

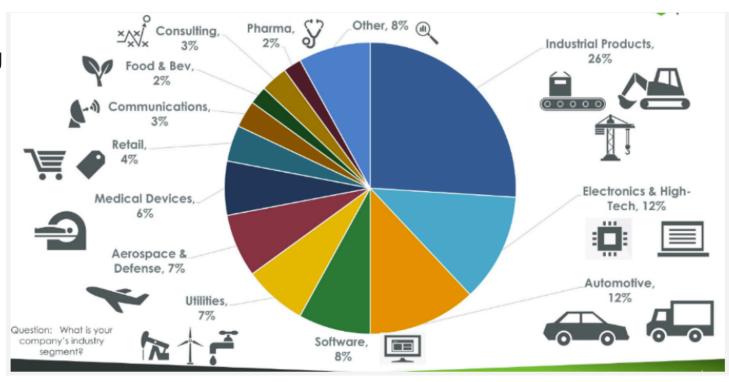
Industrial IoT (IIoT)

Industrial Internet of Things (IIoT)



"Industrial"

- Manufacturing
- Transport
- Retail
- Healthcare



Industrial Internet of Things (IIoT)

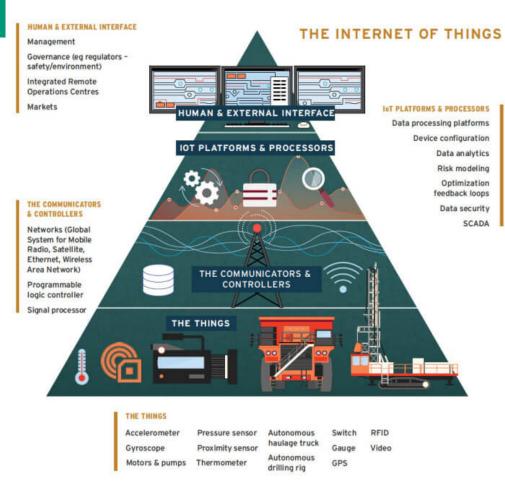
IIoT

- IoT for industries
- Value-added products and services

Increase

- Efficiency
- Data management
- Productivity
- Safety

Figure 1. The Internet of Things technologies in mining



https://www.marsdd.com/news/mining-industry-iot-technology/

CPS and OT



- Cost of IIoT Security Breach
 - Loss of life
 - Environmental Damage

Cyber Physical Systems

Operational Technology



https://sodaq.com/how-is-iot-transforming-manufacturing-and-creating-the-industry-4-0/

Industry 4.0



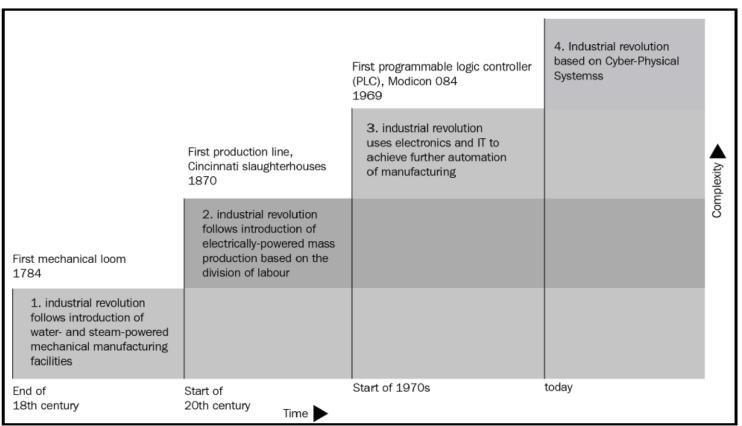


Figure 1.2: Industrie 4.0 as the fourth Industry Revolution (4IR); Source: Partially adapted from DKFI 2011 www.dfki.de Bhattacharjee (2019, p.9)

Security Through Obscurity



"Air gaps" are no longer effective



https://www.cytomic.ai/alerts/stuxnet-large-attack-cyberwar/

Smart Factory – CPS & IIoT



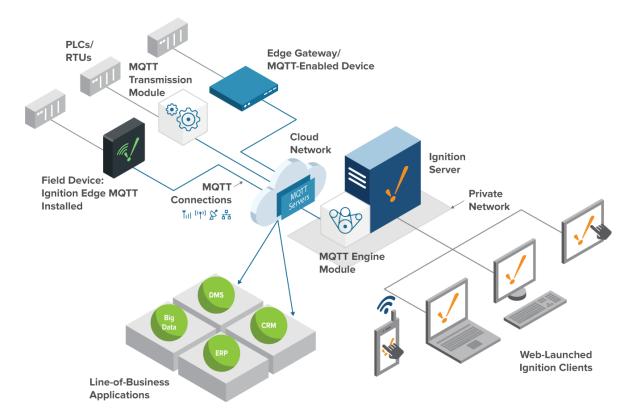
- Sensors
- Interoperability
- Integration
- Virtual Reality
- Physical Env. Interaction
- Distrib. Mgmt. and Control
- Uncertainty
- Real-time
- Geographically distrib.



IIoT Architecture



- Sensors
- Controller
- Edge Gateway
- Cloud
- Apps



https://docs.inductiveautomation.com/display/DOC79/IIoT+Architecture

Operational Priorities



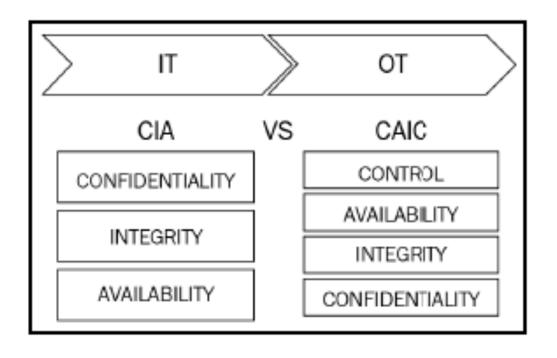


Figure 1.9: Divergent priorities of IT and OT

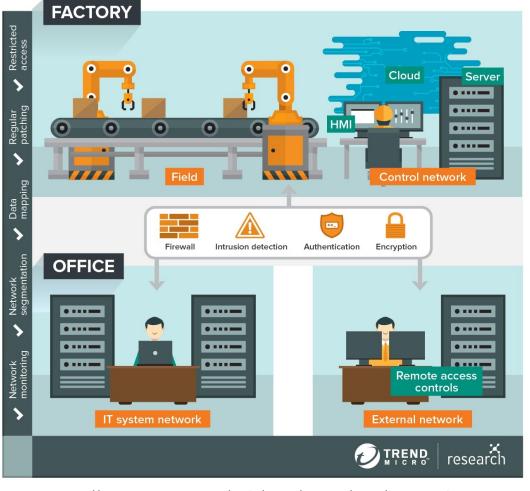
Attack Surface and Threats

Threats

- Cyber Attackers
- Bot-nets
- Criminal/Terrorist Groups
- Insiders

Vulnerabilities

- Policy and procedures
- Platform
- Software
- Network



https://www.trendmicro.com/vinfo/hk-en/security/news/internet-of-things/the-iiot-threat-landscape-securing-connected-industries