

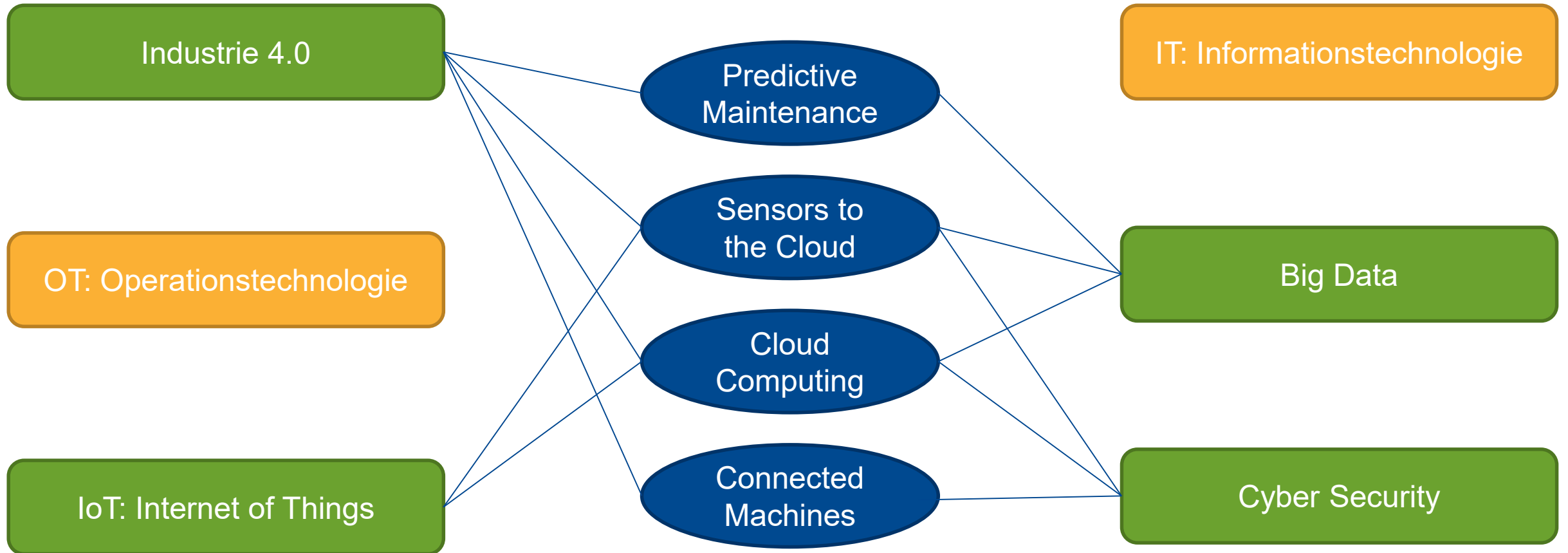
Automatisierungsnetzwerke und die Konvergenz von IT und OT

Lukas Wüsteney
Architekt CTO Office

November 2019

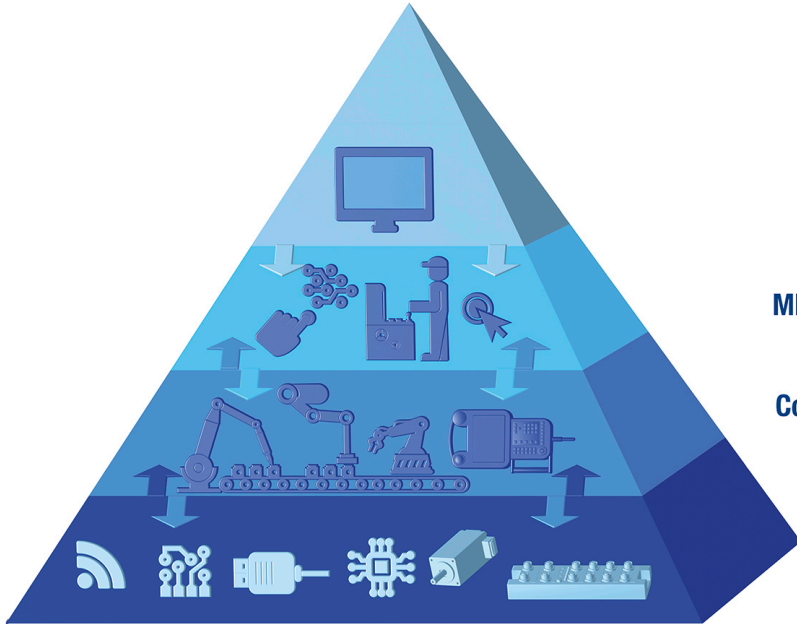
IT, OT, IoT, Big Data, Industrie 4.0 & Cyber Security

