SINGAPORE, JULY 2017

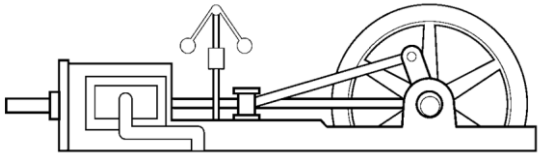
Opening address

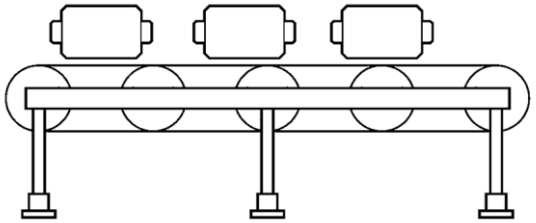
Data Center Forum

Johan de Villiers, Managing Director, South-east Asia

What does the 4th industrial revolution mean?

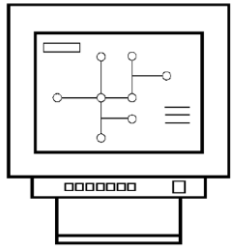
Industry 1.0
1712 : The first functional **steam engine** was built by **Thomas Newcomen.**





Industry 2.0
1870 : The first elevated **conveyor belt** in Cincinnati, Ohio.

Industry 3.0
1969: Richard Morley and Odo J. Struger are the fathers of the **programmable logic controller**. Morley introduces the First **semiconductor -based sequential logic system.**





Industry 4.0

Near future: **Smart Factory, cyber-physical systems** and the **Internet of Things.**

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Digital technologies are driving new innovation in industrial markets

