

Industry 4.0: the Sidel Group's approach

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Complete Lines and Agility 4.0™, Sidel

Our Agenda

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- 1** The Sidel Group
 - 2** Sidel Group Agility 4.0™
 - 3** Agility 4.0™ - Case 1: Virtual Commissioning
 - 4** Agility 4.0™ - Case 2: Sidel Super Combi
 - 5** Agility 4.0™ - Case 3: Services
 - 6** Industry 4.0 is leading to a new business model
 - 7** Questions & Answers
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Welcome to our family



34,180 employees, €13.8 billion in sales



4,450 employees
€935 million in sales

Complete systems
for milk production



24,140 employees
€11.4 billion in sales

Liquid food processing
and carton packaging



5,321 employees
€1.4 billion in sales

Liquid food packaging
for PET, can and glass

The Sidel Group in short

Leading provider

of equipment, services and
complete solutions

50 offices
around the world

**Production
sites in 13**
countries

1.4 billion Euro
net sales in 2016

5,321 employees
across **5 continents**

8 Research and
training centres

Over 170 years of **experience**

>37,000
machines installed
in over **190 countries**

Two strong brands. One purpose.



TWO BUSINESS UNITS IN ONE GROUP



Sidel Group Agility 4.0™

Global trends in the food and beverage industry

Key trends in food and beverage industry

- Product personalisation
- Overall efficiency
- Growing consumer expectations
- Value chain restructuring
- Green strategies
- Food safety