IT, OT, IoT, Big Data, Industrie 4.0 & Cyber Security



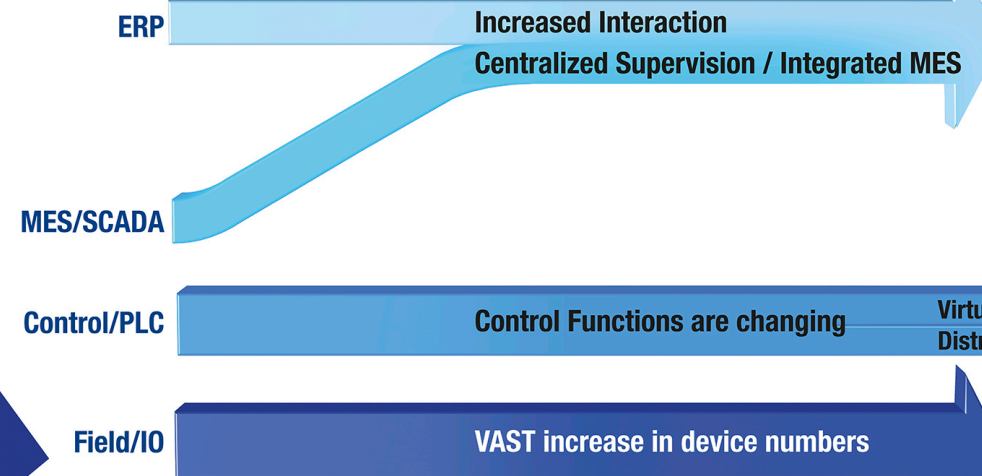
Industrie 4.0

Industrie 3.0



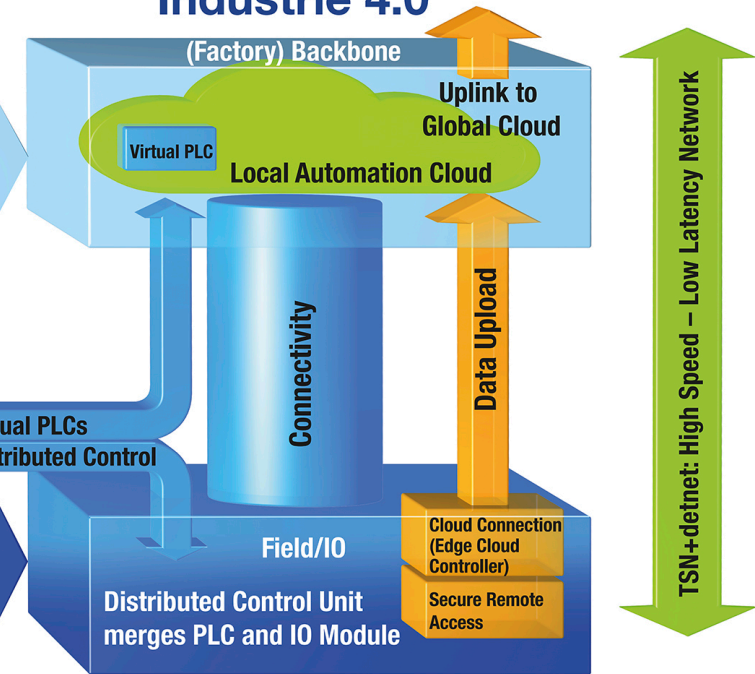
Automation Pyramid

Transition



Transforms to

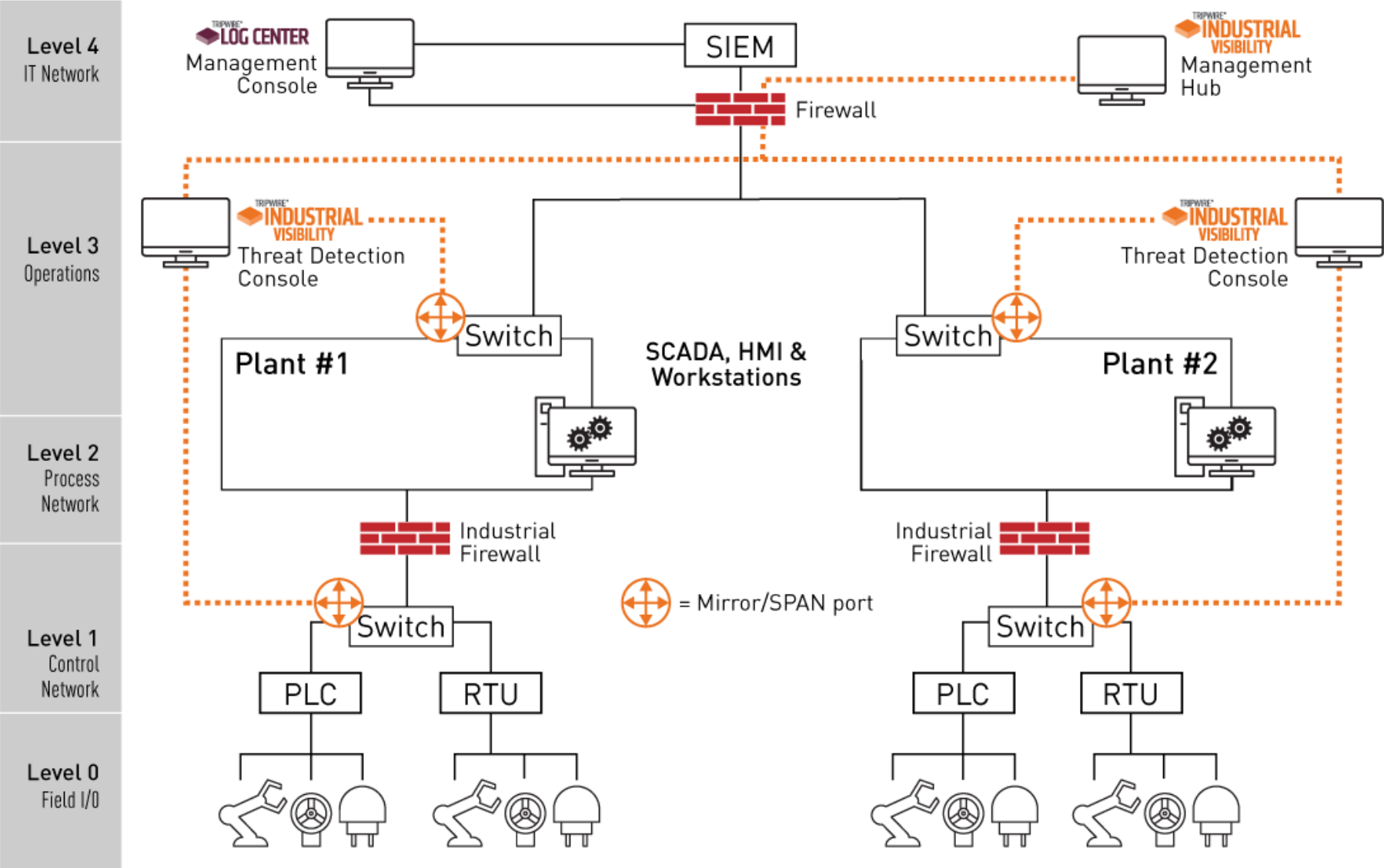
Industrie 4.0



Automation Pillar

Time

Cyber Security



Hirschmann Automation and Control GmbH



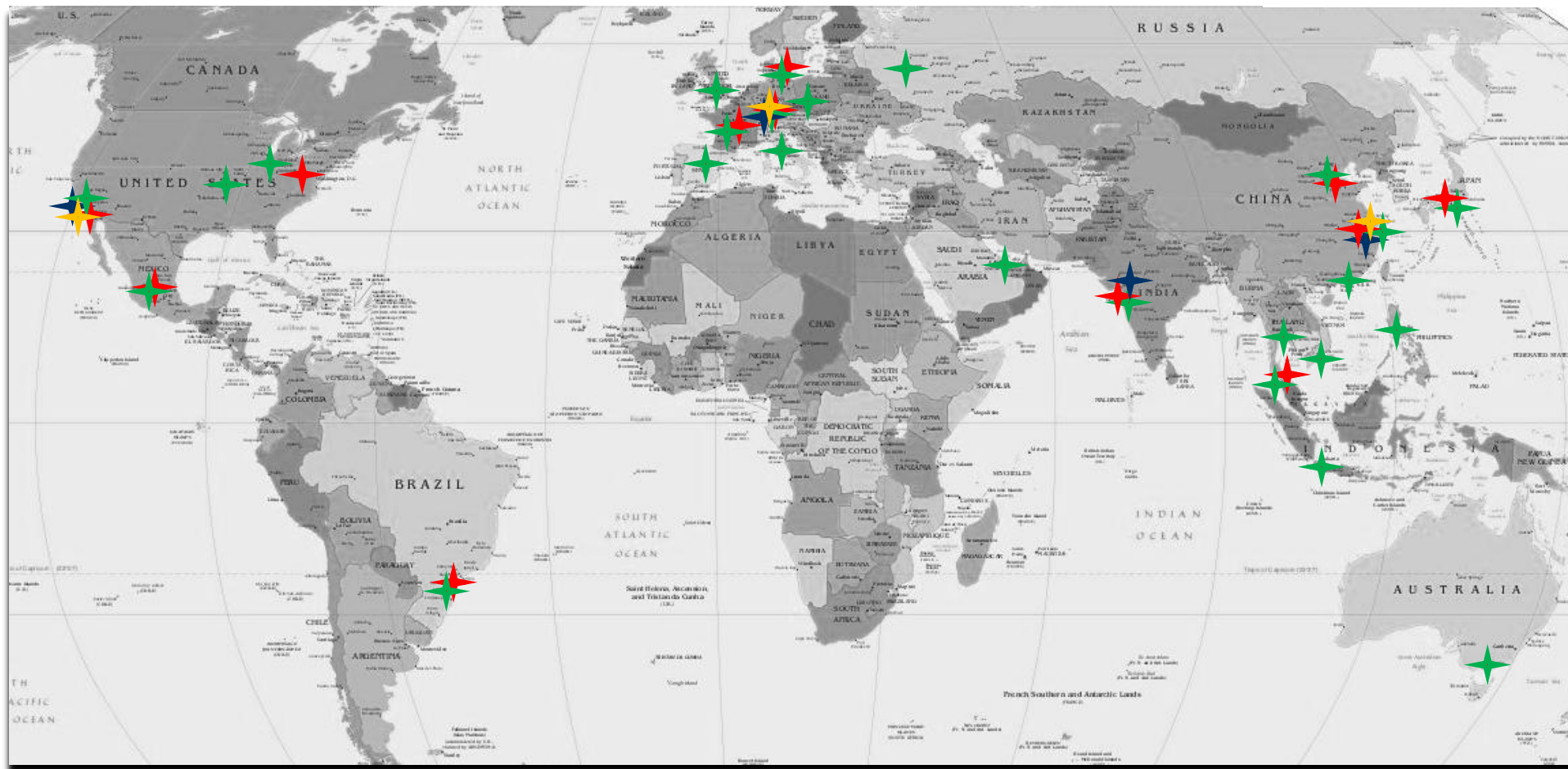
www.delcampe.net

originalanzeigen

Hirschmann as Part of Belden Industrial Solution



A **BELDEN** BRAND



- ★ Manufacturing
- ★ Tech Center
- ★ R&D Center
- ★ Sales Office

Transmitting and Securing Data, Sound, and Video in Harsh Industrial Environments

KEY SOLUTIONS

Cable

Fiber | Copper



Connectivity

Active I/O Modules | Passive Distribution Boxes | Connectors



