



ZAGREB, 19TH NOVEMBER 2018

Conference Nordic Industrial Efficiency Program 2018

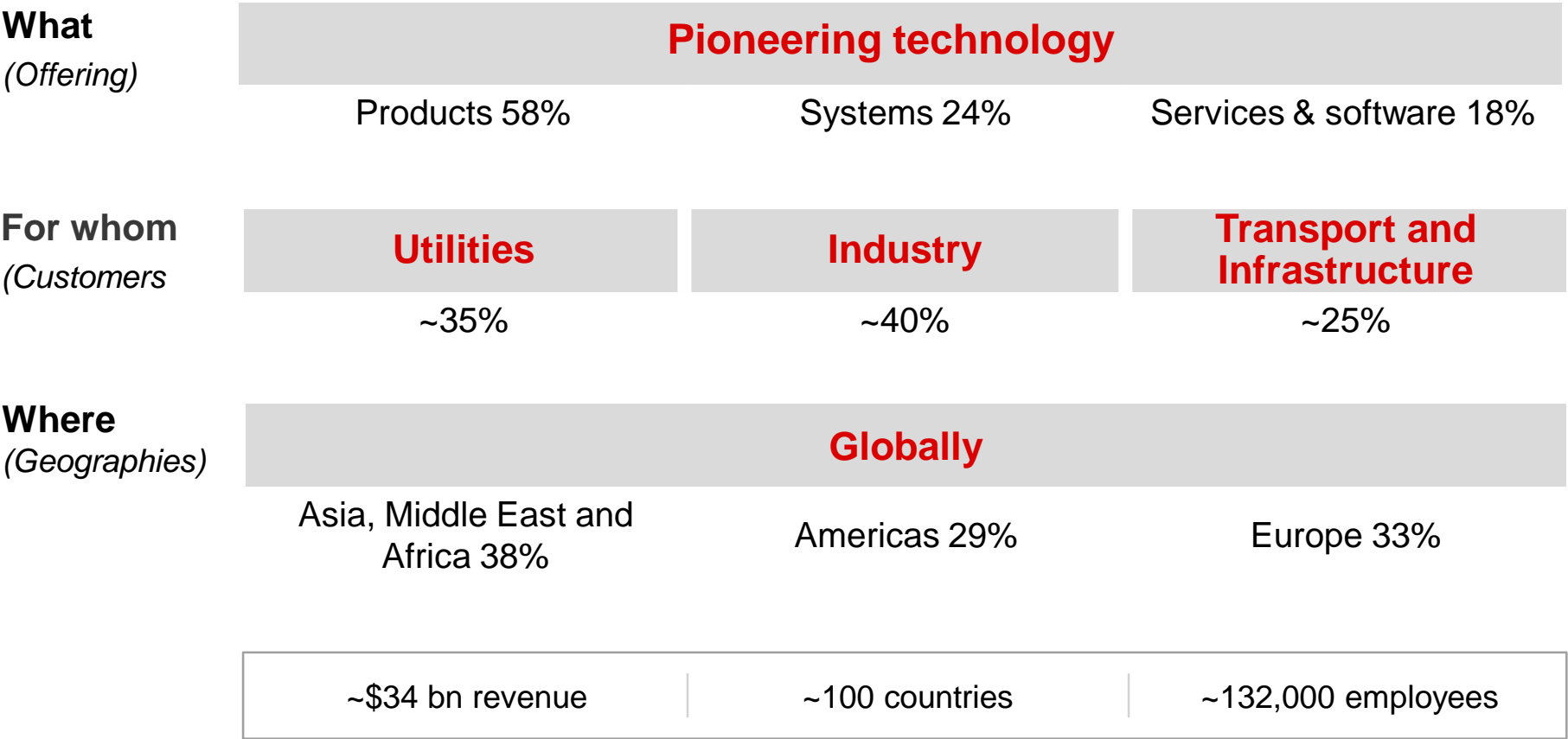
Automation and digitalization

Mario Corsi – Country Managing Director ABB Italy





ABB: the pioneering technology leader



Attractive markets: Energy and Fourth Industrial Revolutions

The Energy Revolution



The Fourth Industrial Revolution



Utilities

Industry

Transport and Infrastructure

ABB Digital Strategy

ABB Ability™



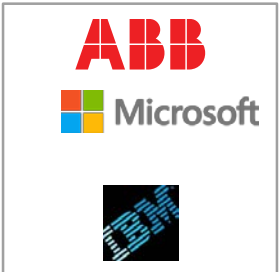
Digital Solution for customers

Smart products and/or integrated systems, advanced services and new business models



