

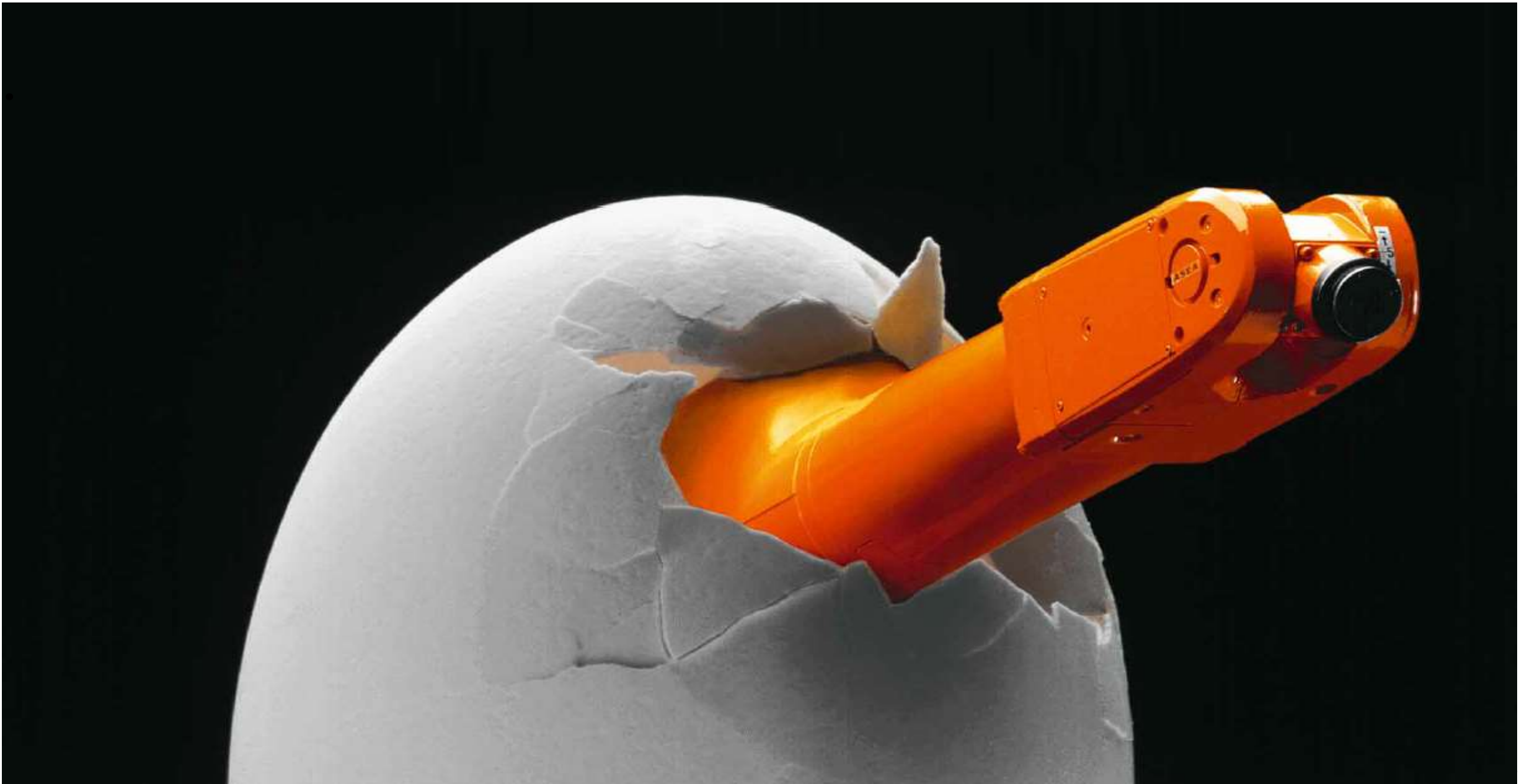


The Factory of the future : Collaboration and Digitalization to deliver smarter packaging solutions