New fast changing consumer behaviours

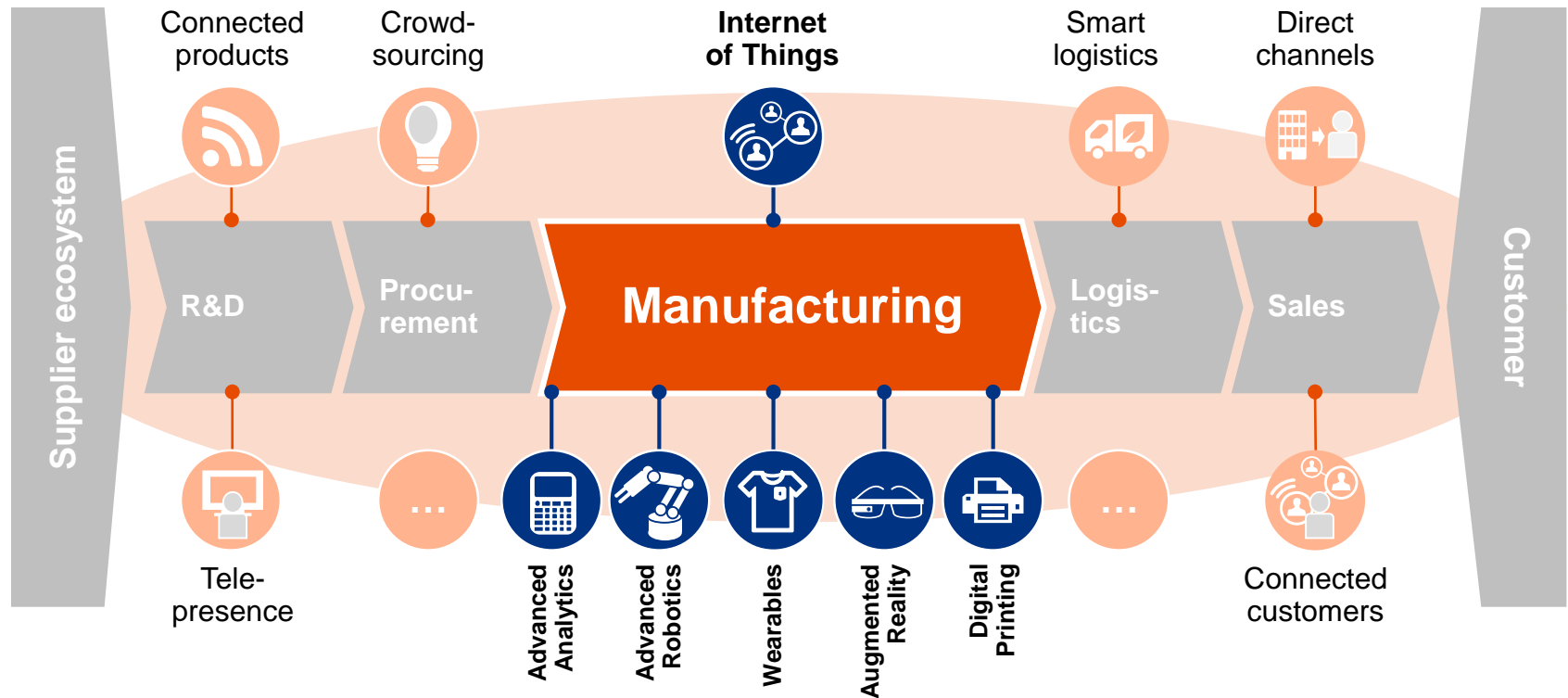
Digital connectivity



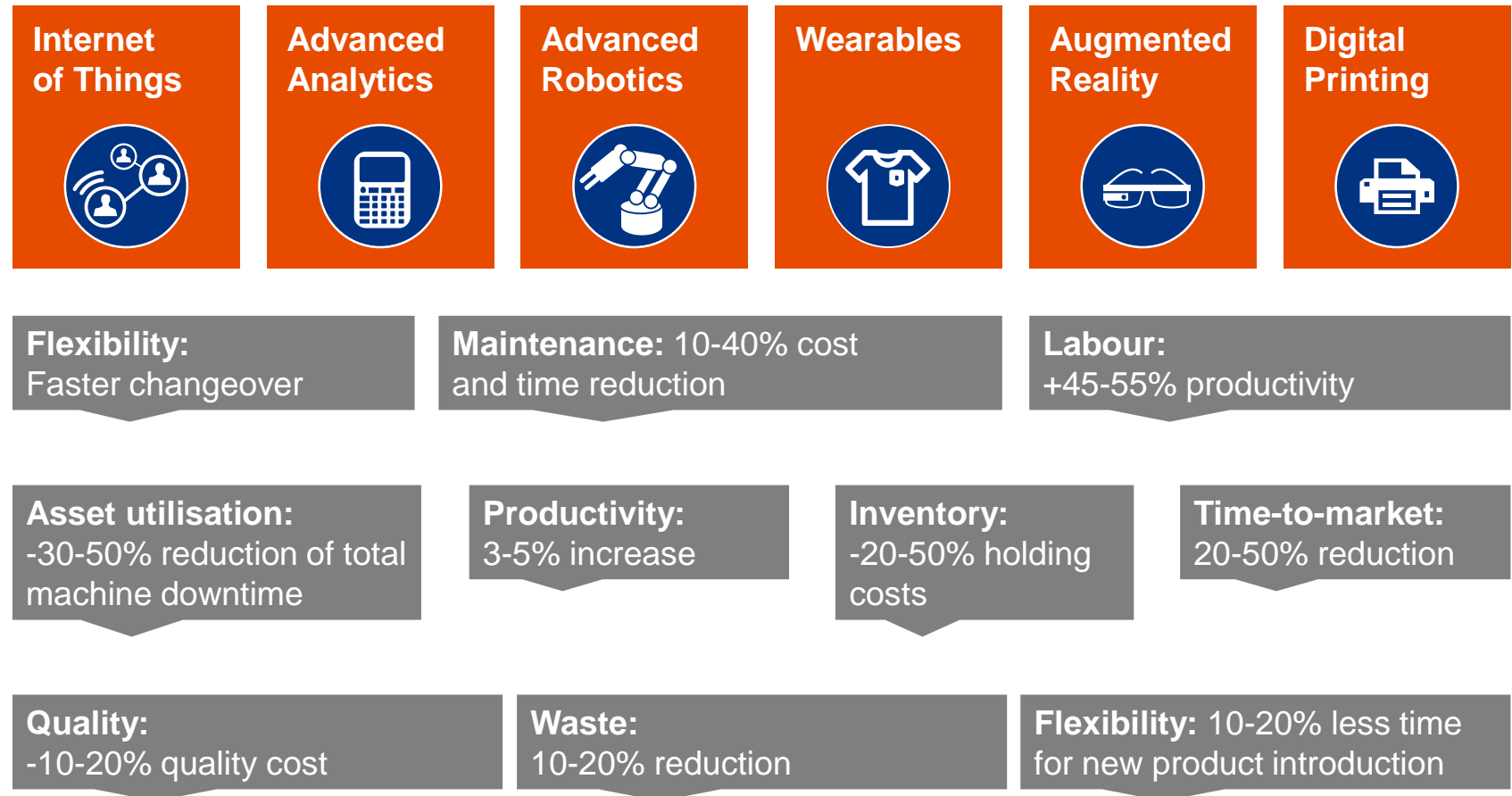
Internet of things



New technologies are enabling these changes



And creating tangible value



Sources: McKinsey & Co., A.T. Kearney, Cisco, ABB, T. Bauernhansl, M. ten Hompel, Vogel-Heuser: Industry 4.0 in Produktion/Automatisierung/Logistik