Media is focused on B2C but the “killer app” is in B2B

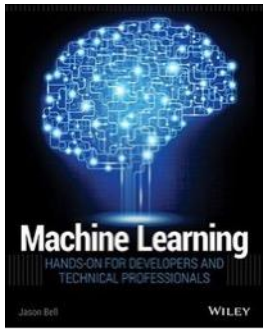
Virtual/augmented reality



Software-defined machines



Machine learning



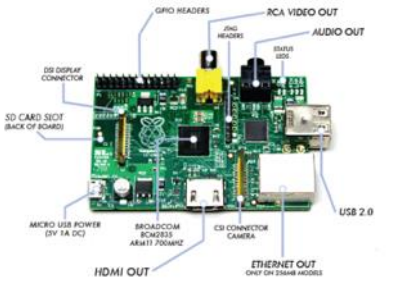
Time-sensitive networking



Big data



Inexpensive computing



Cloud computing



Cybersecurity



Connectivity



Blockchain

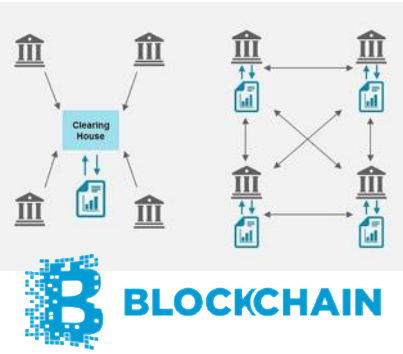


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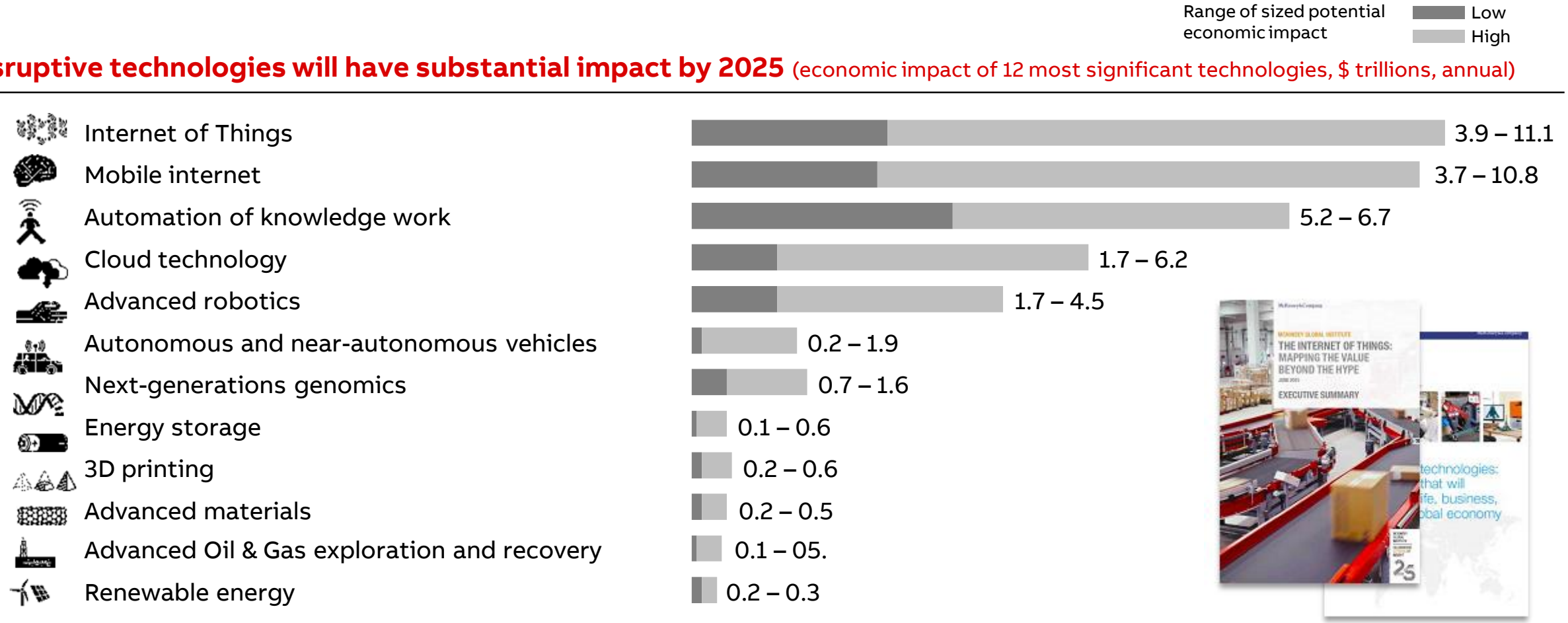
ABB is in the “eye of the storm” for massive value migration

A $4 – 11 trillion digital impact by 2025 – data centers will be at the heart of this

Disruptive technologies will have substantial impact by 2025 (economic impact of 12 most significant technologies, $ trillions, annual)



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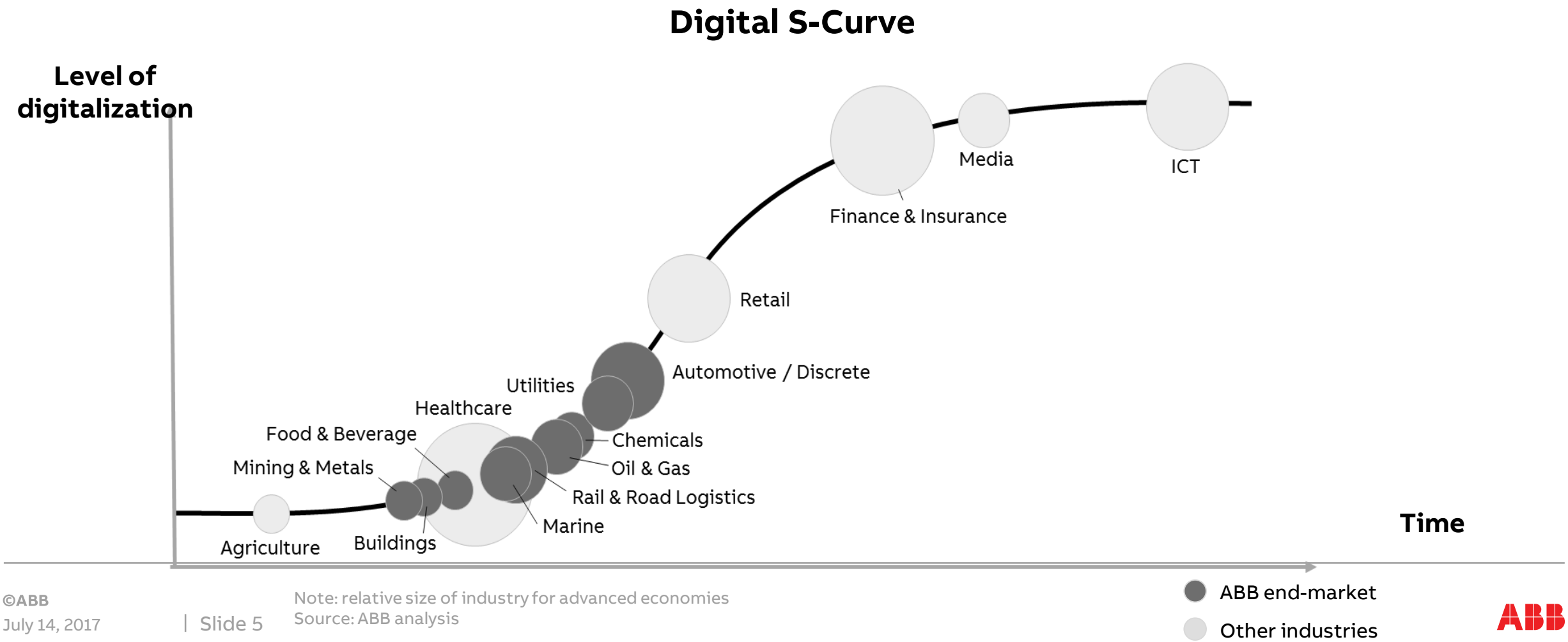
[1]Based on top-down estimate of potential net economic benefit, including consumer surplus
Sources: McKinsey Global Institute