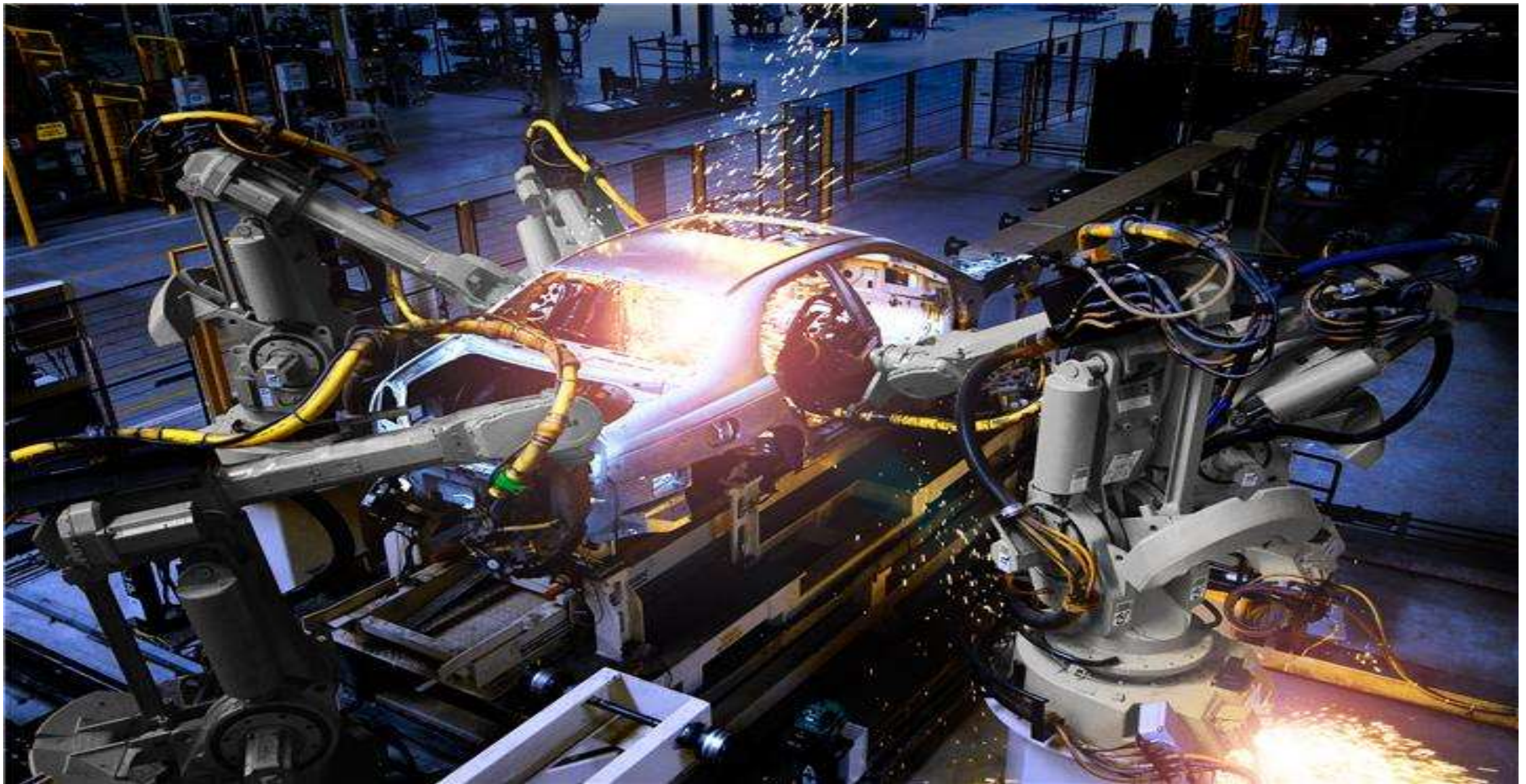
Hispack 2018

Sergio Martin, Director ABB Robotics Spain



















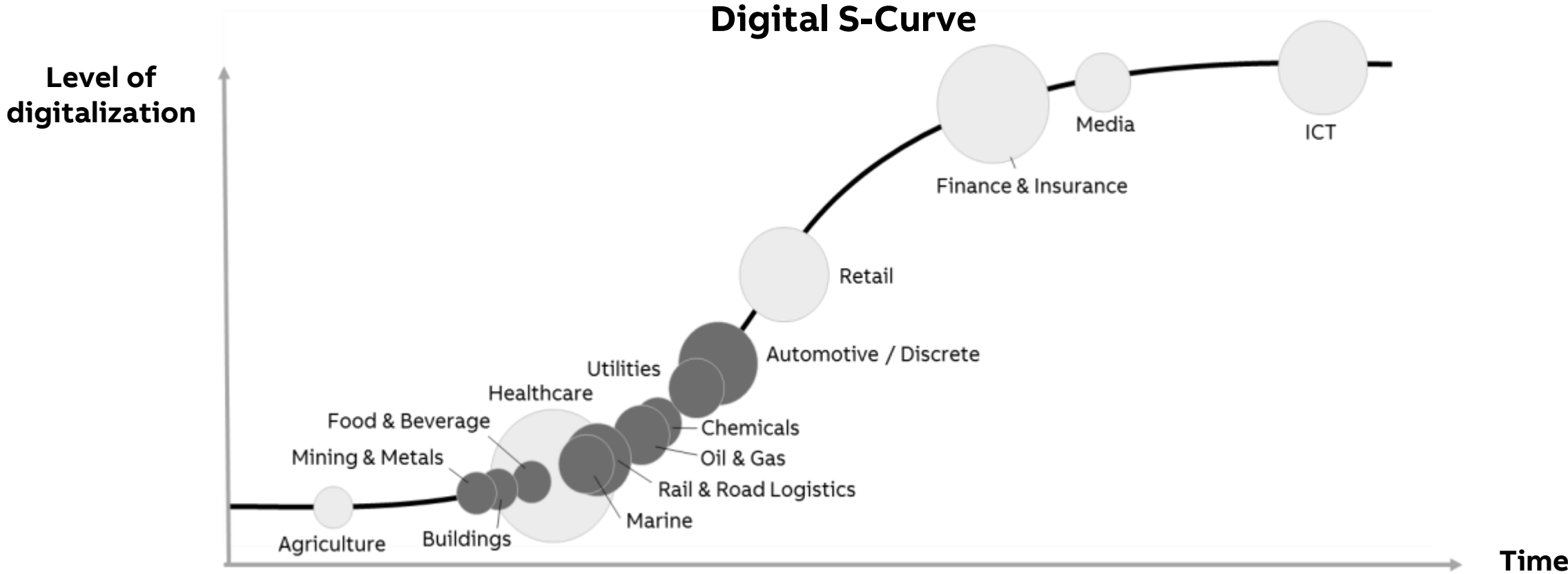


Industry 4.0 (IoT)

ABB Robotics Spain

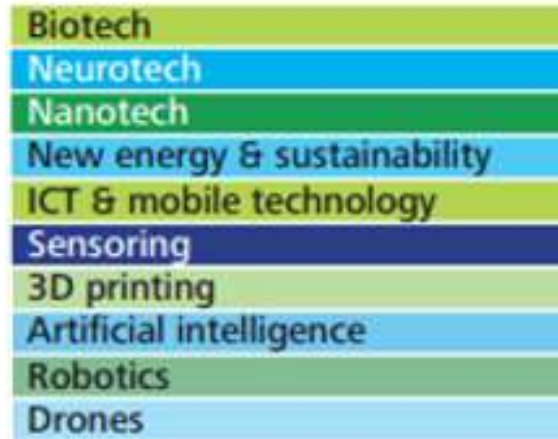
Industrial markets primed to adopt digital technologies