Together with our Sidel Group Agility 4.0™ Solutions Framework

Virtual Factory

From initial virtual design
right through to logistics



Smart Factory

Machine, systems and data
intelligence including robotics
and communication hardware



Sustainable Factory

All within a philosophy
of sustainable production



Connected Factory

Future-proof digital connectivity



Extended Factory

Total mastery of the factory
beyond the four walls



Agility 4.0™

Case 1 – Virtual Commissioning

Virtual Commissioning



Agility 4.0™

Case 2 – Sidel Super Combi

Sidel Super Combi – One Smart Solution

Sidel Super Combi designed and engineered as one smart solution



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Process stations

- Preform feeder
- Blowing
- Labelling
- Filling
- Capping



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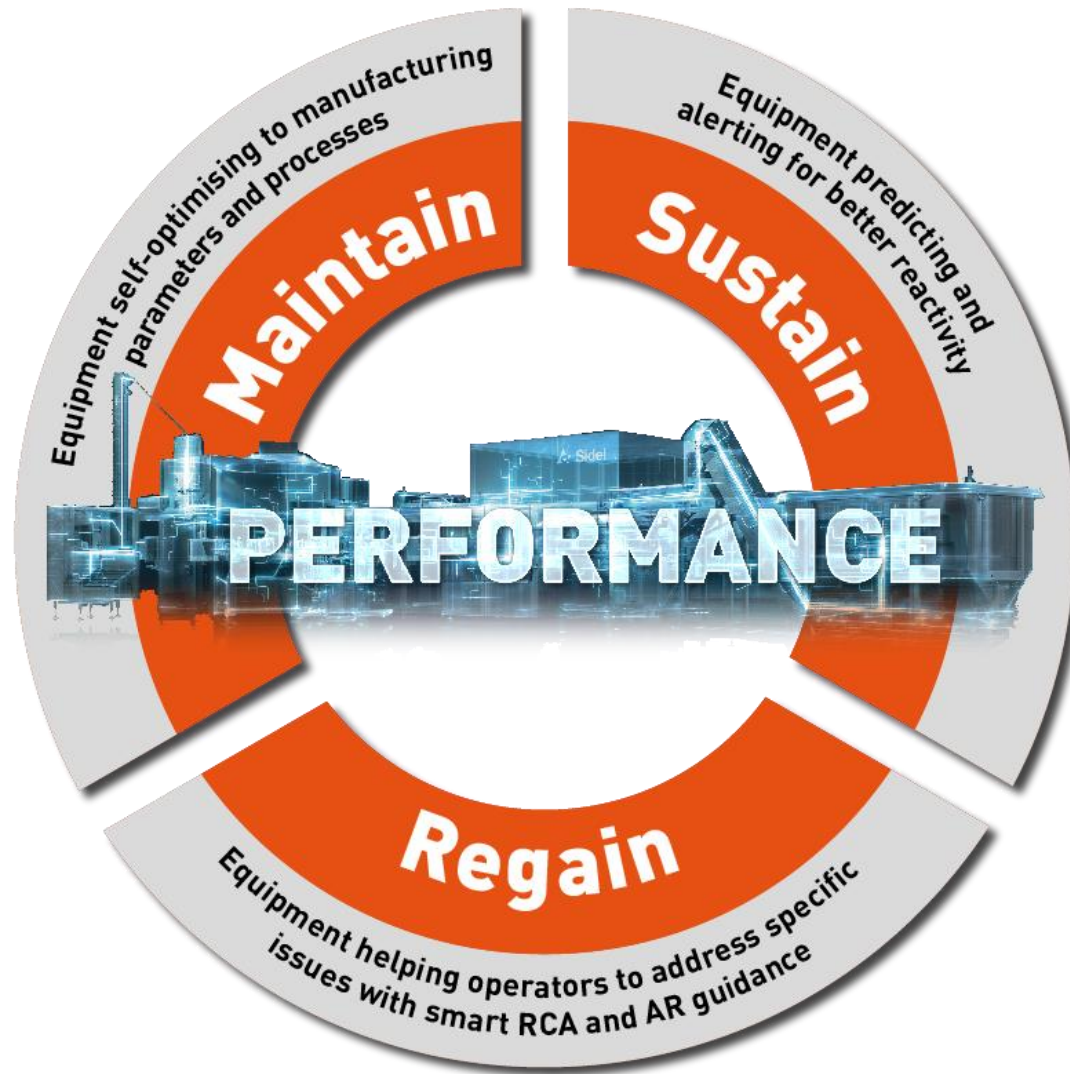
Smart solution

The solution encompasses **equipment intelligence**, enabling continuous production optimisation and enhanced performance

This makes it the ideal solution for maximising water and CSD production, increasing line efficiency as well as reducing costs

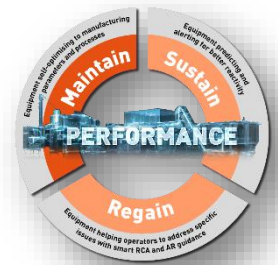
That's one smart solution!