Networking

Wireless | Gateways | Switches | Routers



Software

Security Configuration Management | Firewalls
Network Management | Vulnerability Management



KEY MARKETS

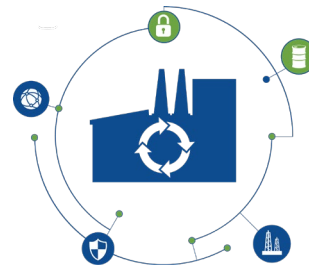
Discrete Manufacturing

Factory Floor Automation



Process Facilities

Process Automation



Transportation

Transportation Control Systems
and Wireless



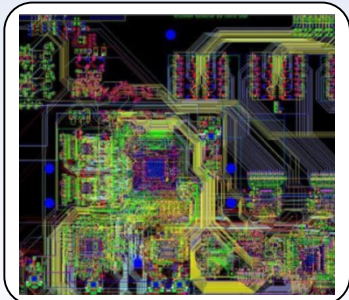
Energy

Smart Grid Infrastructure

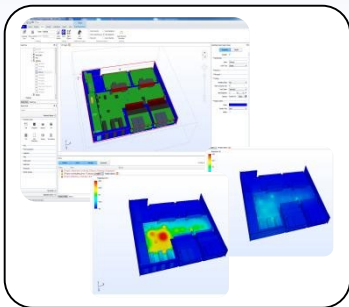




Technology trend setting
Standardization
Patents

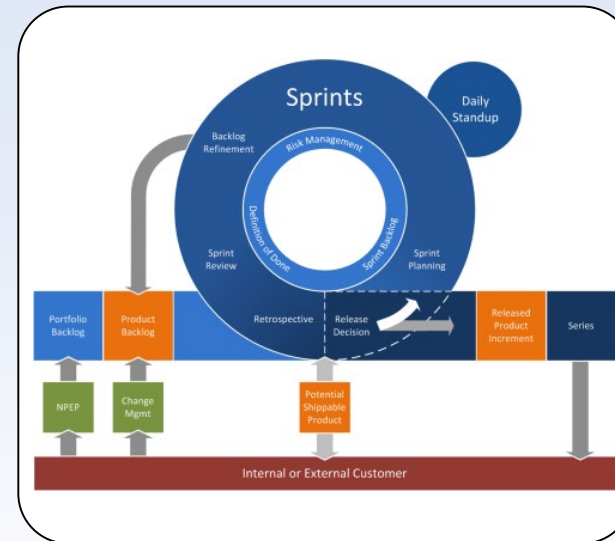


Design for highest
quality and performance

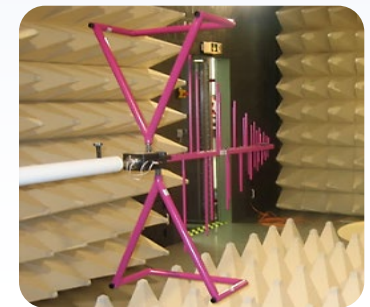


Thermal simulation

Agile Development Process



Extensive hardware
and software testing



Standardisierung

Standardisierung

- Grundlagen Standardisierung (e.g. IEEE 802)
 - Viele Firmen mit unterschiedlichem Hintergrund
 - Neue Lösungen für aktuelle und erwartete Probleme
 - Weit weg von technischer Umsetzung
- Marktorientierte Standardisierung (e.g. OPC Foundation, PNO)
 - Firmen mit sehr ähnlichem Hintergrund
 - Ähnliche Lösungen oder verschiedene Lösungen für gleiches Problem werden angeglichen
 - Technische Umsetzung immer im Hinterkopf



Neue Technologien

Neue Technologien

- Neue Redundanzen (802.1CB)
- Time Aware Traffic Shaping (802.1Qbv)
- Deterministisches WLAN (802.11ax / 802.11be)
- Deterministisches Mobiles Band (5G)
- Höhere Bandbreiten (> 1 Gig.)
- OPC UA / PubSub