Industrial markets primed to adopt digital technologies

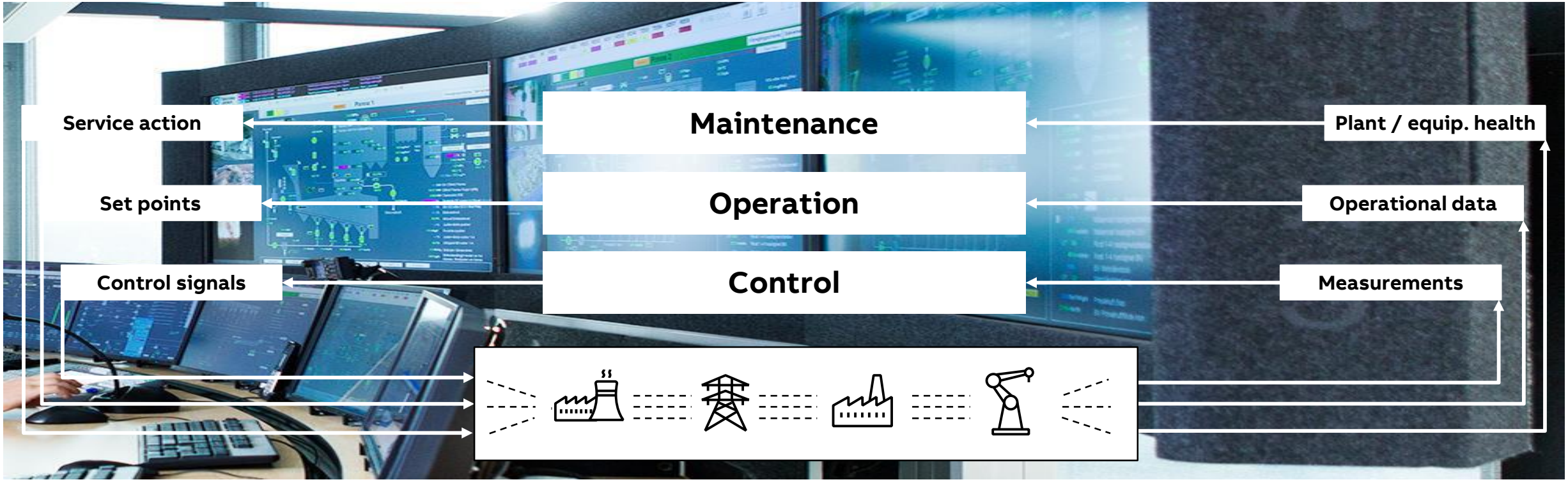
Computing + connectivity + cloud + analytics set to unlock value



Note: relative size of industry for advanced economies
Source: ABB analysis

What does it take to win in digital?

