# Cybersecurity Risks in Industry 4.0 Environments

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„More than 400 businesses were targeted every day in 2016, resulting in more than $3 billion in losses”

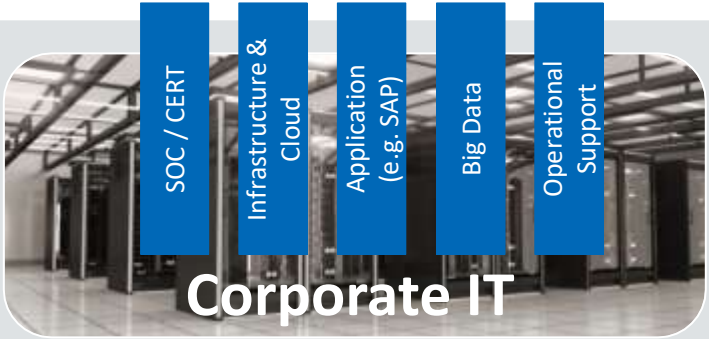
Alliance for Manufacturing Foresight, 2017

**Problem: 99 % of all OT attacks are not detected**

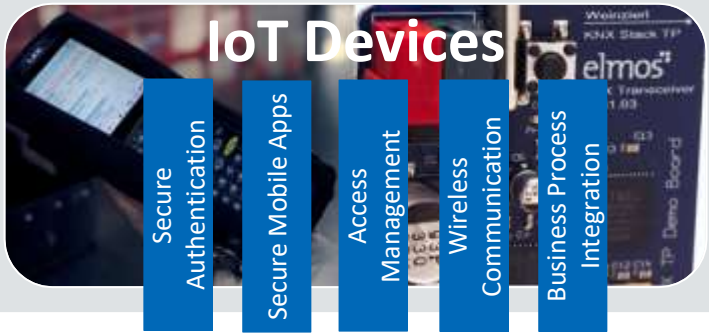
# Securing the Transformation – Business meets IT

**Compliance**

GDPR


Business Transformation


ISO 27001

ISA/IEC 62443

# TOP Risks in OT Environments

- Unknown target security level
- No network visibility
- Unknown vulnerabilities and resulting risks
- Unknown remote connections for maintenance or predictive maintenance
- Malware infection via Internet and Intranet
- Malware via removable media and external hardware
- No security awareness
- No security architecture in place
- No clear network segmentation in place
- No OT governance

# Global Cyber Security Services for IoT/OT

NTT's Global Managed Services Platform provides a single view of dynamically evolving threats in real time, by applying advanced analytics to data gathered globally from a wide variety of sources, including NTT's internet & clouds, managed security services, communities, and vendors. Managed Security Services for IoT/OT environments were launched in 2017.



# Is IT-Security based on ISO 27001 enough for IoT/OT environments?

**What is already done with ISO 2700x?**

- Focus on Confidentiality (C), Integrity (I), Availability (A)
- Information security management system (ISMS)
- Classification of information, risk analysis, security concept
- Plan-Do-Check-Act approach for IT-Security

**What is missing?**

No dedicated focus on IoT/OT for different user groups (manufacturer, integrator, operator) especially for:

- Non standard-IT equipment in OT environments (e.g. sensors, PLCs, non IP communicating devices, …)
- Resilience requirements
- Health and safety requirements
- Realtime communication
- Unpatchable devices and unsecure industry protocols
- Lifetime requirements of OT-environment (e.g. 10 years, 20 years, …)

# International Standards for IoT/OT Security

- ISA/IEC 62443 (formerly ISA-99), 62264
- NIST 800 Standards
- ISO 2700x series
- ISO/SAE CD 21434 - Road Vehicles - Cybersecurity engineering
- NERC CIP (North American Electric Reliability Corp. / Critical Infrastructure Protection)
- ISO 27019 (Information security controls for the energy utility industry)
- NEI 08-09 (Nuclear Engine Institute)
- ANSI/CAN/UL 2900 Standards
- Regional Standards (BSI)
- IT-Sicherheitsgesetz (KRITISV – security for critical infrastructures)
- IEC 80001 (Risk assessments for medical devices)
- …

