Scalable & flexible robotic automation solutions for F&B

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Intro to ABB Consumer Segments & Service Robotics

Addressing current consumer trends and demands

Leveraging on a strong Global footprint

Portfolio: flexible, modular and scalable solutions

Ground-breaking technology
### Key drivers are the same but enabled by digital technologies

#### What keeps manufacturers up at night?

<table>
<thead>
<tr>
<th>Key Driver</th>
<th>Challenges Addressed</th>
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<tbody>
<tr>
<td>Shorter product cycles, more frequent launches</td>
<td>Reduce labour, Improve quality, Reduce waste, Improve yield</td>
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<tr>
<td>Increased cost of downtime and focus on reliability</td>
<td>Improve traceability, Increase efficiency and flexibility, Eliminate hygiene risks</td>
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<tr>
<td>Greater need for human and robot interaction</td>
<td>Reduce change over times, Collaborative operation (typically fenceless operation), Digitalisation, Utilisation of available space</td>
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Robots play a significant role in helping manufactures meet these challenges.
Consumer Segments & Service Robotics

Our response to today’s consumer trends and demands

**Industrial robotics**
- Food & Beverage
- Consumer Packaged Goods
- Pharmaceuticals

**Service robotics**
- Restaurants
- Retail
- Healthcare

**Logistics**
- eCommerce
- 3PL
- Post & Parcel

1. 3rd Party Logistics
## Consumer Segments and Service Robotics

Focus segments in our world

<table>
<thead>
<tr>
<th>Consumer seg. &amp; Logistics</th>
<th>Healthcare</th>
<th>Retail</th>
<th>Restaurants and Kitchens</th>
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</thead>
<tbody>
<tr>
<td>Distribution</td>
<td>Hospitals</td>
<td>Grocery</td>
<td>QSR</td>
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<tr>
<td>eCom</td>
<td>Laboratories</td>
<td>Apparel</td>
<td>Kiosks</td>
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<tr>
<td>Retail distribution</td>
<td>Logistic solutions</td>
<td>Pharmacy</td>
<td>Professional kitchens</td>
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<tr>
<td>Buffer &amp; sequencer</td>
<td>Inventory checking</td>
<td>Replenishment support</td>
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<tr>
<td>Picking, packing</td>
<td>Laboratory automation</td>
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<tr>
<td>End-of-line</td>
<td>Medical device companies</td>
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<tr>
<td>Internal warehousing solutions</td>
<td>Autonomous replenishment</td>
<td>Center store vending machine</td>
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</tbody>
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Robotic Solutions and technologies to improve productivity, safety and service quality levels
Global reach: local support with global leverage

600+ colleagues in 4 Solutions Centers and 15 local operations

- **Solutions Center**
  - **EU**
    - Huizingen, Belgium
  - **Warsaw, Poland**
- **Solutions Center**
  - **Asia**
    - Shanghai, China
- **Solutions Center**
  - **NA**
    - Auburn Hills, US
- **Solution Centers**
  - **SA**
    - Sao Paulo, Brazil

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February 27, 2020 | Slide 7 | Solution Center
**Focus**
- Expertise
- Selected applications
- Define technology roadmaps
- Develop function packages

**Infrastructure**
- Customer center with demo cells
- R&D labs and manufacturing
- Testing new customer applications
- Training our people and our customers

**Leadership**
- Dedicated team
- Regional & global perspective with cross border sales
- Collaborative culture
The current focus of robotics R&D

Robotics is playing a key role in coping with disruption and pushing the boundaries of automation

1. **Flexibility** – multifunctional and multipurpose

2. **Simplification** – pre-trained for rapid deployment

3. **Modularity** – easy lifecycle management
A modular, scalable portfolio
Building blocks to scale faster, safer and more profitably

Modular, scalable robotic solutions

Flexible design: footprint, performance etc.
Shorter deployment
Scalable
Possible re-deployment
Born-digital

Created through deep application and domain expertise

Value steps to fit channels

MODULAR CELLS
ROBOTS & SOFTWARE PLATFORM
SYSTEMS

Service & ABB Ability™
Portfolio for the F&B segment

Products with options:
- Industrial robots
- PickMaster 3
- Picking PowerPac
- Palletizing PowerPac