Smart Manufacturing

Digital technologies, automation and robotics in ABB factories



Digital Partnerships

Partnership with **Microsoft** (Azure smart cloud platform) and **IBM Watson** (artificial intelligence)



People 4.0

Investing on **digital know how**
Employees' digital readiness, training plans, ABB Academy, new skills recruitment

ABB Digital Strategy

ABB Ability™



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 **Microsoft**



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ABB – digital base

Large, global software and digital offering

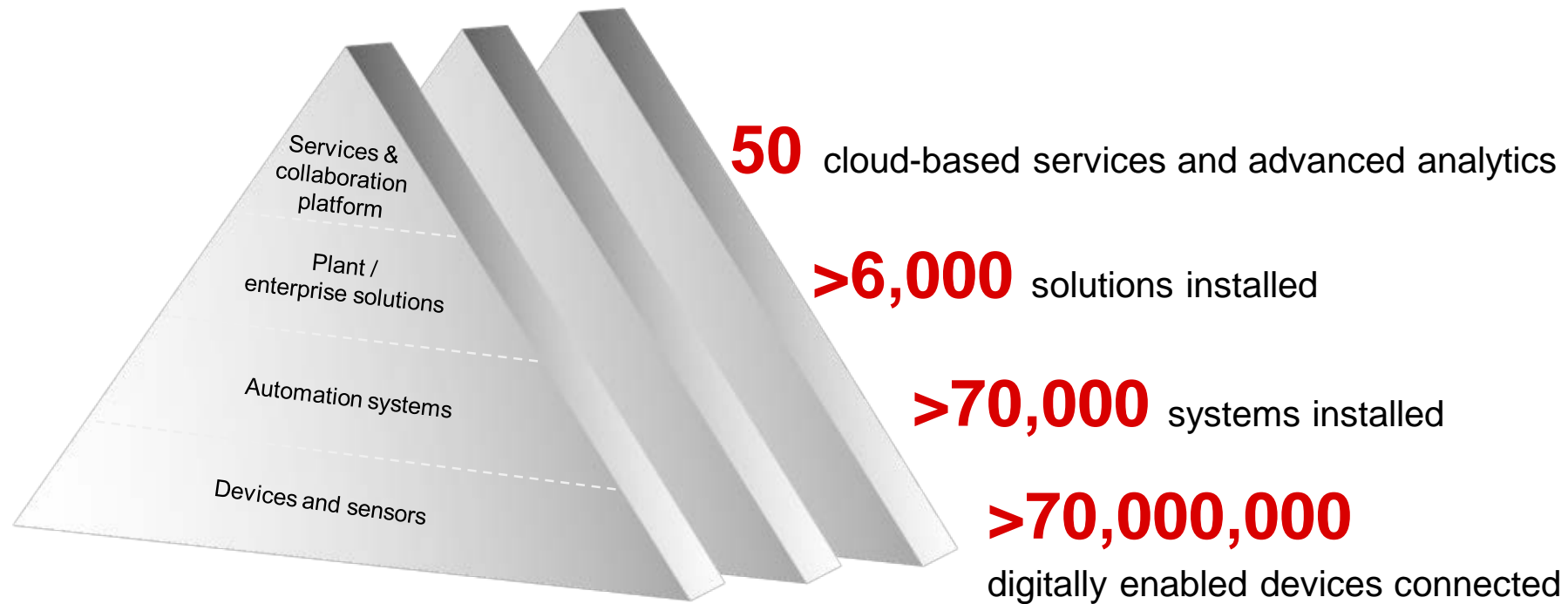
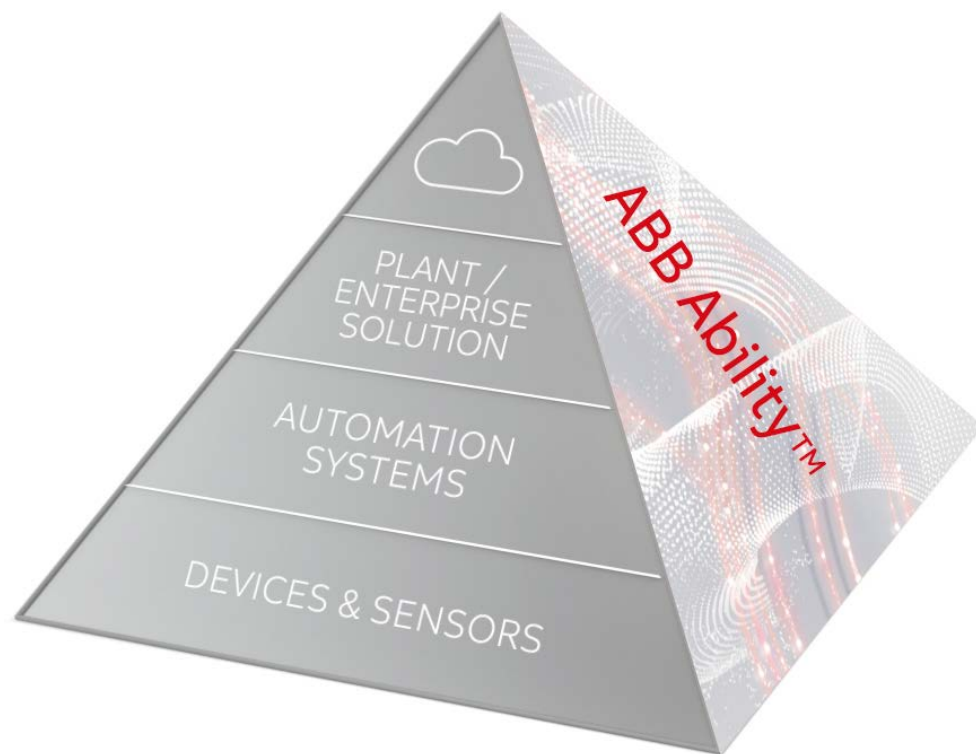