Computing + connectivity + cloud + analytics set to unlock value

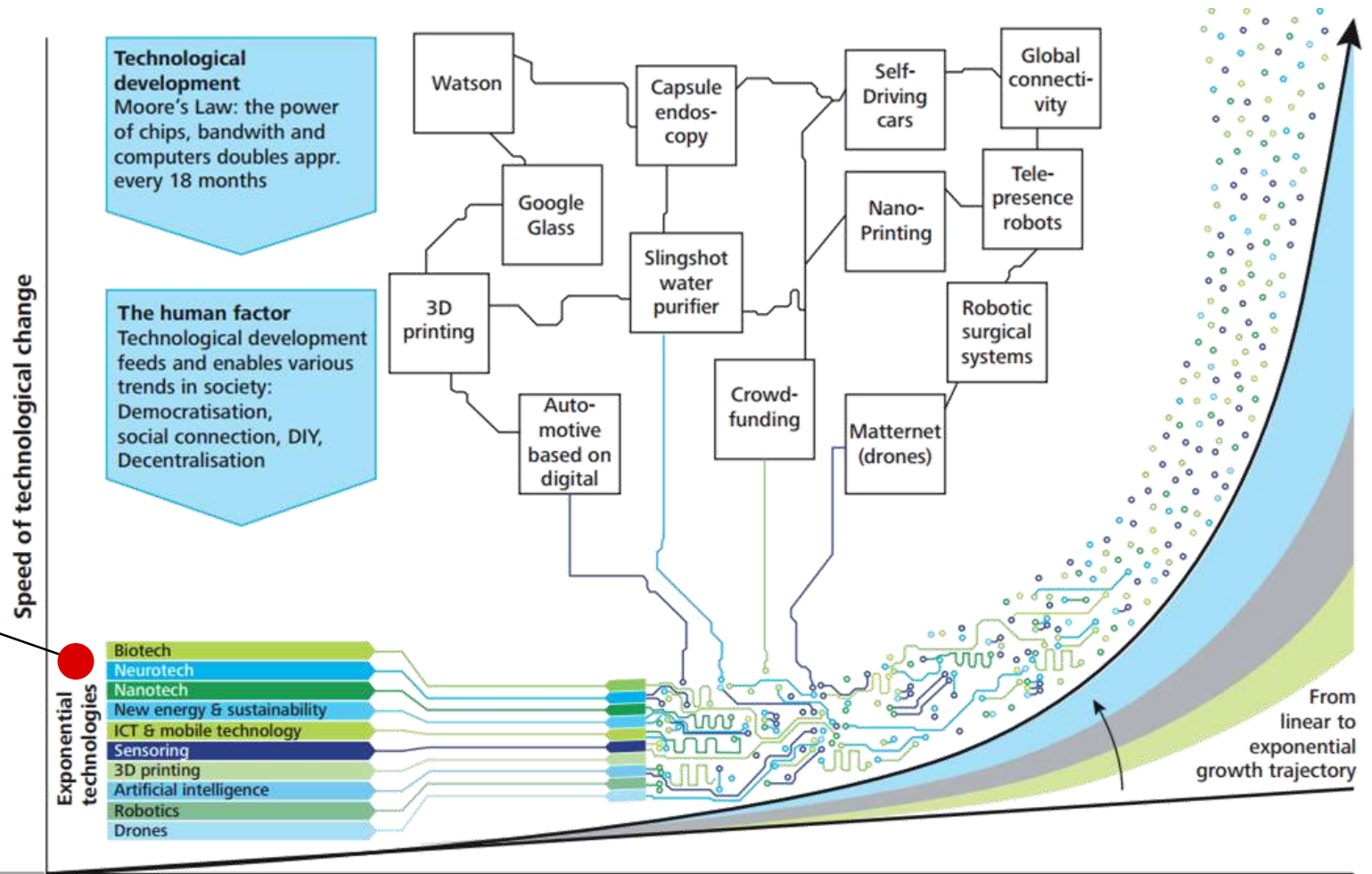


Focusing on the exponentials

Technologies leading the revolution



Digital technologies



Digital technologies are driving new innovation

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

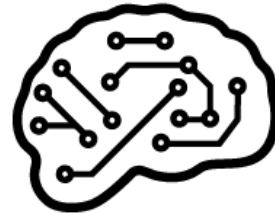
Virtual/augmented reality



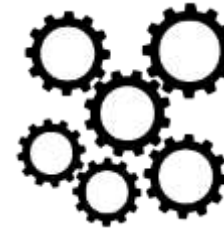
Software-defined machines



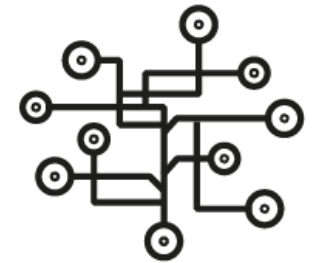
Machine learning



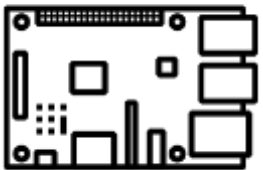
Time-sensitive networking



Big data



Inexpensive computing



Cloud computing



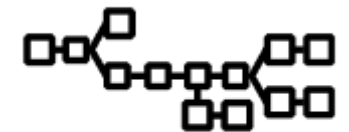
Cybersecurity



Connectivity



Blockchain



Writing the digital future takes ability.



Robotics: An ever-changing industry

ABB Robotics Spain

2016 – the fourth consecutive year of record-breaking growth!

Robot shipments grew by 16% to 294K units while the global economy grew around 3%¹



Americas

8% growth, 41K units²



Europe

12% growth, 56K units²



Asia

19% growth, 190K units²

The opportunities behind the change . . .

Entry barriers are coming down

Yesterday: robots helped mainly bigger businesses



Today: robots are helping smaller manufacturers



Simpler to install, program and use robots will increasingly help small and medium sized businesses

Accommodating today's automation trends has consequences

What keeps manufacturers up at night?



