

Digitalization, 17-10-24

# Industry 4.0 in the Process Industry

Mikael Rudin, Extended Automation Product Group

# People, Systems and Equipment Collaboration



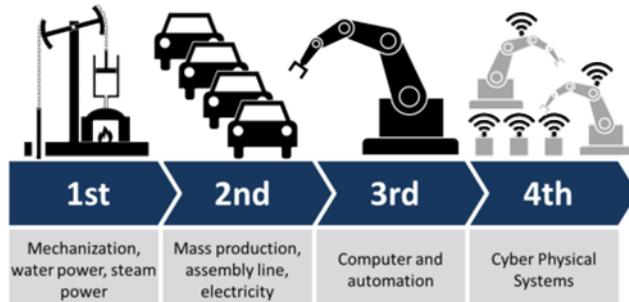
→ **Industry 4.0**

**ABB**

# Industry 4.0 and Internet Of Things

## Industry 4.0 - Manufacturing industry

Ob „Digitalisierung“, „Industrie 4.0“ oder „Internet of Things“ – alle Begriffe stehen für den digitalen Wandel der Wirtschaft.“



## Industrial internet consortium

“AT&T, Cisco, GE, IBM and Intel form an industrial Internet consortium to improve integration of the physical and digital worlds”



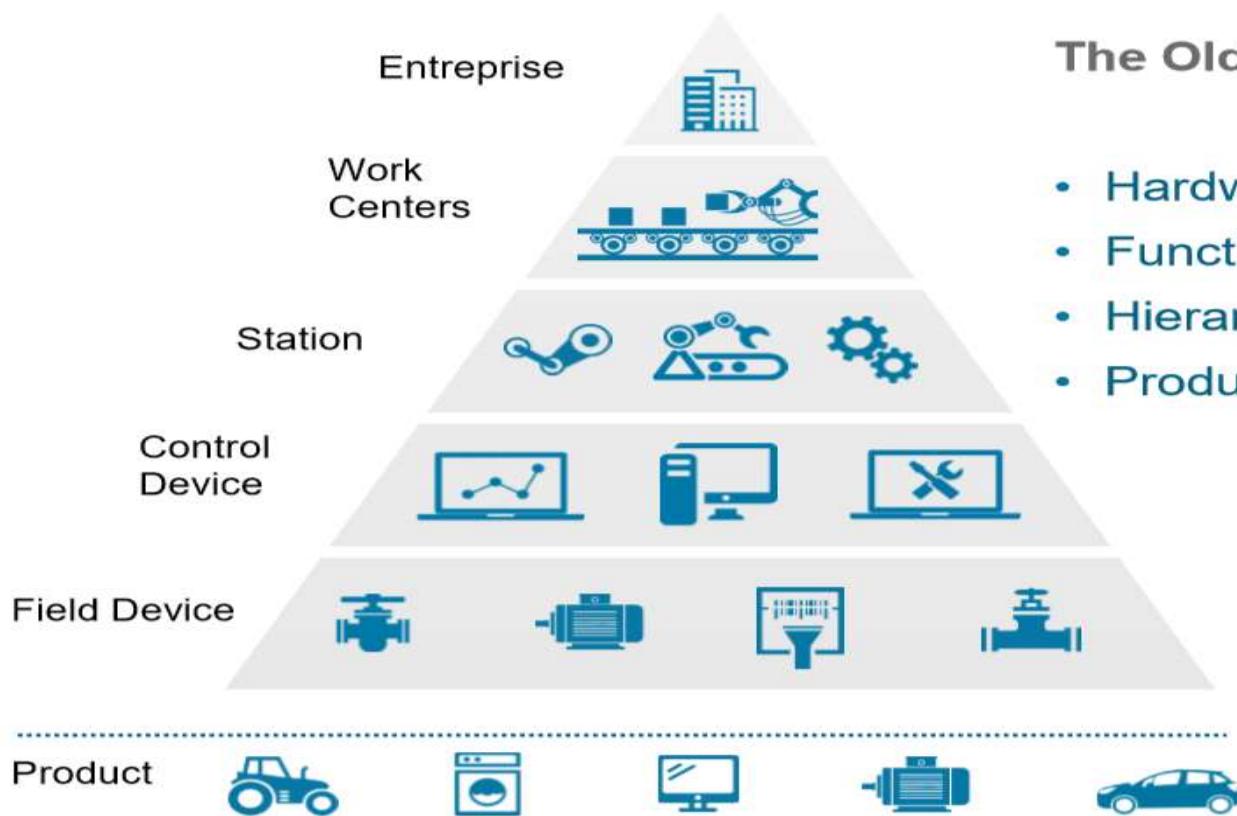
## Industrial IOTSP – Process Industry

This will create the foundation for the next generation smart, collaborative industrial devices and systems.