ABB Ability™: industry-leading digital solutions



210+ ABB Ability™ solutions



Microsoft

Platform



(common technologies for device, edge, and cloud)

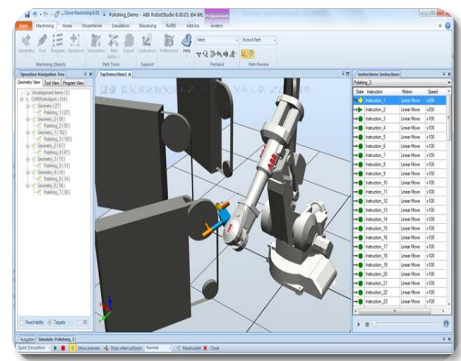
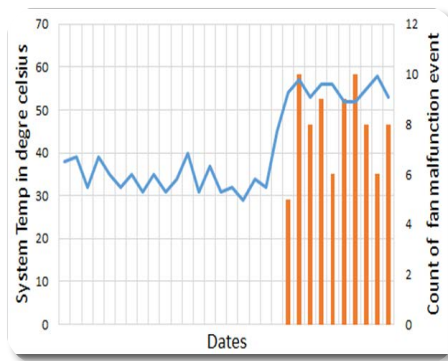
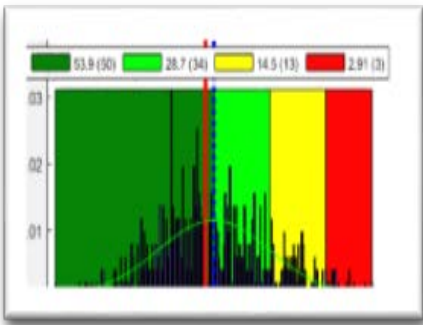
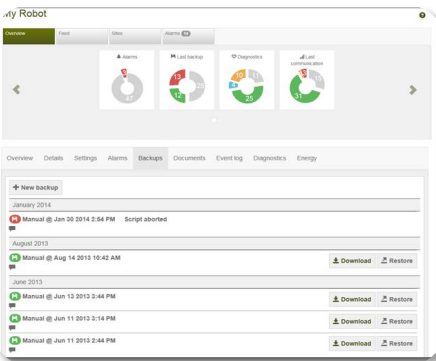
ABB Digital Strategy

