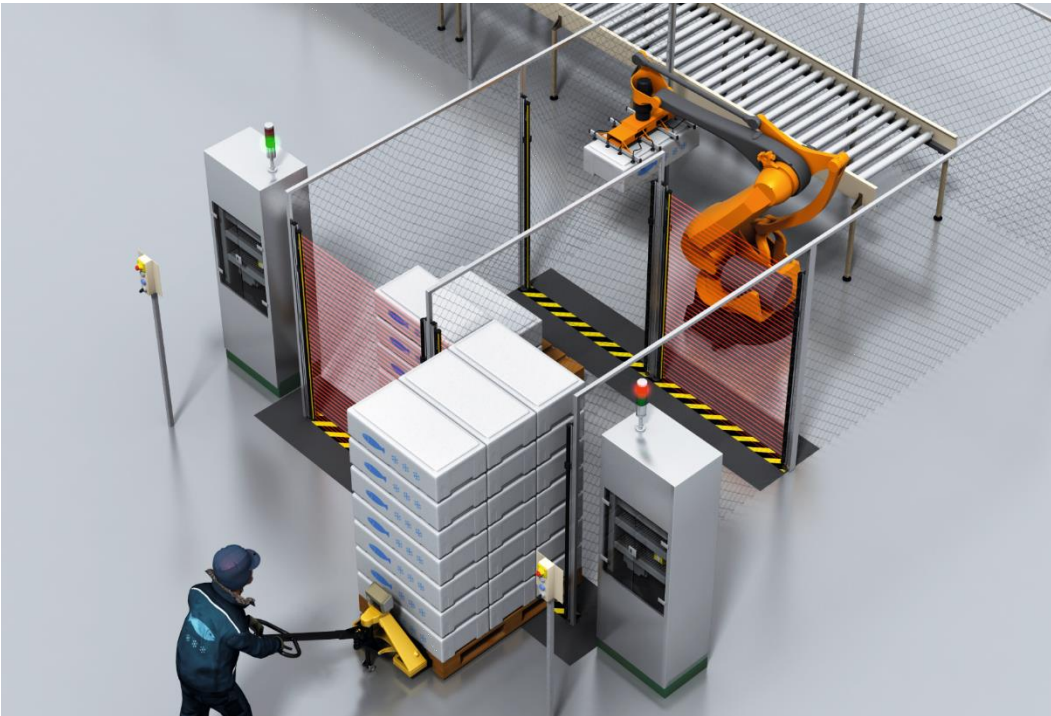
# **SICHERHEIT AUF DER FELDBUSEBENE**

## **Die Entstehung der PROFINET Security Spezifikation**

### **Sebastian Heidepriem**

**SICK**  
Sensor Intelligence.

Hannover Messe Industrie  
Forum Industrial Automation



## SAFETY

FMEA (FAILURE MODE AND EFFECT ANALYSIS)  
CALCULATE RESIDUAL RISK



## SECURITY

STRATEGY  
ASSESSMENT

pictures: © SICK AG

- Smoke out
- Chemistry
- Flooding
- Buttermilk
- Chlorine water
- Fertilizer
- Fish heads
- Bottle trick
- Hammering
- Elderberry blossoms
- Imperial Crown
- Garlic
- Electric mole
- Horseradish
- Human hair
- Mothballs
- Music
- Petroleum
- Horses
- Aftershave
- Soap liquor
- Windmills
- ....to be continued

picture:pixabay.com (public domain)