- Lead by SICS & ABB
- LKAB, Boliden, SCA, Sandvik, Mälarenergi



## Axis 1 – Hierarchy: The Factory



### The Old World: Industrie 3.0

- Hardware-based structure
- Functions are bound to hardware
- Hierarchy-based communication
- Product is isolated

## Axis 1 – Hierarchy: The Factory

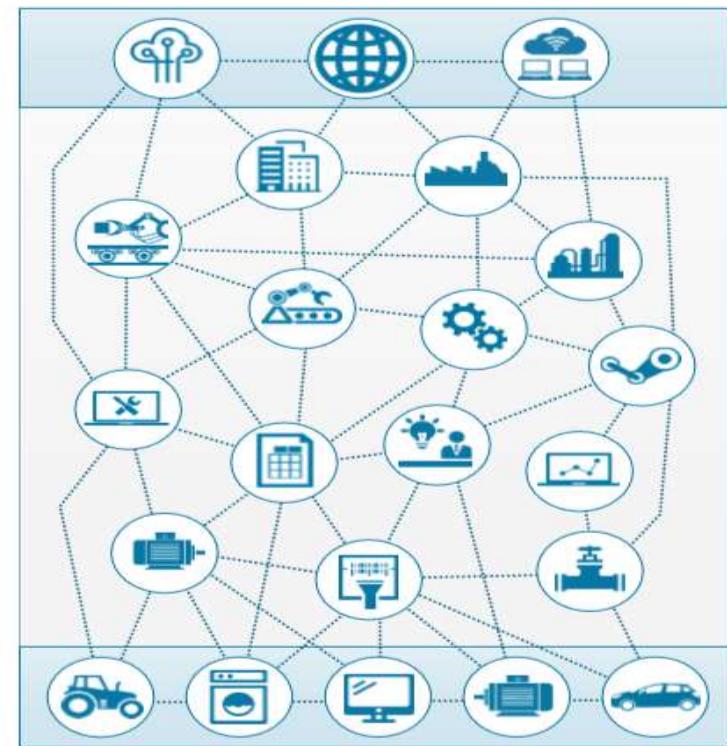
### The New World: Industrie 4.0

- Flexible systems and machines
- Functions are distributed throughout the network
- Participants interact across hierarchy levels
- Communication among all participants
- Product is part of the network