Digital solutions for our customers



ABB Robots – Connected Services

Remote monitoring : > 4.000 robots



Condition Monitoring & Diagnostics

Backup Management

Fleet Assessment

Asset Optimization

Remote Access

Up to 25% fewer incidents, 60% faster response times and issue resolution

ABB Ability™ Collaborative Operations Center

Overview of connected conventional plants and active advanced services from Genova

45

Customers

112

Power plants served

7

Plant types

- Biomass
- Combined cycle
- E-mobility
- Hydro
- Tele-heather
- Thermal
- Waste to energy

94

Advanced services

Performance optimization

Emission monitoring

Load profile coordination



Applied to automation, turbine control, excitation and electrical installed base



ABB Ability™ Collaborative Operations Center

Overview of remotely monitored renewable plants @ Genova

11

Customers



575

Power plants served



4

Plant types



- Solar
- Wind
- Hydro
- Geothermal



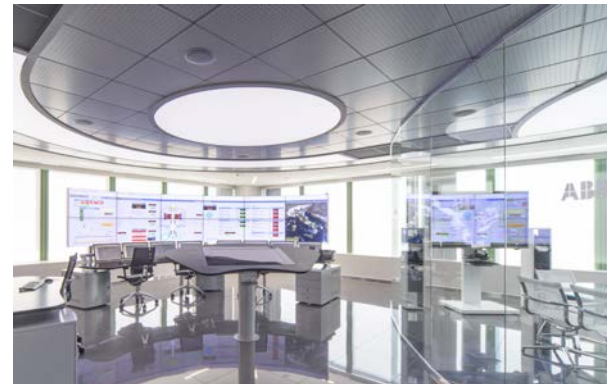
Advanced services

Remote Monitoring & Operations

Plant Performance Reporting

O&M of PV Plants

Preventive & Predictive Maintenance



Azipod® Propulsion System

Improved fuel efficiency and reduced life cycle cost

Space savings, more cabin or cargo space

Operational safety

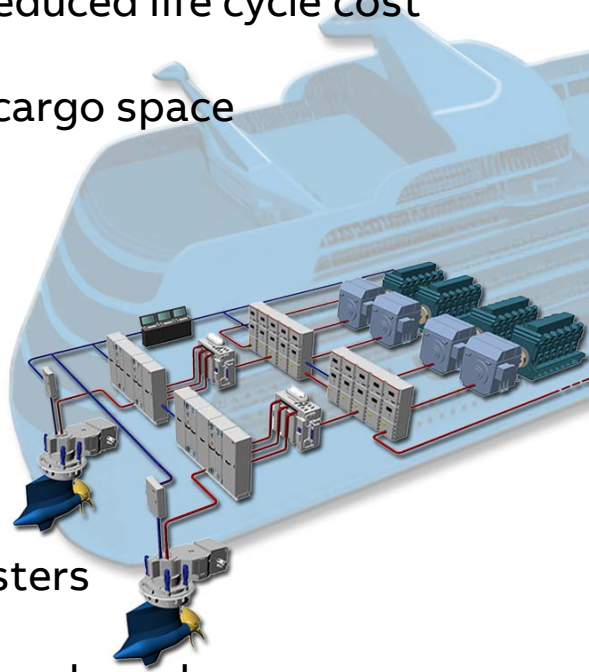
Reduced emissions

Excellent manoeuvrability