## PROCEDURES

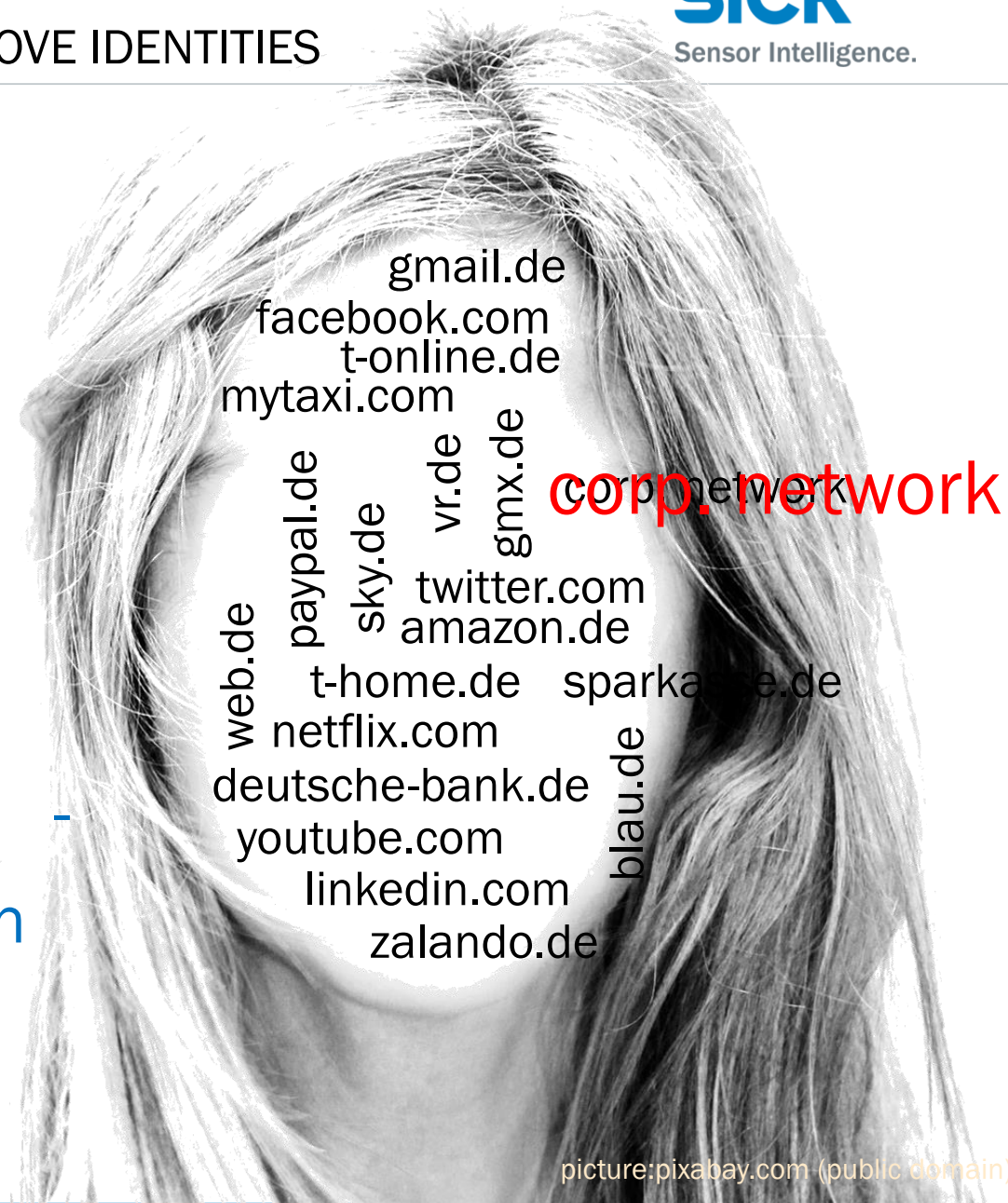
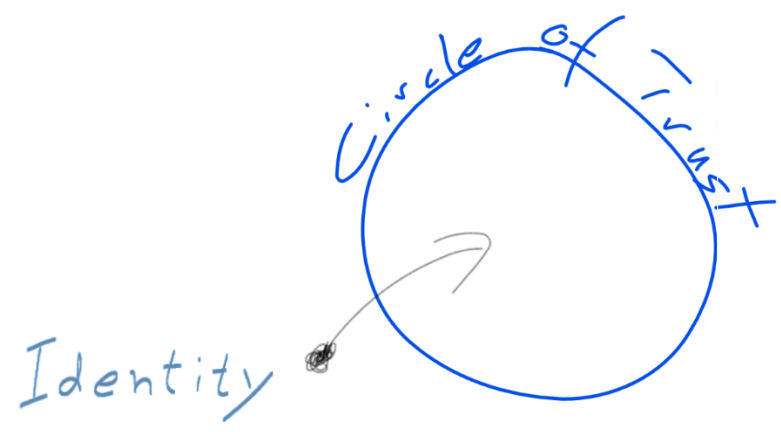
- User Stories / Use Cases
- STRIDE Threat Model
  - ▶ Spoofing
  - ▶ Tampering
  - ▶ Repudiation
  - ▶ Information disclosure
  - ▶ Denial of service
  - ▶ Elevation of privileges
- Search and evaluate given methods
  - ▶ Message authentication
  - ▶ Partner authentication
  - ▶ Authorization
  - ▶ Network access control
  - ▶ ...

## RELATED DOCUMENTS

- PROFINET Security Guideline
- SEC\_PRO
- IEC 62443
  - ▶ 3-3
  - ▶ 4-1
- NE 153

- Costs for downtime
- Costs for loss of control
  
- Availability of a house without doors ?
  - Privacy
  - Content (furniture, electronics, instruments)
  - Valuables
  
- Availability of a machine without security ?
  - Know how
  - Productivity
  - Quality





Single Sign On is not an option  
it's the **only** option!

picture:pixabay.com (public domain)

- Increase of importance
  - ▶ Safe feeling
  - ▶ Regulations (insurance, law)
  - ▶ Actual necessity
- State-of-the-art ?  
→ industry specific
- Management of entities
  - ▶ Secure identities
  - ▶ Circle of trust
  - ▶ Single sign on / central sign on

Prediction without guarantee





FRAGEN

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VIELEN DANK FÜR IHRE  
AUFMERKSAMKEIT.



Sebastian Heidepriem  
Zentrale Forschung und Entwicklung  
Leiter Industrial Software