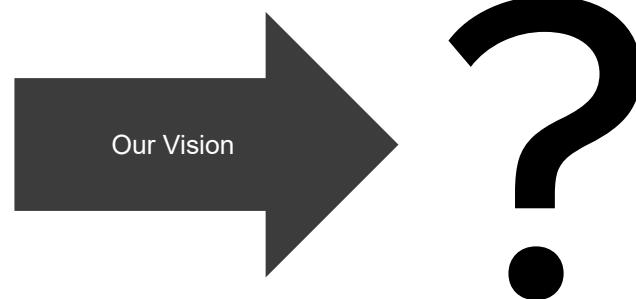
Connected  
World

Smart  
Factory

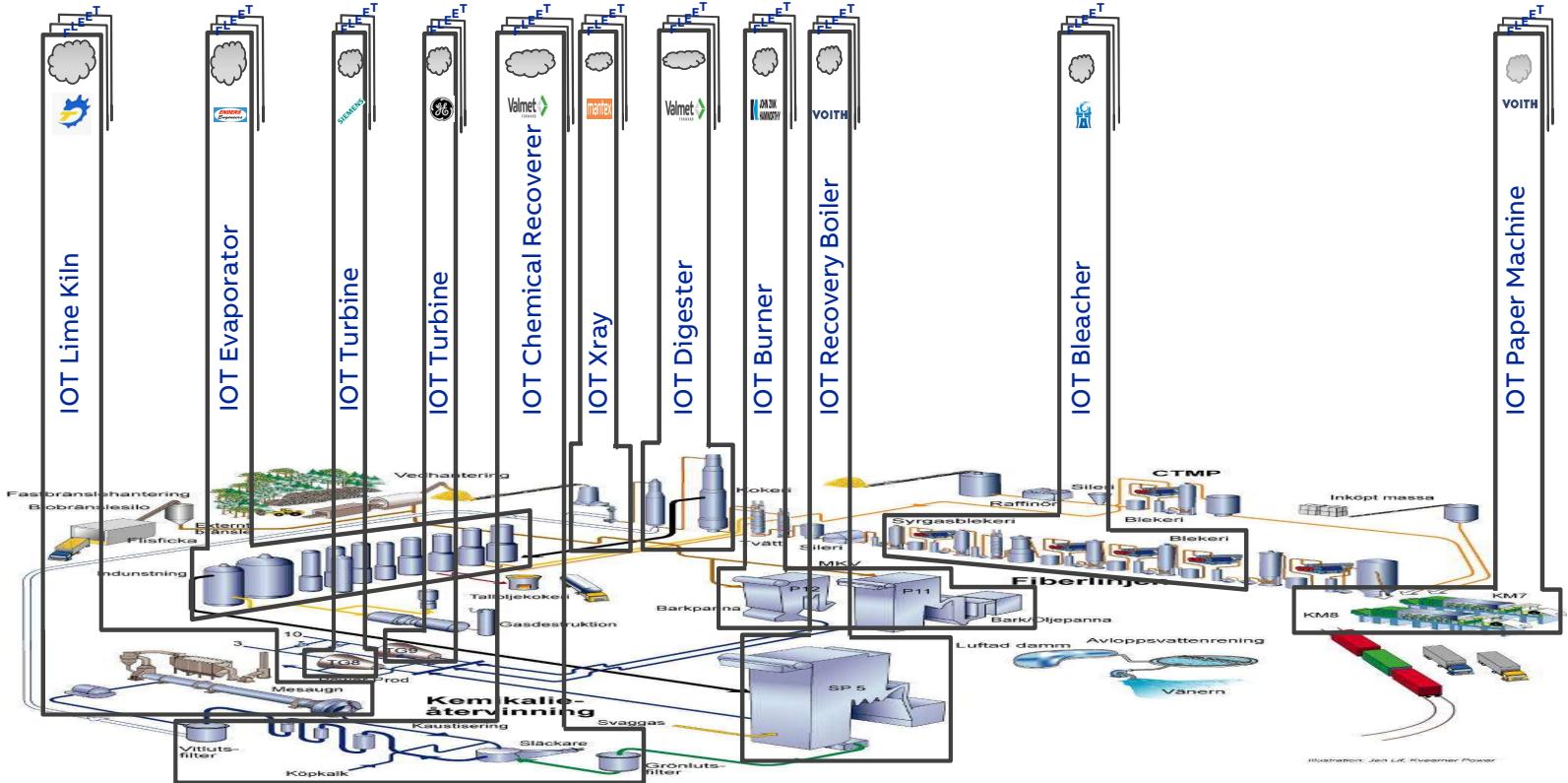
Smart  
Products



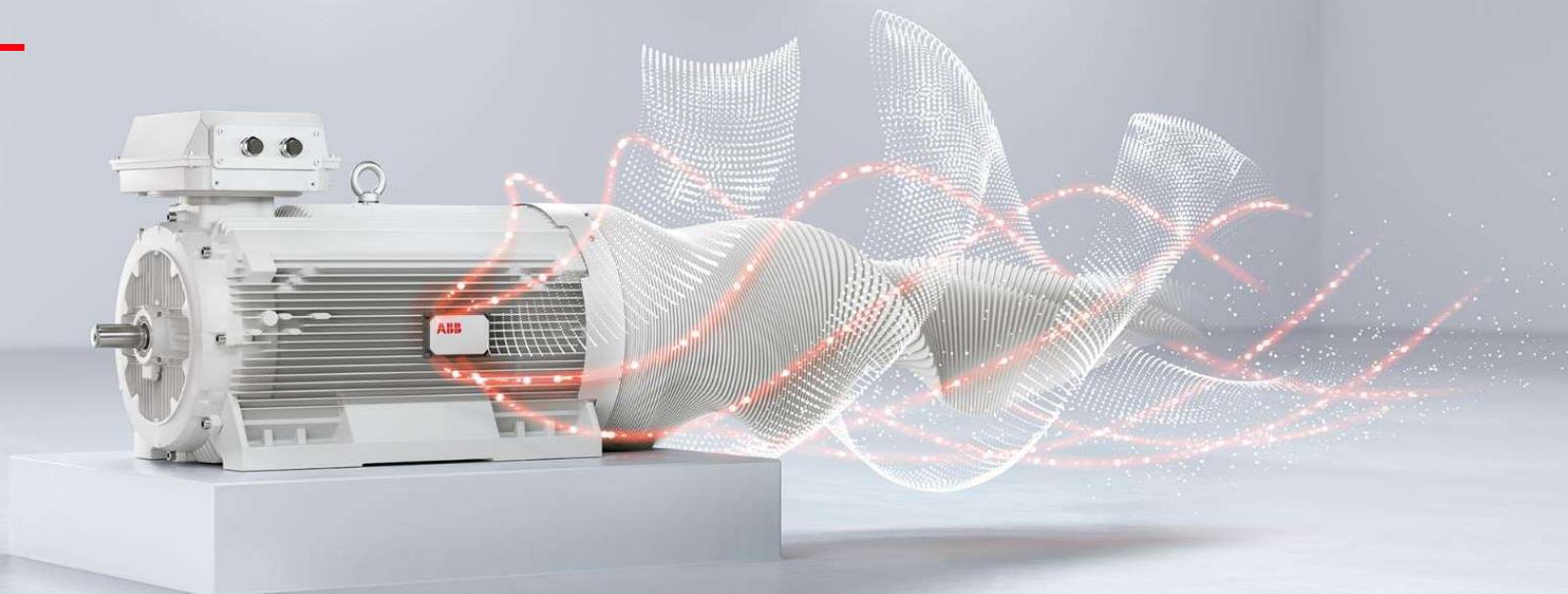
# Industrial Equipment and IoT ?