# NTT OT-Security Project Approach

# Security Visibility Across Your ICS Environment

| | |
|---|---|
| **Vendor** | Rockwell Eng |
| **IP** | 192.168.0.10.12 |
| **OS** | Windows 7 / 2008 R2 |
| **Patch Vuln** | ? |

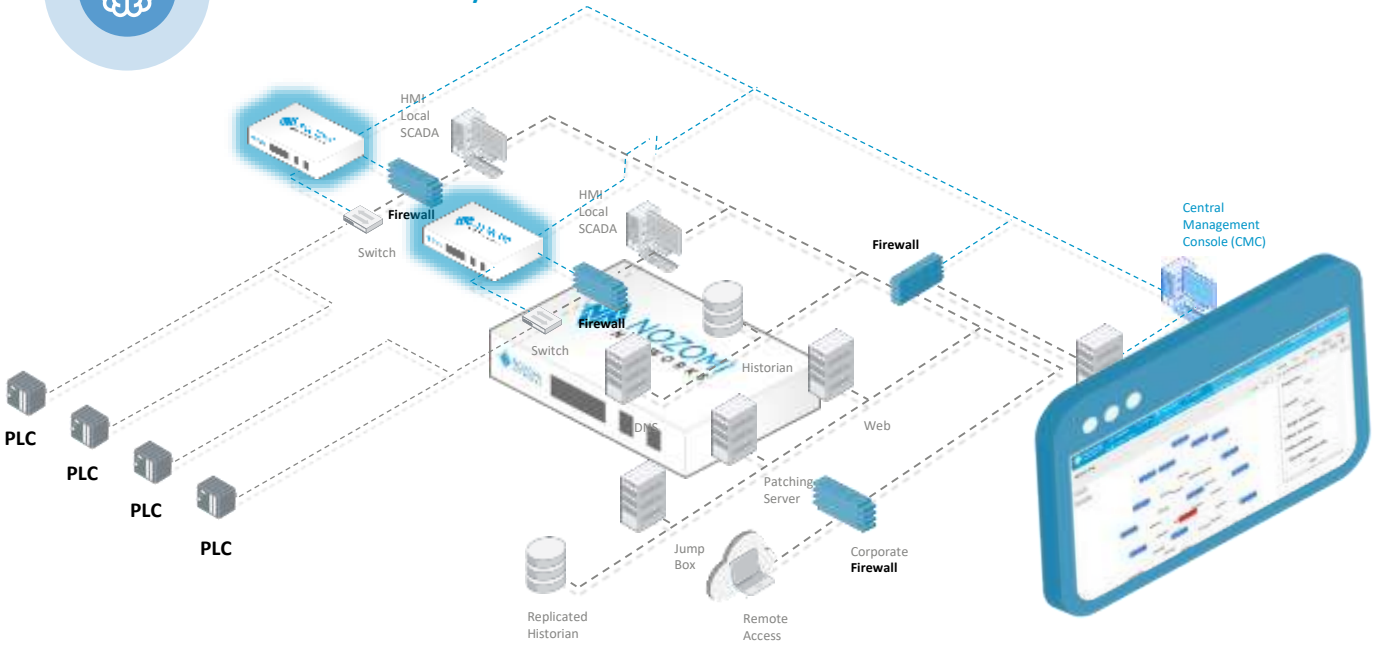
| | |
|---|---|
| **Vendor** | Honeywell |
| **IP** | 192.168.0.251.2 |
| **Firmware** | 12.028 |
| **Module #** | 0123 |

| | |
|---|---|
| **Vendor** | ABB |
| **IP** | 172.16.80.205 |
| **Firmware** | 4.380 |
| **Module #** | 0423 |