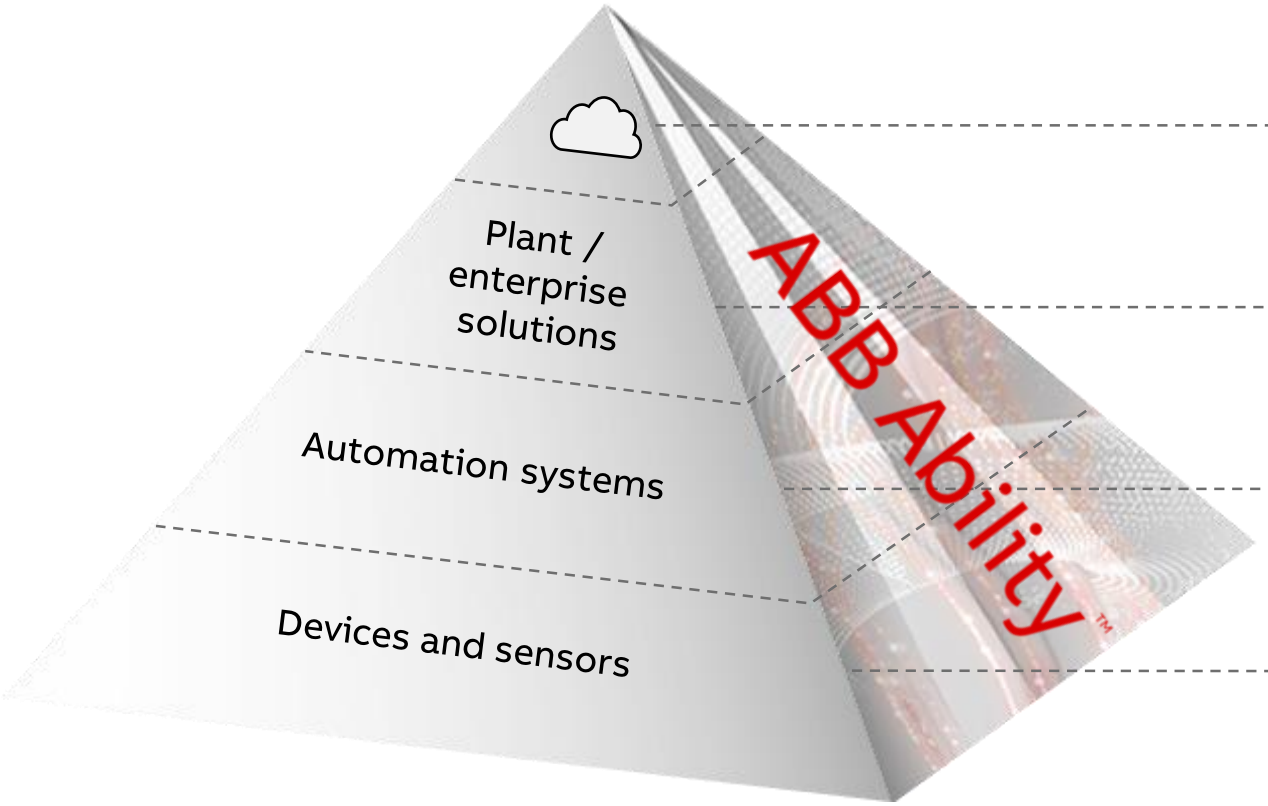
Mastering the operations center



From physical to digital differentiation

Unlocking the ABB potential in digital

ABB Ability™: industry-leading digital solutions built on a common set of standard technologies



Open access, intelligent cloud

New end-to-end digital solutions

>6,000 solutions installed

Systems to master process control

>70,000 systems installed

Closing the loop with connected devices

>70,000,000 digitally enabled devices connected

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Innovation takes ability. ABB Ability™.