# IoT and Cloud Applications in a plant scenario



**ABB**

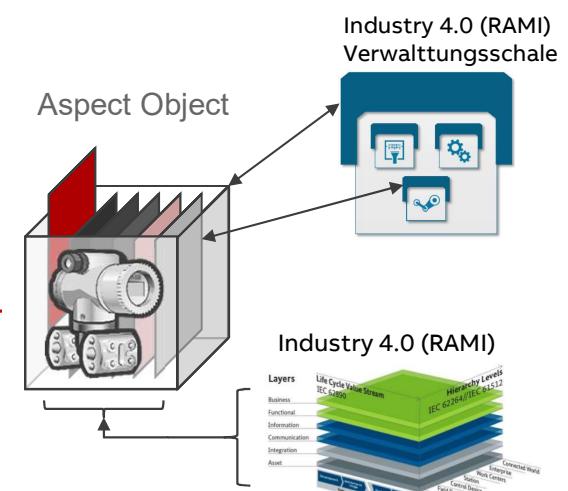


# Process Equipment Evolution ?

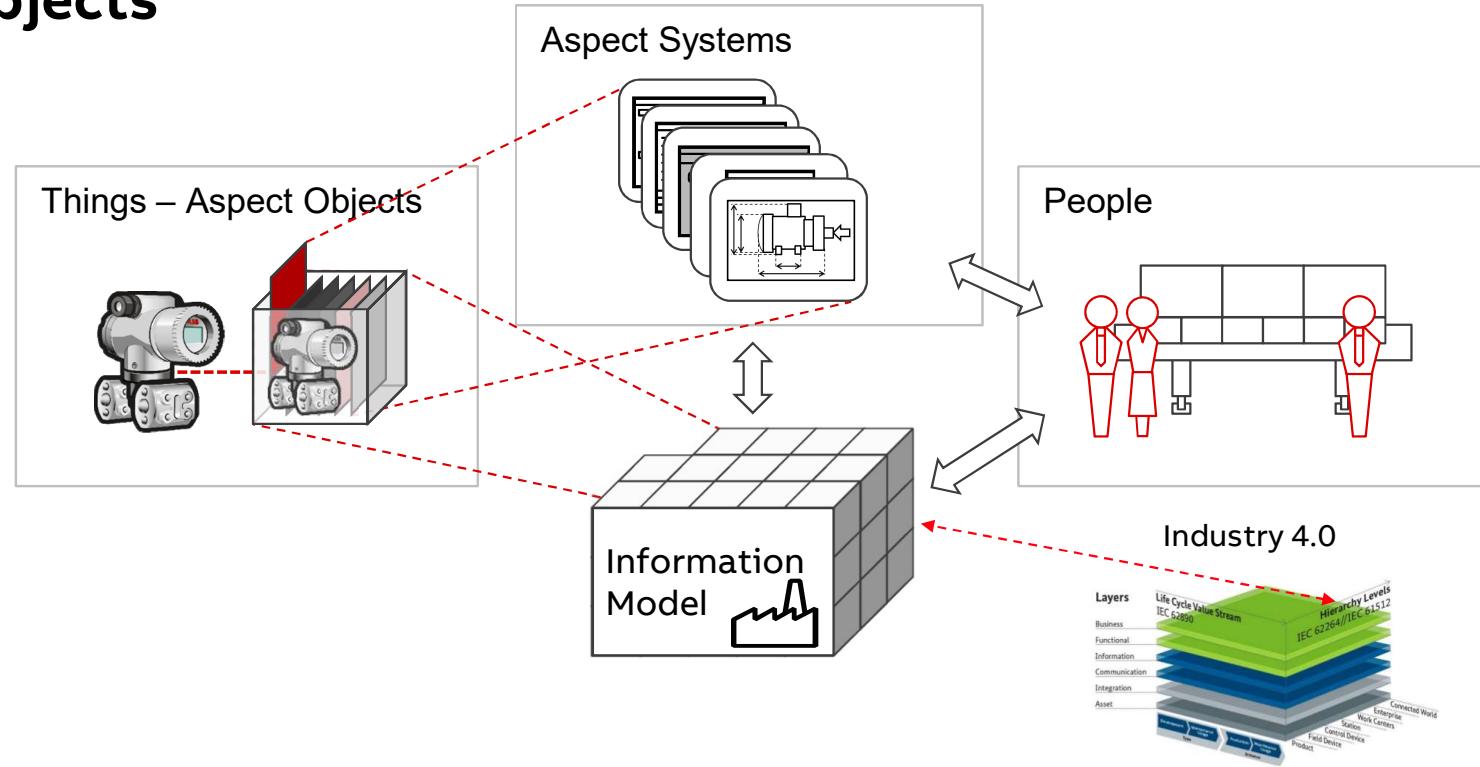
# Aspect Object Technology

## Process Object functionality

- Faceplates, Graphic Symbols
- Alarm management
- Trend, History
- Drawings, Documents
- Instructions
- Pictures
- Video, CMMS...

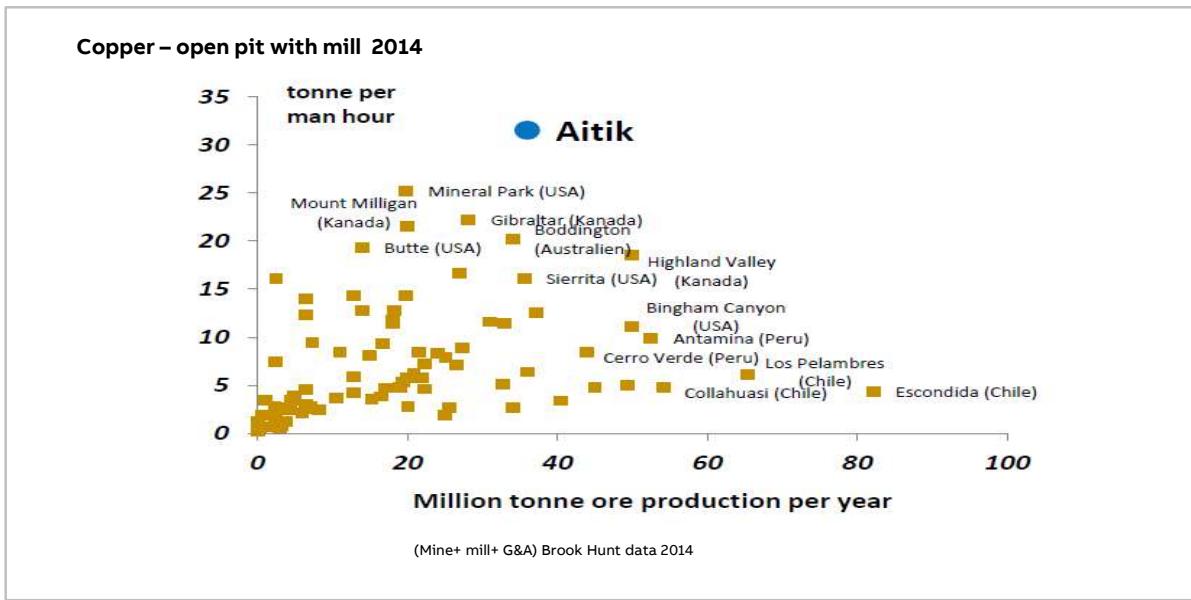


# ABB Aspect Objects



Internet of Things, Systems, and People

# Boliden Aitik – Running Industry 4.0 based on ABB Ability 800xA



The world's most effective open pit copper mine

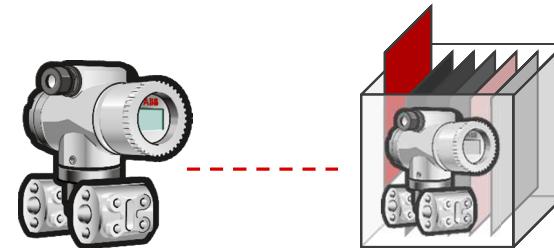
# Today – Automation projects creates the smart equipment twins

## Typical DCS functionality

- Faceplates, Graphic Symbols, Control, Alarm management, Trend, History

## Extended functionality

- Drawings, Documents, Instructions, Asset Monitors, Simulation, Video, CMMS...