Shorter product cycles, more frequent launches

Shop floor disruptions, higher engineering and commissioning costs.



Increased cost of downtime and focus on reliability

Higher total lifetime ownership costs from increased preventive services and planned downtime.



Greater need for human and robot interaction

Lost productivity to maintain safety and less factory floor layout flexibility.



Robots play a significant role in helping manufactures meet these challenges.

But not only the robot is critical

Complete set of components



Software



Collaboration



Complete ecosystems



Tools & Equipment



Connected services



Digital & Comms Infrastructure

An enormous range of complete solutions from one trusted brand.

Let's stick to the essentials

Simplification, collaboration and digitalization

Simplification



- Managing increased automation complexity
- Removing entry barriers for many new robot users
- Speeding launch time and efficiency

Collaboration



- Increasing the flexibility of people and automation systems
- Unlocking entirely new applications
- Balancing the imperative for safety with the need for productivity

Digitalization



- Efficiency through the entire lifecycle: design, build, operate and maintain
- Actionable and proactive intelligence for greater reliability
- Connecting islands of automation across plants and enterprises

Collaboration & Digitalization

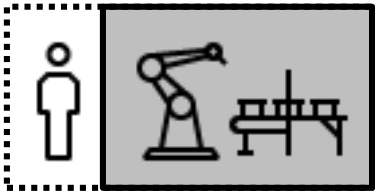
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Collaboration

Robots and fenceless operations

No collaboration

- No shared space, barriers to keep people and robots apart



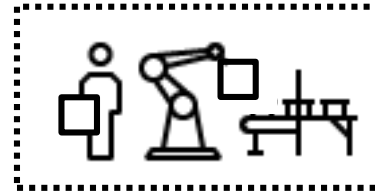
Fenceless operation

- No intention to share space but no barriers to prevent it



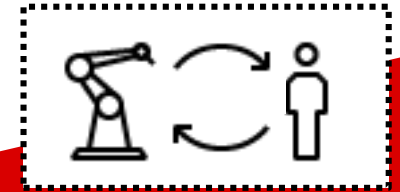
Sporadic interaction

- People enter the cell for intermittent tasks



Co-working

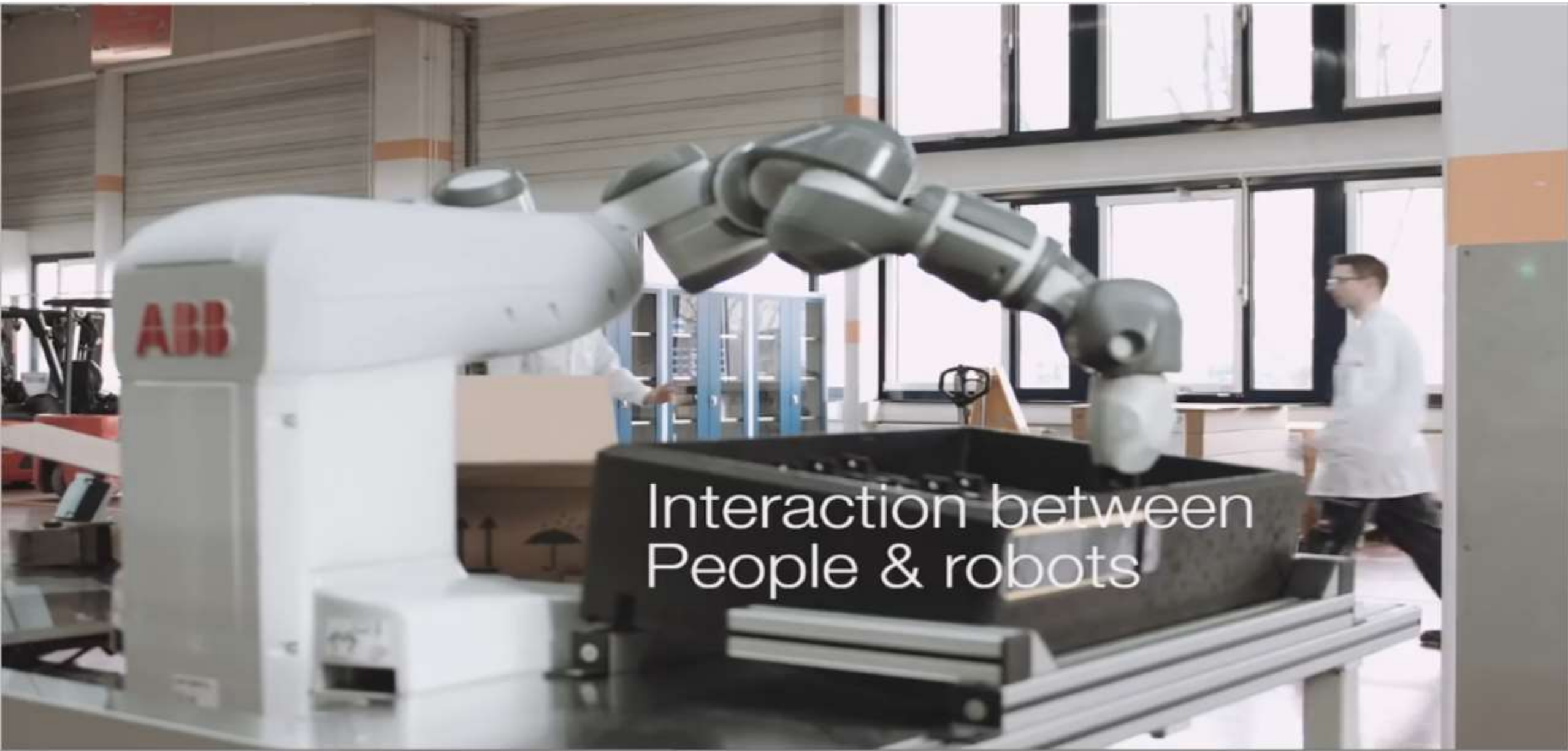
- People and robot share the same tasks and workspaces