Main robots used for Packaging applications:
- IRB 360
- IRB 460
- IRB 660
- IRB 760
- IRB 120
- IRB 1200
- IRB 1600
- IRB 2400
- IRB 4400
- IRB 6640
- IRB 910SC
- IRB 14000 (Yumi)
- IRB 14010

Function Packages:
- Modular palletizer + Grippers
- Picker cell

Standard Cells:
- RacerPack
- RacerTrack
- Lean Palletizer

Function Packages:
- MiniLoad
- CasePacker
- Automated Roller Loader

Engineering to Order:
- Picker, packer and palletizer solutions based in customer needs
- Example: Complete picker line projects, case packing, central palletizer, ....

Engineered Solutions:
- Bespoke solutions
- Customized cells
- Integrated systems

Adding customer value in steps:
- Standard Cell
- Safety equipment
- Pallet and pedestal
- Cell control software

Function Package:
- Process equipment
- Peripherals
- Frames

Product with options:
- Robot & Controller
- RobotWare & ProcessWare
- RobotStudio & PowerPac

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May 4, 2020
Flexibility
Applications areas

Picking
This is an area in which we service a multitude of installations, covering a host of different products, applications and packaging line set-ups. These include frozen food, bakery and confectionary as well as ice-cream, meat and fish, cheese, pet food, medical products, shampoo and perfume bottles.

Packing
This area is all about packing a variety of items into boxes. It includes robot-based case packing - smaller boxes packed into larger ones, and racetrack packing - many items picked simultaneously with the aid of grippers.

Palletizing
Placing boxes, trays, bags, bottles or other items on a pallet seems easy enough. However, when you need to meet the most rigorous demands in terms of speed, care of handling, pallet patterns, stability, precision and cycle time, nothing compares to a robot-based automation solution from ABB.

Order Picking
Shorter product life cycles & changeover times, output per m² and batch size 1 are some of the key opportunities for flexible, tailored and intelligent solutions.

Handling of packaging material
Handling of packaging material
Robot based loading and unloading of film rolls on packaging machinery with precise guiding minimizes changeover times and costly production stops.

Mix & Depalletizing
Boxes and crates are produced and stored in batches, but they need to be re-arranged with the right mix for distribution. Efficient and flexible palletizing and de-palletizing makes sure every product is ready for shipmen with the right mix to the retailers.
Simplification
Next Generation PickMaster®: Enabling Simplification, Collaboration and Digitalization
Collaborative Palletizing Cells
SafeMove 2

**Key features and benefits**

Advantages:

- Collaborative: no need for interlock keys
- Robot does not need to stop for pallet exchange
- Robot does not need to be restarted since we can maintain it stopped with "motor on"
- Increased productivity
- Low maintenance due to fewer conveyors
- Saves space in the production line (small footprint)
- Repeatable and easy to install
- Low cost solution compared to other palletizing solutions
Robotic solutions for warehouse automation

ABB's Automated Warehouse Concept

- Outbound Order Consolidation
- Singulation & Sorter Induction
- Goods-to-robot Picking
- Sequencing
- Retail Order Picking
- Depalletising
Modular and scalable robotic decant and order picking

Standard building blocks to create any kind of application
Modularity case
Longer shelf-life thanks to shorter order lead times
Scalable and flexible robotics solutions for F&B

Enabled by Simplification, Collaboration and Digitalization

1. **Technology leadership**
   - A pioneer in industrial robots, collaborative robots and first mover in digitalization

2. **Global/local footprint**
   - Strong local sales and engineering coupled with deep, global domain expertise and supported by the industry’s broadest service offering and network

3. **Unique offering**
   - Unique portfolio, innovation strength, true global presence and applied domain expertise for increased productivity, flexibility and simplicity

4. **Strong solutions focus**
   - ABB combines know-how in complete systems and robots for speed of reaction and performance: Modularity, Flexibility and Seamless Integration for Intralogistics