Extended functionality provides the large productivity boost compared to conventional DCS

# Is Boliden alone?

The image shows a presentation slide titled "4. IT/OT Interactions" with a diagram illustrating the relationship between Information Technology, Operations Technology, and Transactional Services. The diagram consists of three circles: a yellow circle for Information Technology at the top, an orange circle for Operations Technology at the bottom, and a green circle for Transactional Services in the center. Arrows indicate interactions: a blue arrow labeled "State Information" points from OT to IT; a green arrow labeled "Transactional Services" points from IT to OT; and a red arrow labeled "Operations Technology" points from OT back to IT. The slide is branded with the ExxonMobil logo in the bottom left corner. To the right of the slide, a photograph of Steve Bitar, a man in a dark suit and glasses, is shown standing on a stage and looking towards the audience.

# ABB Ability™ solutions & platform

ABB Ability™



Utilities  
solutions



Industry  
solutions



Transport &  
Infrastructure  
solutions

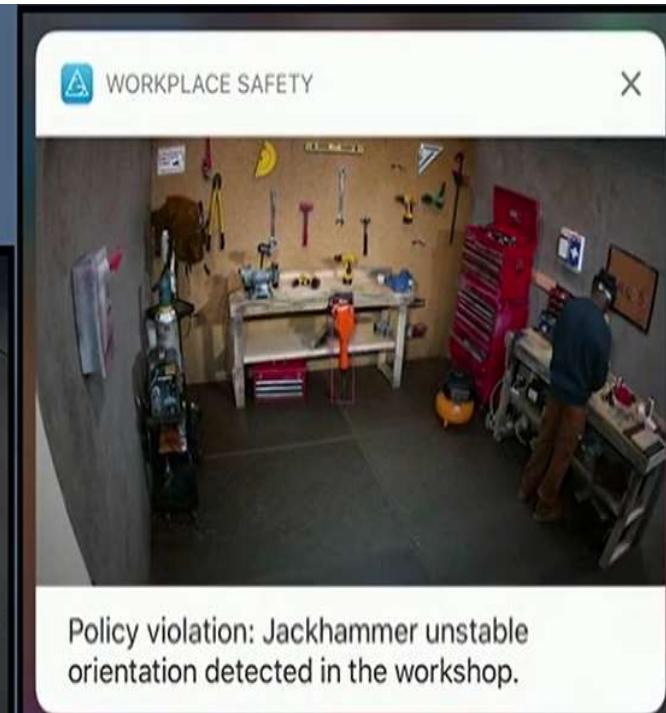
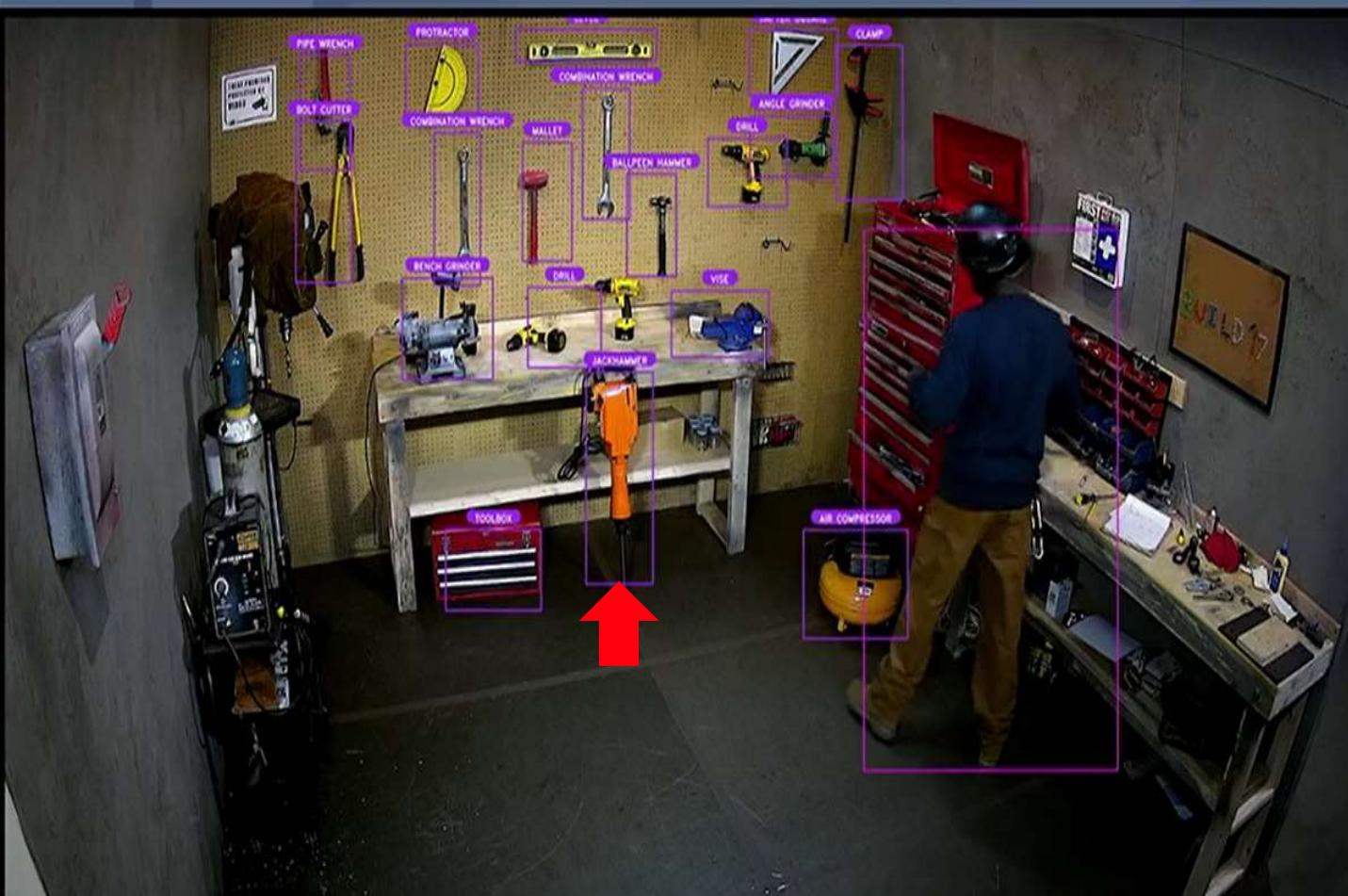
**What** Delivers customer benefit  
(uptime, speed, yield...)