Benefits of collaboration

With more collaboration the benefits are bigger

—
YuMi®



Interaction between
People & robots

SafeMove2[®]



Digitalization

A Vision for the Connected Factory of the Future

Digital Design



Global collaborative design enables to shorten the design-cycle while becoming more agile responding to regional differences

Digital Commissioning



Virtual Reality enables shorter commissioning times and global utilization of domain competence

Digital Maintenance



As connected objects, robots and process equipment will allow for fleet visualization and predictive maintenance

ABB uses digital tools throughout the complete value chain from design to maintenance

Packaging Digital offering

Example of products, function packages, cells and engineered solutions

PickMaster 3



Picking and packing SW tool

Picking PowerPack



Picking line simulation

PickMaster 5



Palletizing SW tool

Pallet Pack



Std. Palletizing FunPac

Index Conveyor with ABB MU



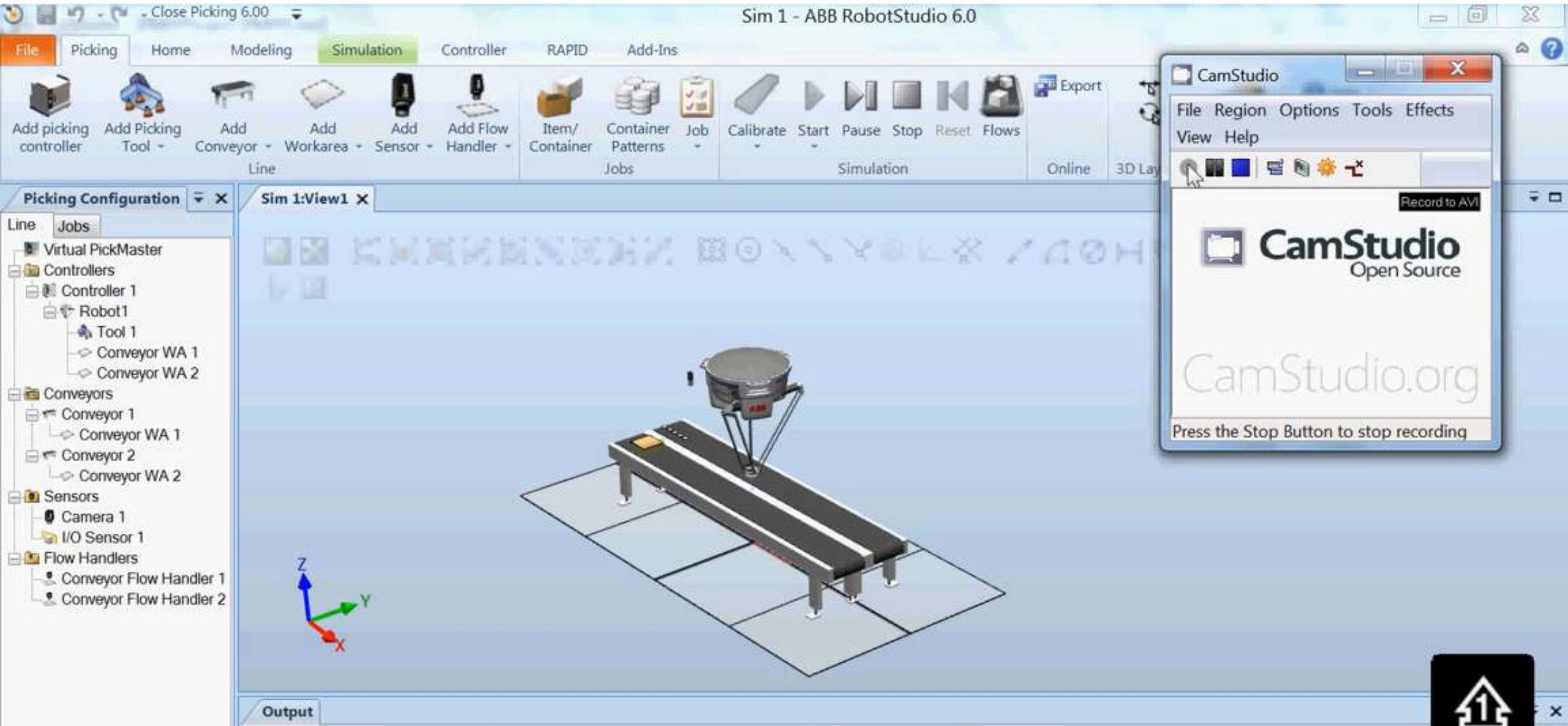
Integrated Motor Unit with Index Conveyor SW