Herausforderungen durch schnelle Änderungen

Messen von Redundanz Performance



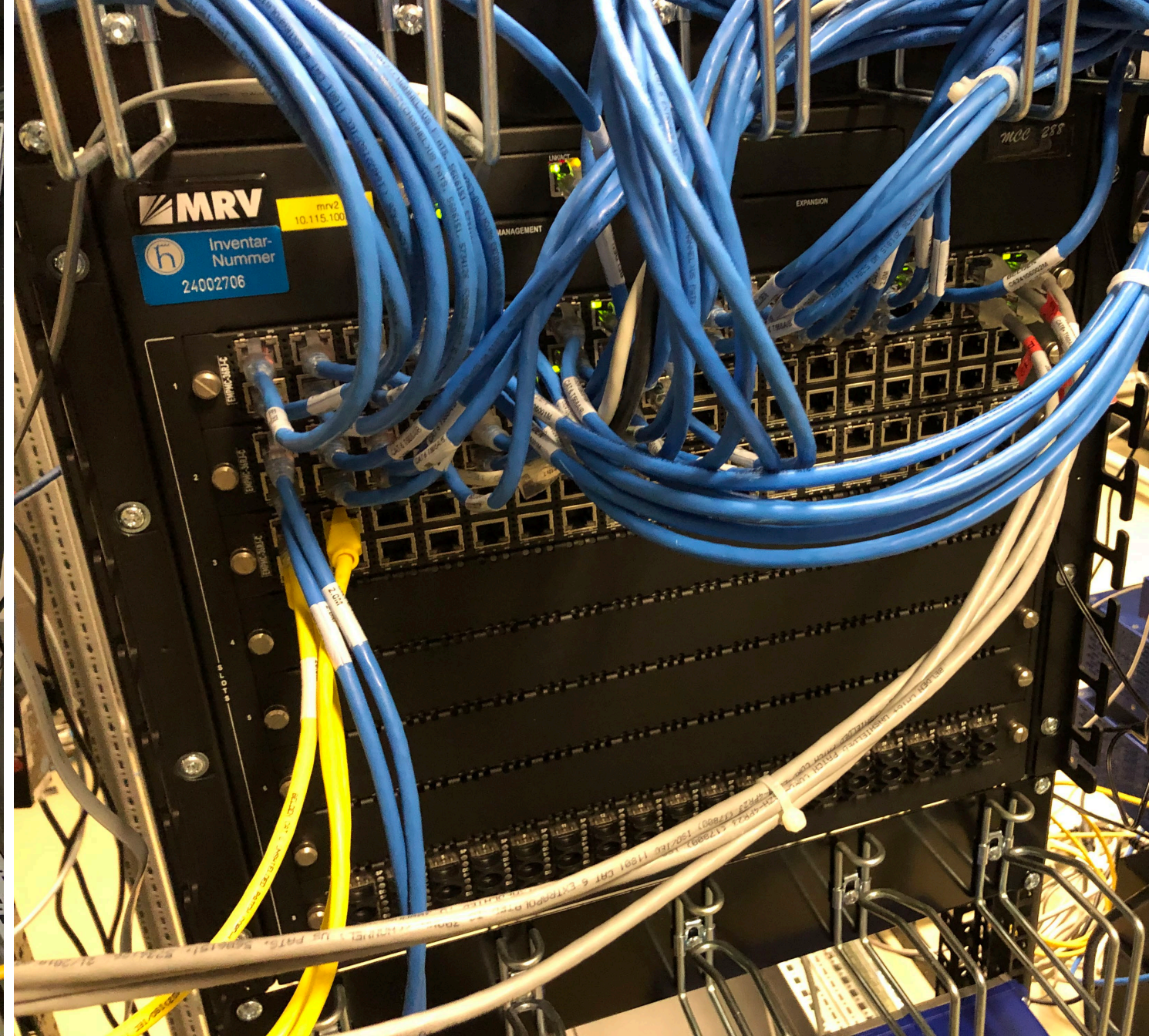
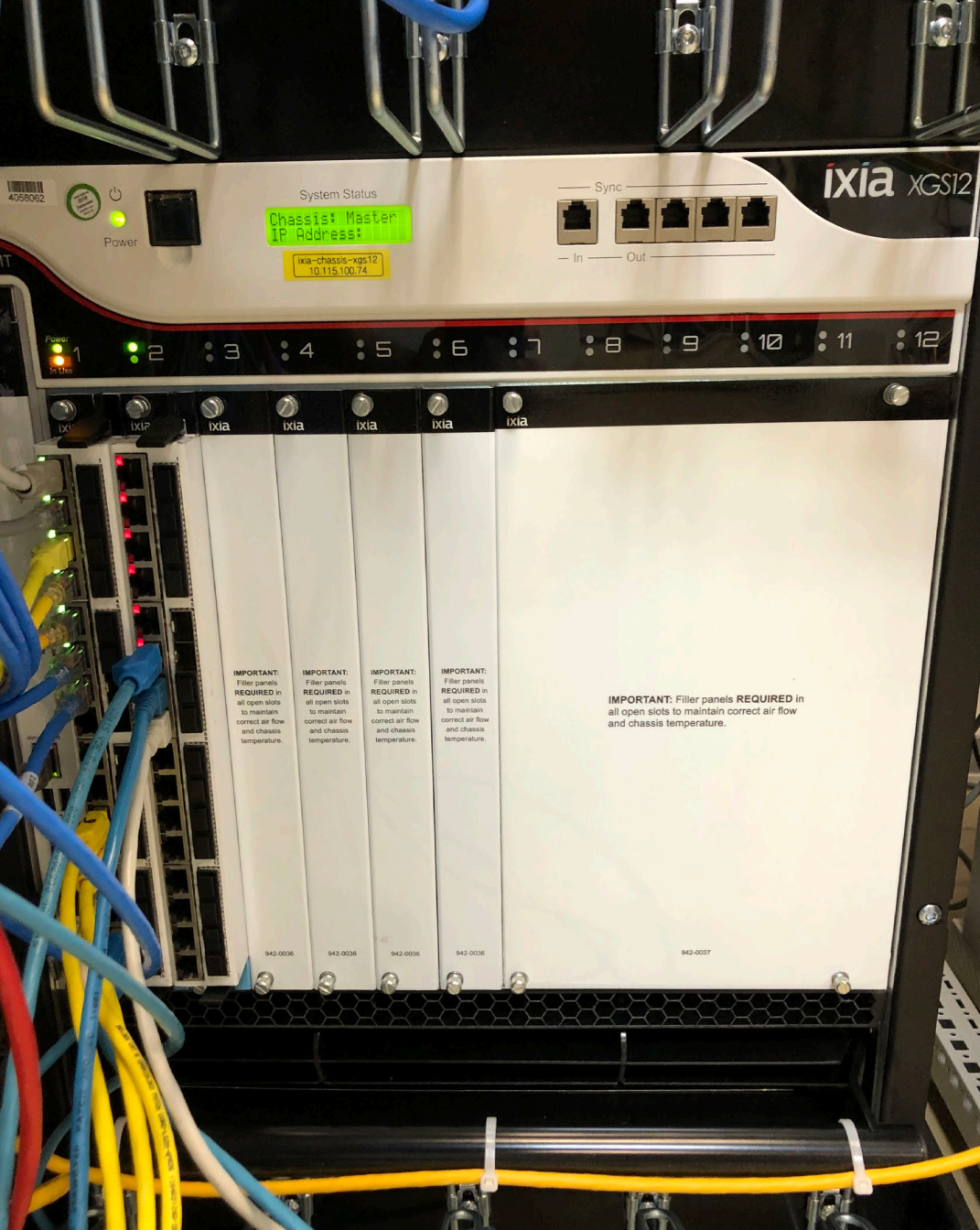
Messen von Redundanz Performance