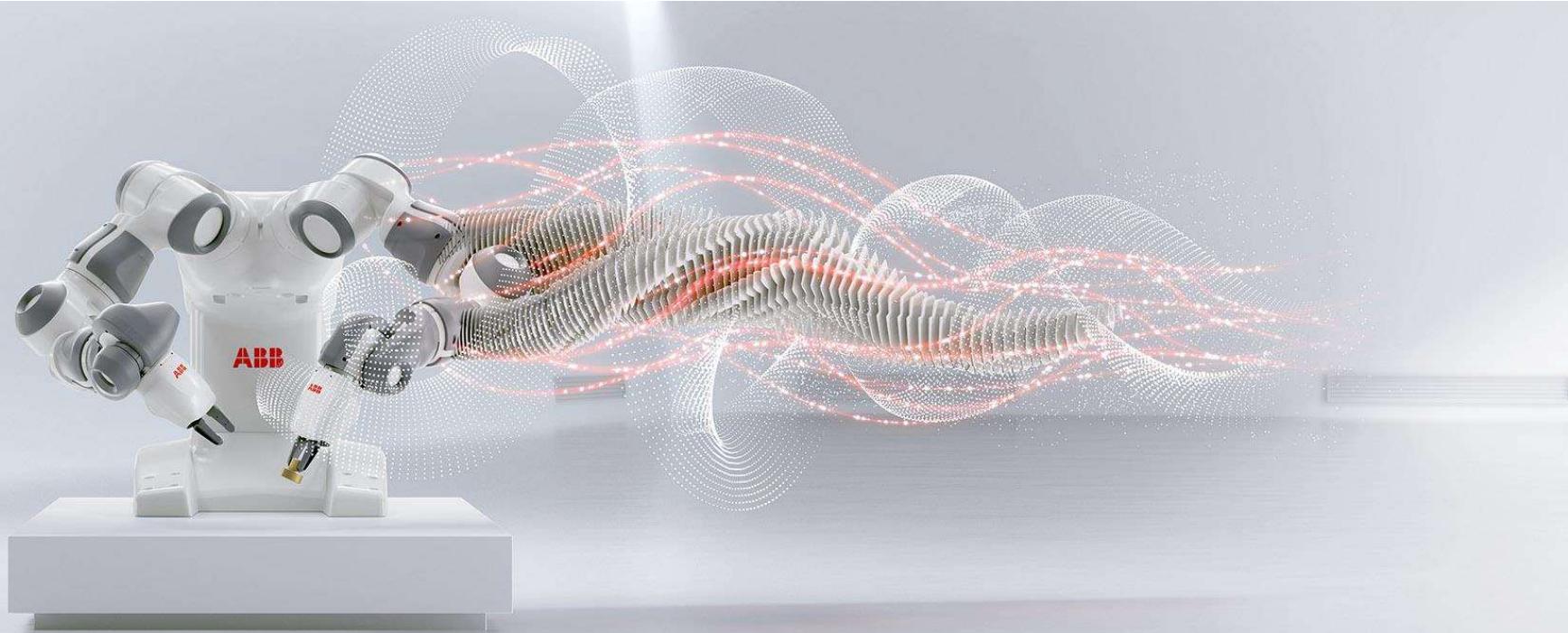
**Platform**  
(common technologies for device, edge, and cloud)