Integrated Vision



Integrated vision

RobotStudio Picking PowerPack[®]



PickMaster 3[®]



RobotStudio PickMaster 5

Palletizing solutions

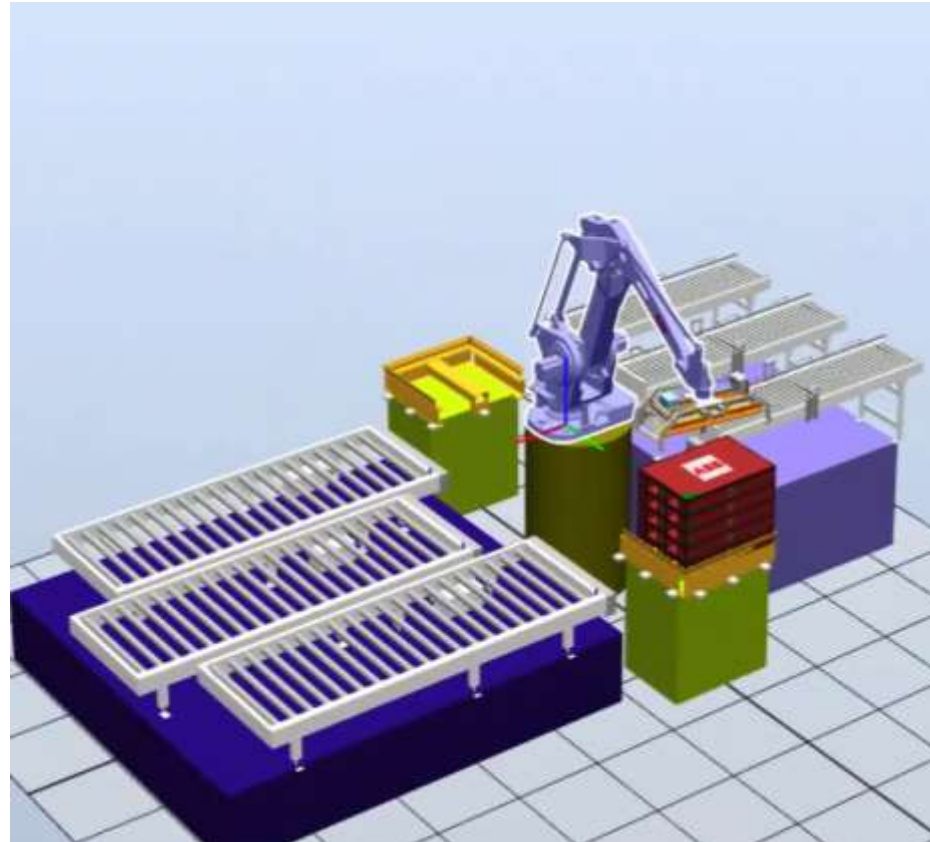
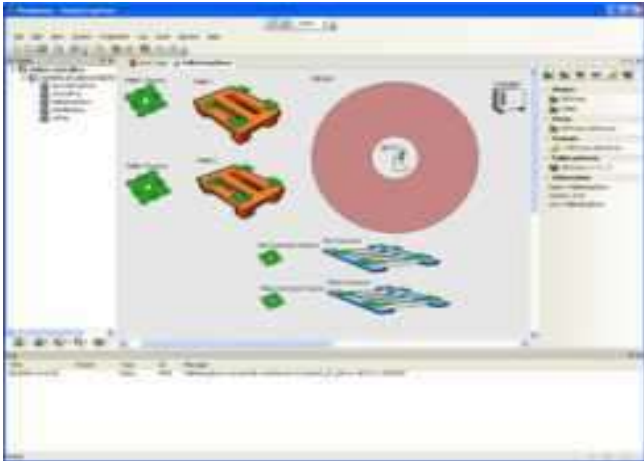
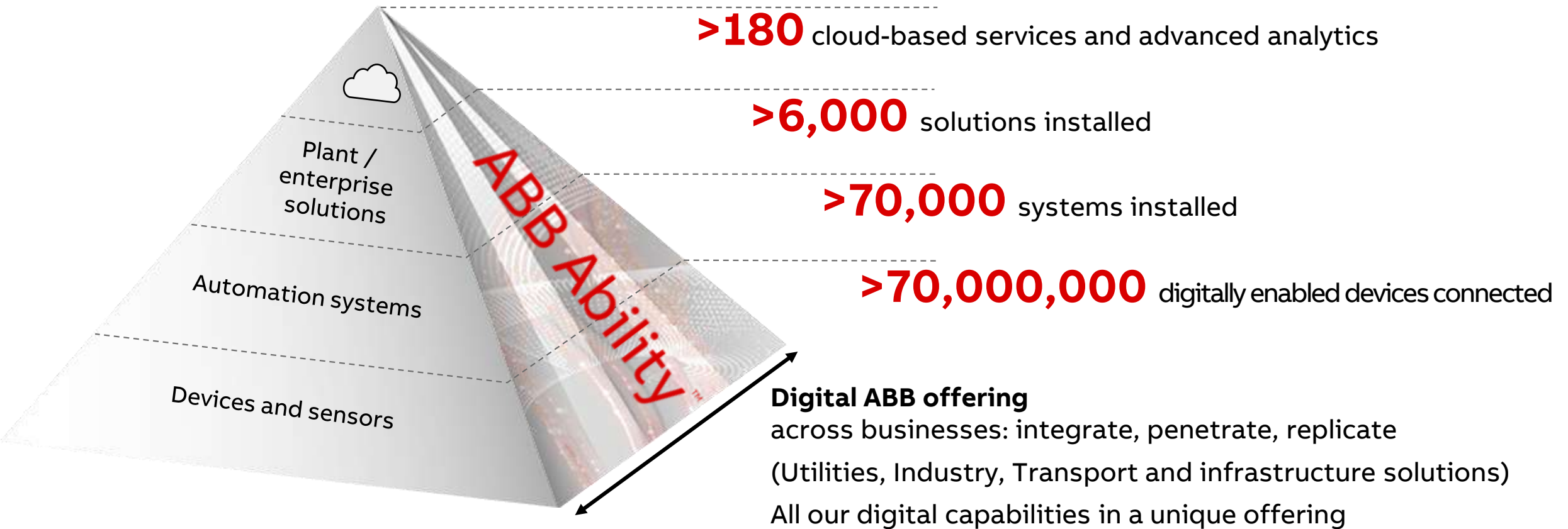


ABB Ability™ Connected Services



Quantum leap in digital: ABB Ability™

Creating one common offering for digital end-to-end solutions



What makes us different?

Our success drivers

Technology leadership



- A pioneer in industrial robots
- First mover in advanced services years before 'Internet of Things' became fashionable

Unique offering



- A one-stop-shop for robot automation solutions from a trusted brand
- Integrated portfolio creates customer intimacy and cost competitiveness

Global and local footprints



- At home in 53 countries with strong local sales, service and engineering
- Dual channel approach for most efficient market coverage and highest customer intimacy

ABB uniquely positioned to benefit from these dynamics

Our pioneering technology leadership places us
at the heart of the Energy and Fourth Industrial Revolutions



The opportunity is now – and we are ready



AABB