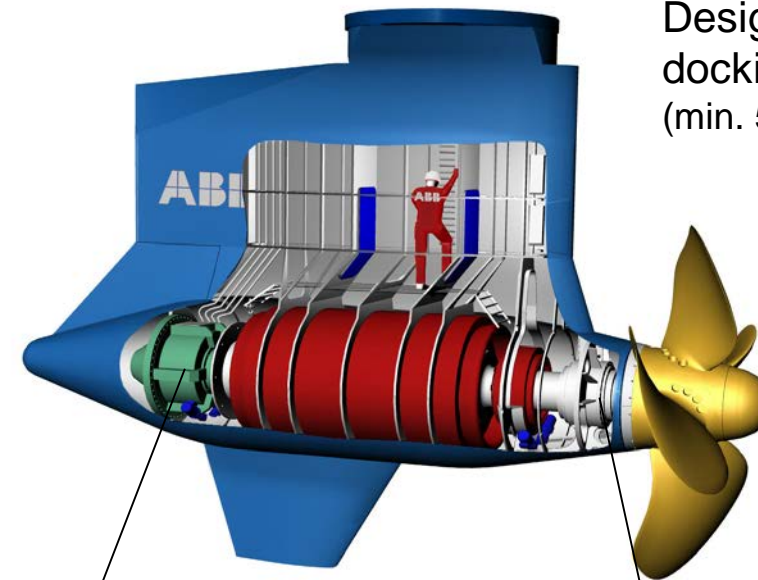
No need for separate rudders, long shaftlines and stern thrusters

Remarkably improved comfort onboard

Possibility to utilize smaller and optimized power plant



Easier access to Azipod unit



Designed for extended docking intervals (min. 5 years)

Hydrodynamic Efficiency improved 2-3%

Non drive end hybrid bearing

Interspace seal arrangement

Collaborative Operations Center MARINE

Smart products



- **Azipod:** propulsion system
- Sensors, analytics, connectivity
- Machine learning

Advanced Services



Remote diagnostic services

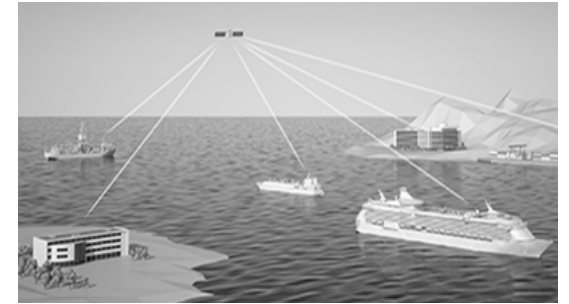
- Vibrations and temperatures analysis
- Predictive and on-condition maintenance



Operations and advisory services

- 600 ships connected to COC in Oslo, Singapore, Genova, Miami, Shanghai, Helsinki, Dalfsen, Vasteras, San Diego

New business model



Ship route optimization

- Optimization of ship route and energy consumption based on data related to weather forecasts and load conditions

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ABB Digital Strategy

From Lean to Smart Manufacturing

Lean Manufacturing

- Re-design of products and processes
- Assembly to order
- One piece flow / production balancing

Smart Manufacturing

- Automation / Robotics
- Artificial Intelligence / Analytics
- Augmented reality
- 3D printing
- Virtual reality