**How** Provides ABB with  
efficiency and scale



# Collaboration Things, Systems & People ?

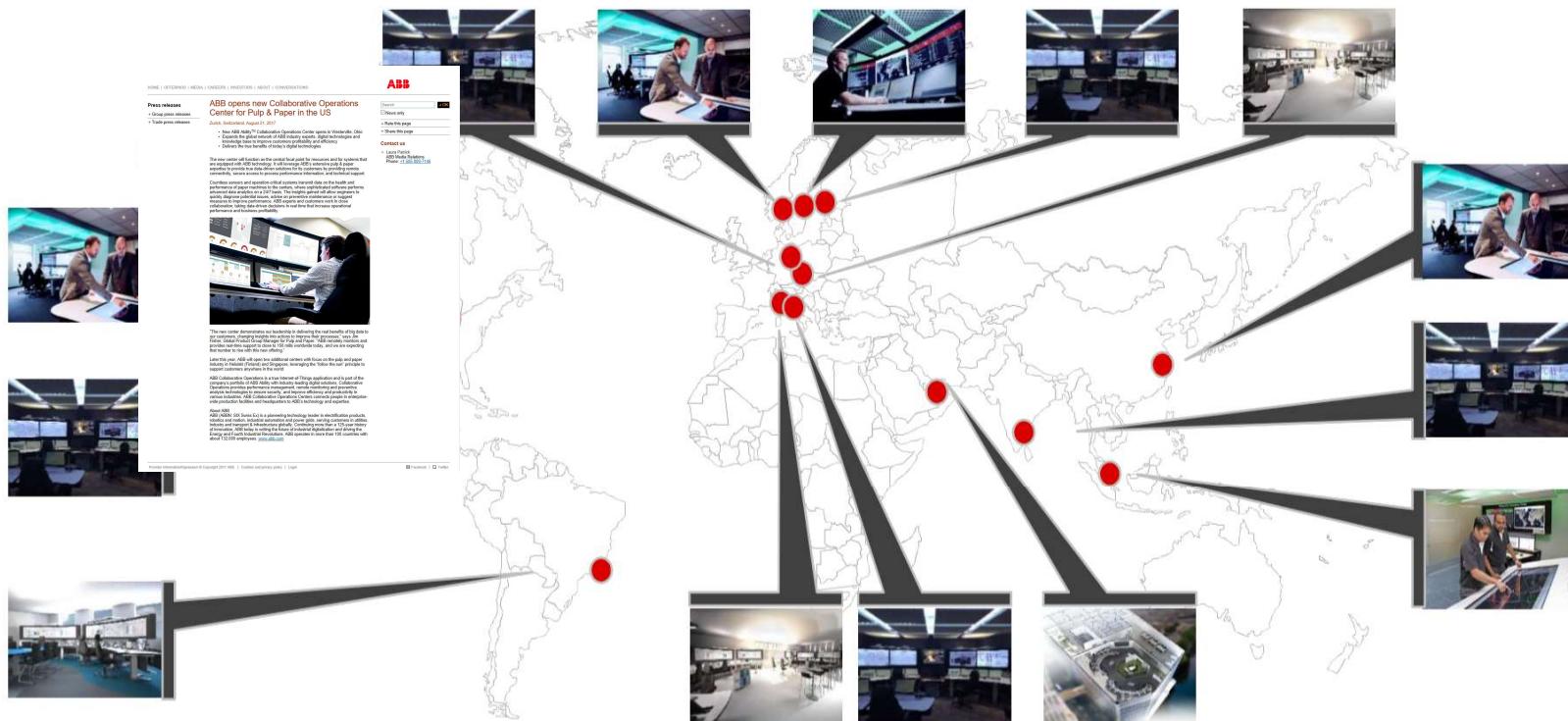




# Control System Evolution

# ABB Ability Collaborative Operations

Implementing a new operating model in 2017 to deliver connected expertise  
- Fleet management



# People, Systems and Things in Collaboration



**ABB**