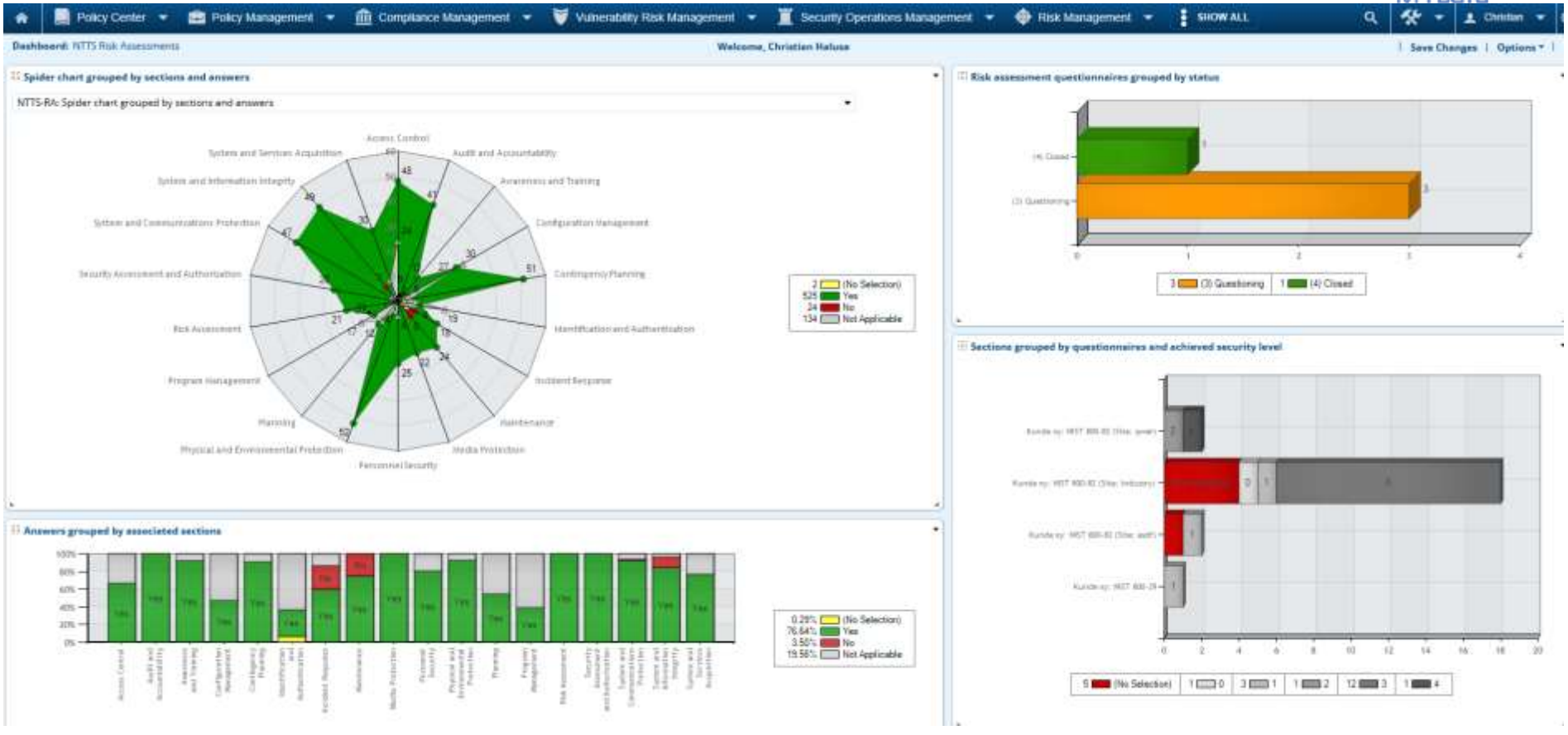
| | |
|---|---|
| **Vendor** | Schneider Electric |
| **IP** | 10.172.58.231 |
| **Firmware** | 16.020 |
| **Module #** | 8990 |

| | |
|---|---|
| **Vendor** | Rockwell |
| **IP** | 172.21.230.1 |
| **Firmware** | ? |
| **Module #** | ? |