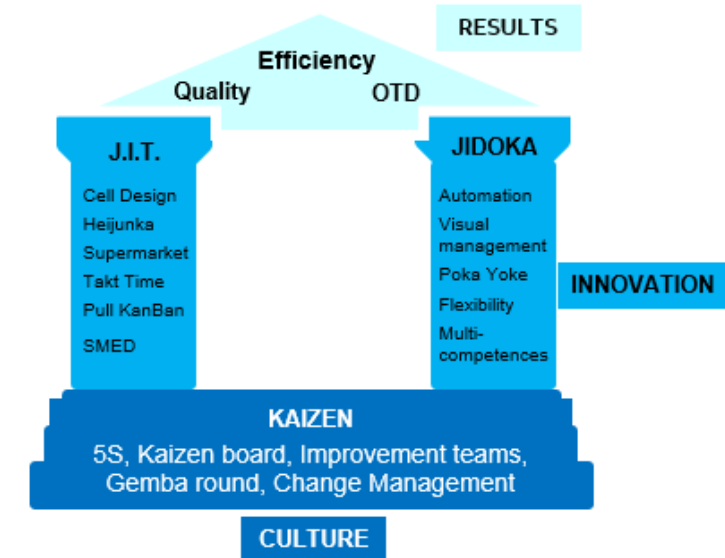


ABB Smart Manufacturing

Production

YuMi + Artificial Intelligence
Head for communication by gestures



Robot with camera for
final visual check



Big Data and Analytics
for calibration



ABB Smart Manufacturing

Logistics

Pick by point



Autonomous AGV



Smart manipulator/automatic setup

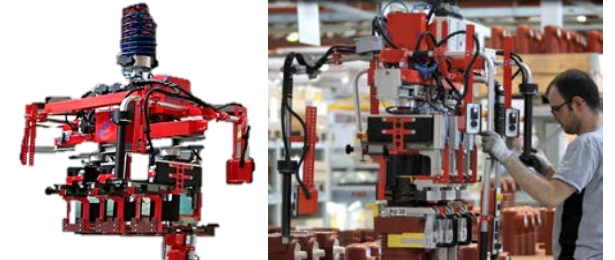
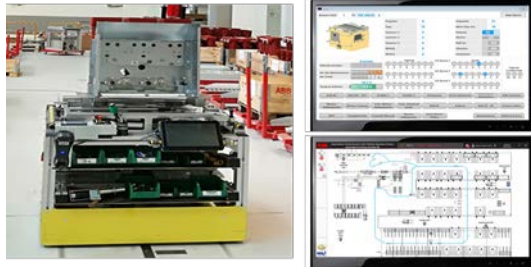


ABB Smart Manufacturing

Maintenance

SCADA system ABB Ability™ Zenon for predictive maintenance & remote control



Augmented Reality for maintenance instructions



3D printers for maintenance tools



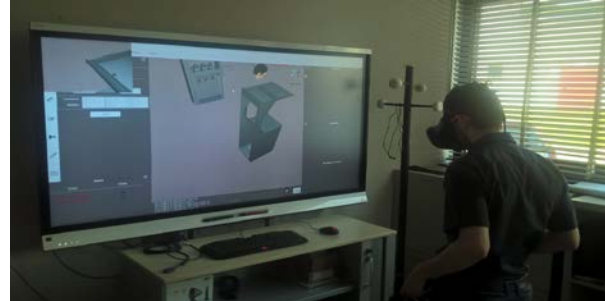
ABB Smart Manufacturing

Health, Safety and Environment

Safety App



Virtual Reality for Service Training



Remote Factory Acceptance Test



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ABB Digital Strategy

People 4.0

- Spreading and developing **digital culture** (leaders' engagement, workshops, webinars, etc.)
- **Mapping** employees' **digital readiness** (white and blue collars)
- Definition of **digital skills** required by all functions
- Development of specific **training plans** and **initiatives**
- **New ways to “hire”** digital skills (e.g.: gaming)
- Digital **Academy: Master** on digital competencies

Digital Academy

Professional Programs designed by ABB



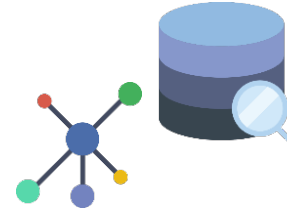
**FIRMWARE
DEVELOPERS**



**APPLICATION
ENGINEERS FOR
AUTOMATION
(WITH B&R)**



**ROBOTICS
APPLICATION
ENGINEERS**



**BIG DATA FOR
INDUSTRY 4.0
PROCESSES**



**HARDWARE
DESIGN AND
DEVELOPMENT**

ABB