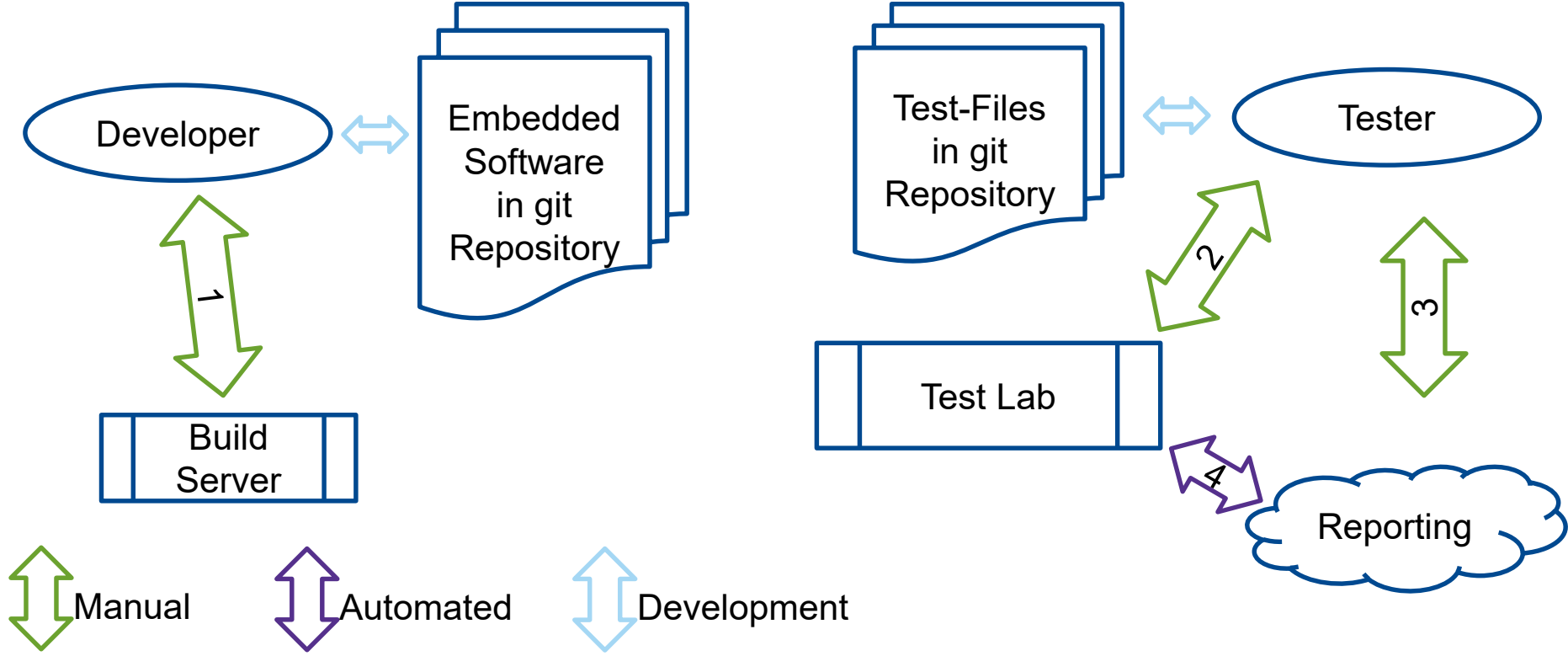
Messen von Redundanz Performance



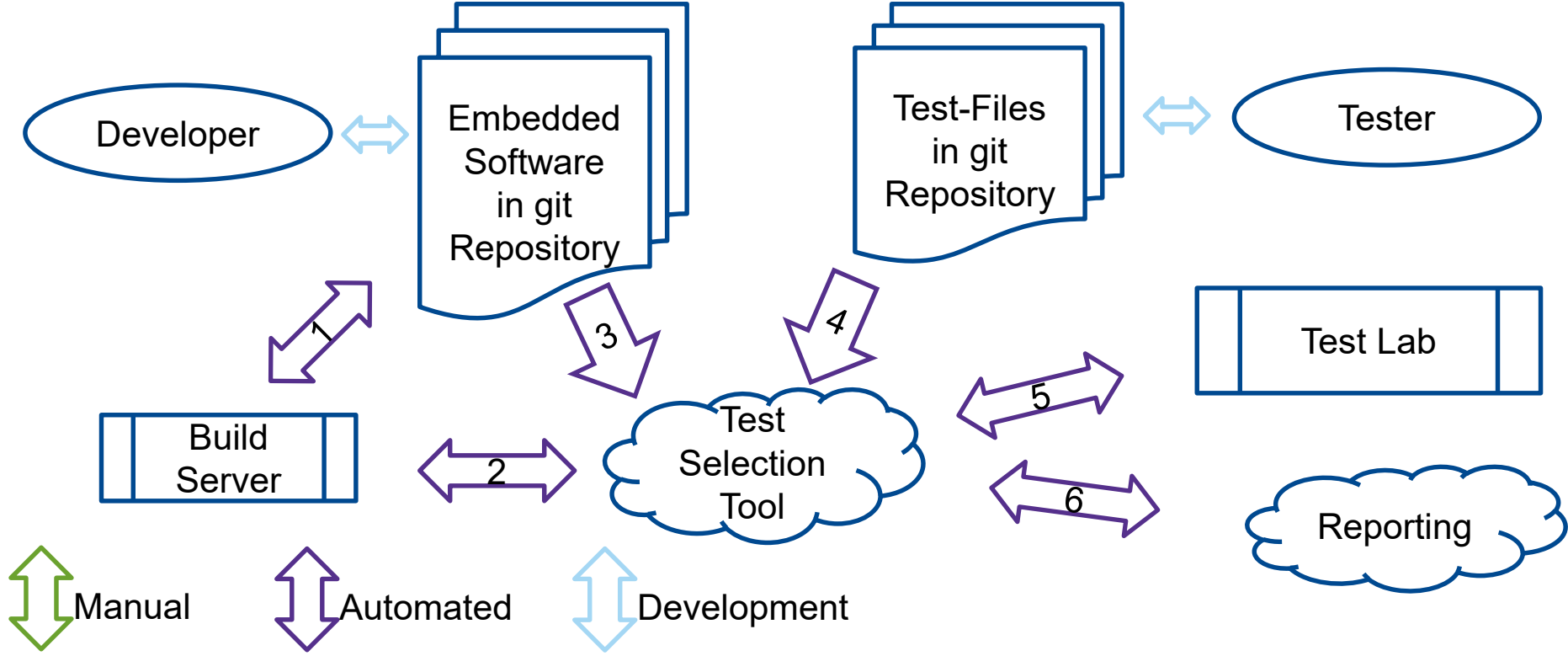




Herausforderungen durch schnelle Änderungen

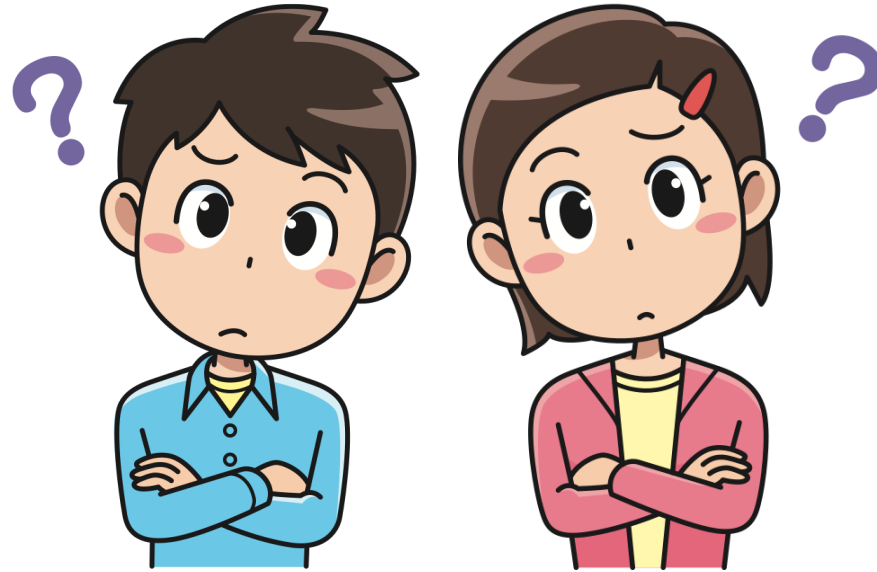


Herausforderungen durch schnelle Änderungen