More than 180 solutions available now

180+ ABB Ability™ solutions



Utilities



Industry



Transport & Infrastructure

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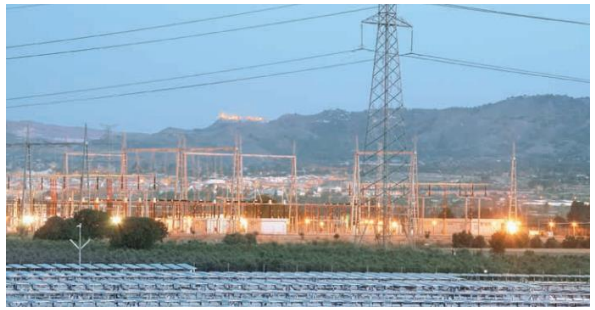
Utilities

Reduced installation time (-40%), maintenance costs (-50%) and outage time (-50%)

Asset performance management



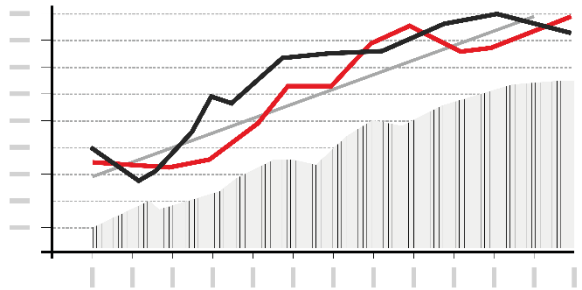
Distributed energy resource management



Maintenance workflow management



Energy market trading system



Automated digital substation



Standard IP communications



Microgrids



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Industry

Improved productivity (+200%), reduced energy (-30%), & longer product life (+30%)

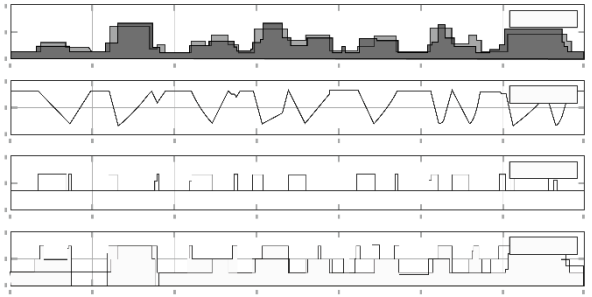
Connected robots



Manufacturing execution systems



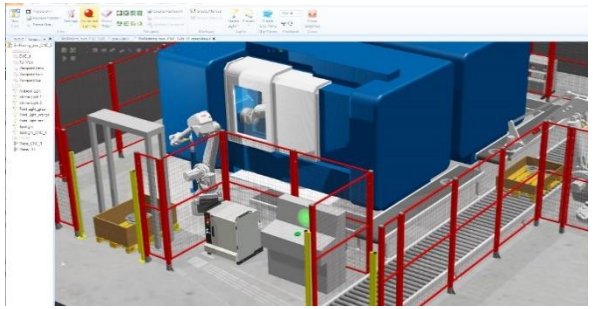
Energy assessment



Cybersecurity assessment



Digital simulation for robot deployment



Power quality monitoring & demand-response



Distributed control systems



Remote monitoring & optimization



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Transport & Infrastructure

Proactive detection of faults (90%), reduced maintenance costs (-20%) and energy costs (-5%)

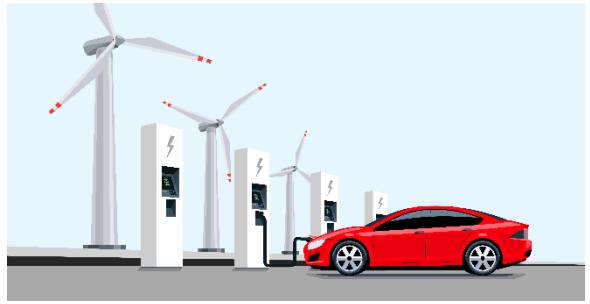
Remote monitoring for ship electrical systems



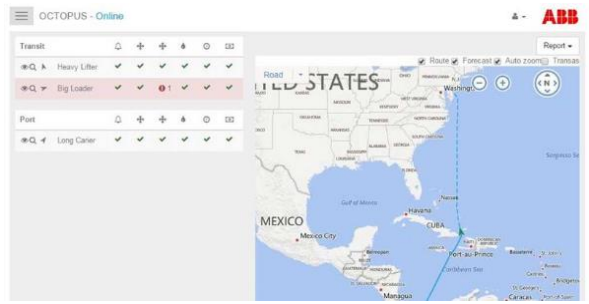
Building automation



Vehicle-to-grid demand/supply coordination



Navigation optimization for fleets



EV charging with cloud management



Flash-charging electric buses



Energy management for mega-datacenters



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Writing the digital future takes ability.
ABB Ability™.