AI-Enabled
**Passive Auto-Discovery**

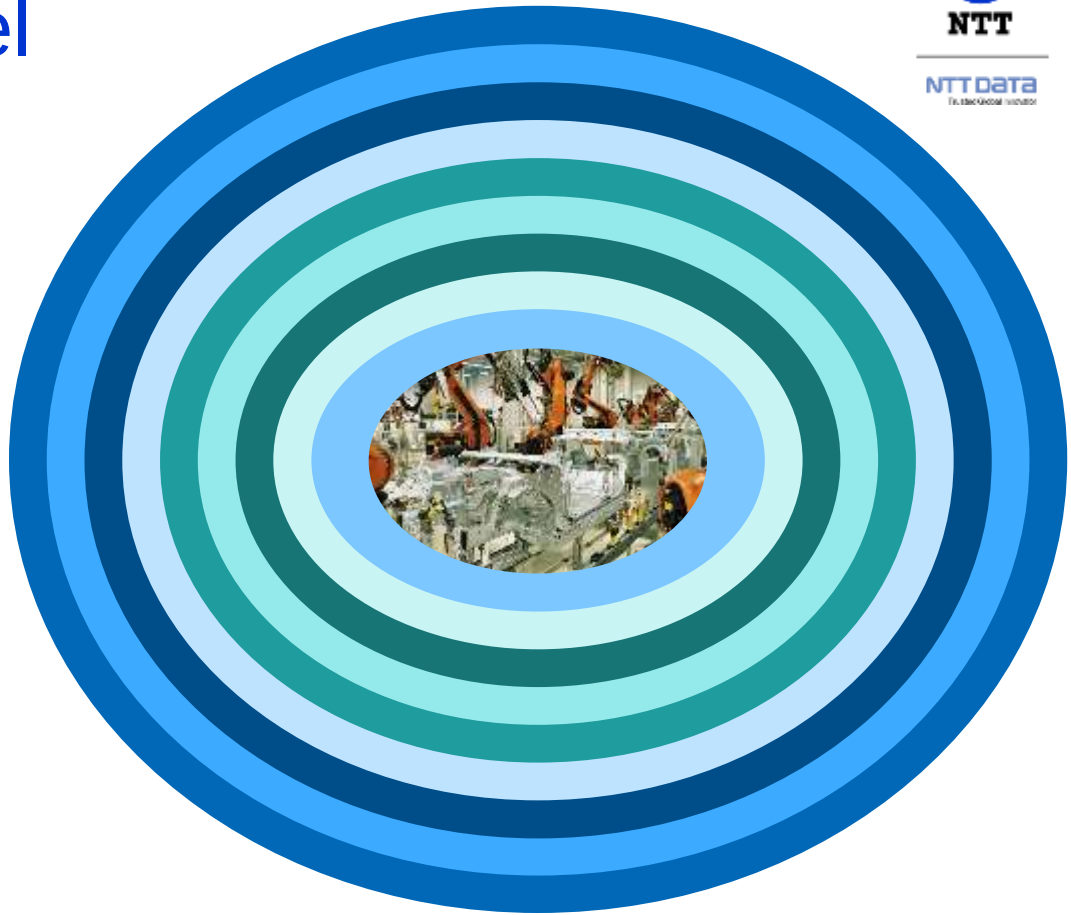


# NTT OT Security Assessment Report



# OT Security Model

- Network Visibility
- Risk Management
- Restrictive Network Segmentation
- Network Threat Detection
- Engineering Workstation / OT-Client Hardening and Application Control
- Patchmanagement of OT-Clients
- Antivirus, EDR – Client
- OT Security Operation Center and Security Operation Processes
- OT Security Awareness



**Secure** your IoT/OT environment so that the **Internet of Things** does not become the **Internet of Threats**


# Thank you

Besuchen Sie uns
**Halle: 9**
**Stand: 9-542**