Danke, Fragen & Kontakt

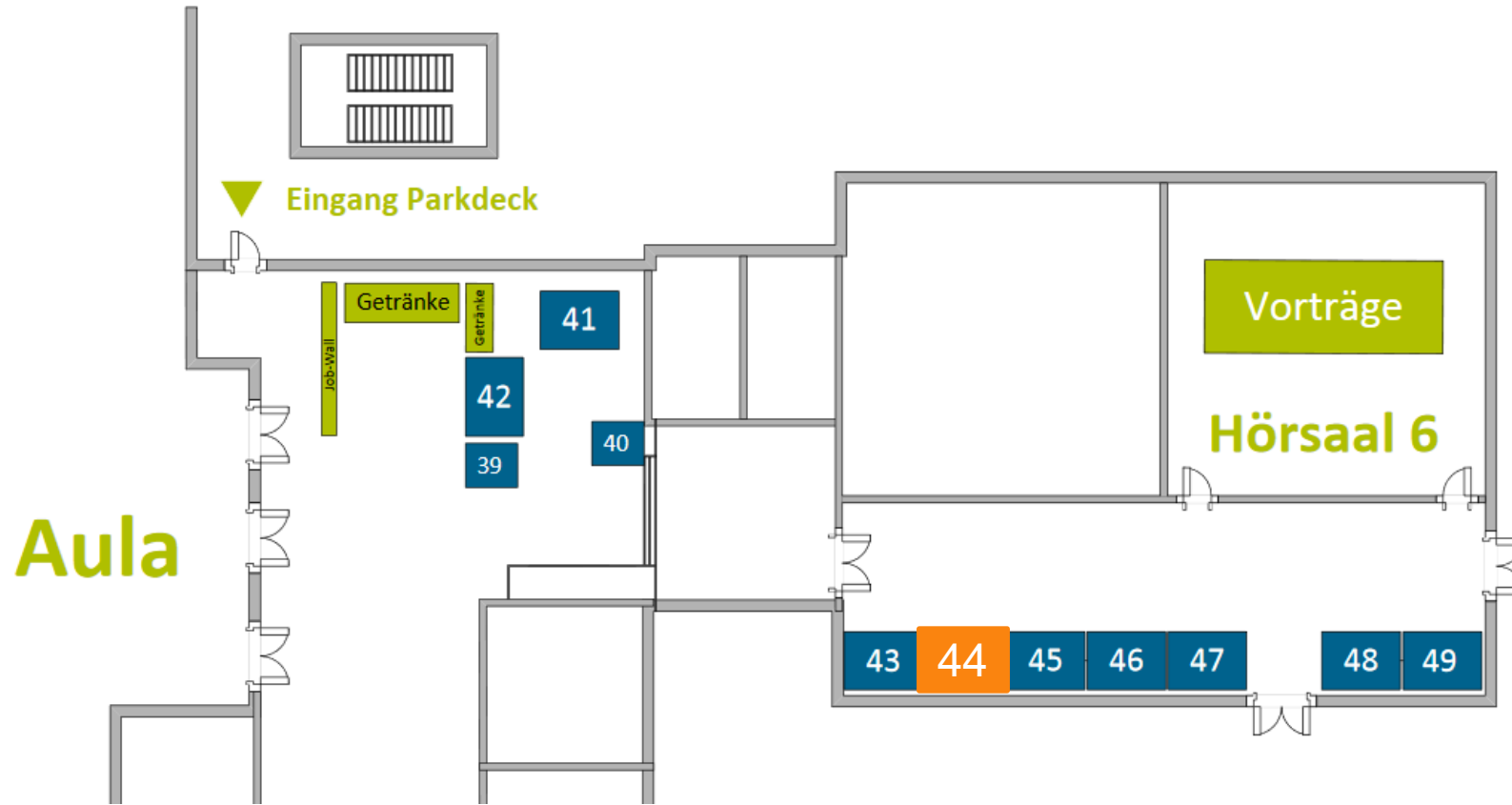
Vielen Dank für eure Aufmerksamkeit!



Fragen?

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Kommt vorbei: Stand 44 (Belden Deutschland / Hirschmann Automation and Control GmbH)

End Slide