Super Combi intelligence makes your life easier



How Super Combi automatically maintains performance

Intelli-adjust™ Blower

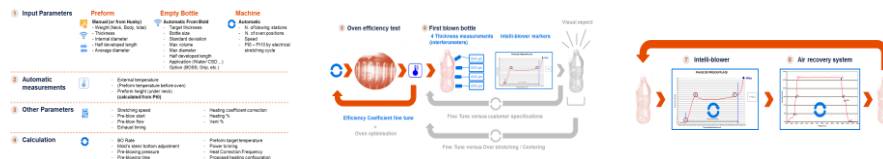
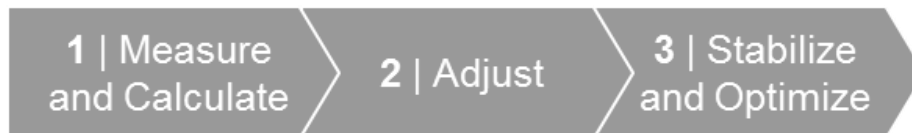


Scope

Equipment self-defining and optimising manufacturing parameters and process

- Equipment capable to set optimal recipe to shape the bottle, without specific expertise by the operator
- Equipment capable to maintain high production quality for longer run while minimizing energy consumption, according to expected standard deviation

Methodology



Benefits and value

- **Simplification** of production procedures and **ease of use**
 - **Reduced operator skills**
 - **Improved production flexibility**
 - **Increased production uptime** (reduced time to create and set-up new recipes)
 - **Reduced waste and cost** thanks to higher tolerance to specs variations
 - **Energy optimisation**
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- Improved OEE
 - Reduced waste
 - Optimised energy consumption

How Super Combi easily sustains performance

Predicting

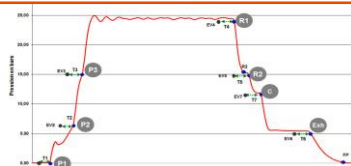


Scope

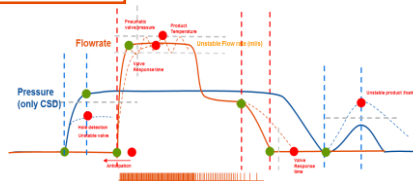
- Equipment continuously analysing and evaluating own data and parameters to detect and anticipate possible future downtime
- Continuous communication with Big-Data repository and Sidel's knowledge-base, to refine prediction algorithms (Blower and Filler)

Benefits and value

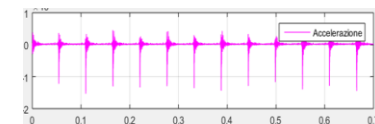
- **Reduced spare part inventory cost**
- **Reduced maintenance's labour cost**
- **Increased production uptime**
- **Reduced operator skills**



Blowing cycle (pressure)

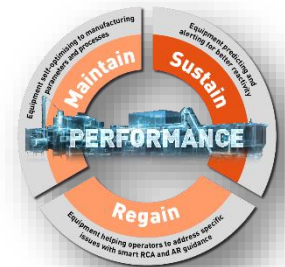


Filling cycle (flow and pressure)



Accelerometer measures of blade vibrations

Alerting and Monitoring



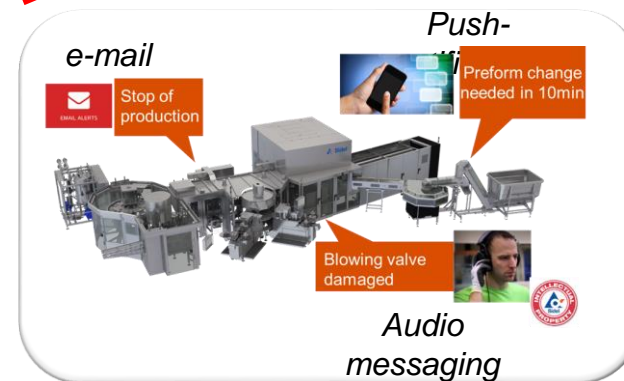
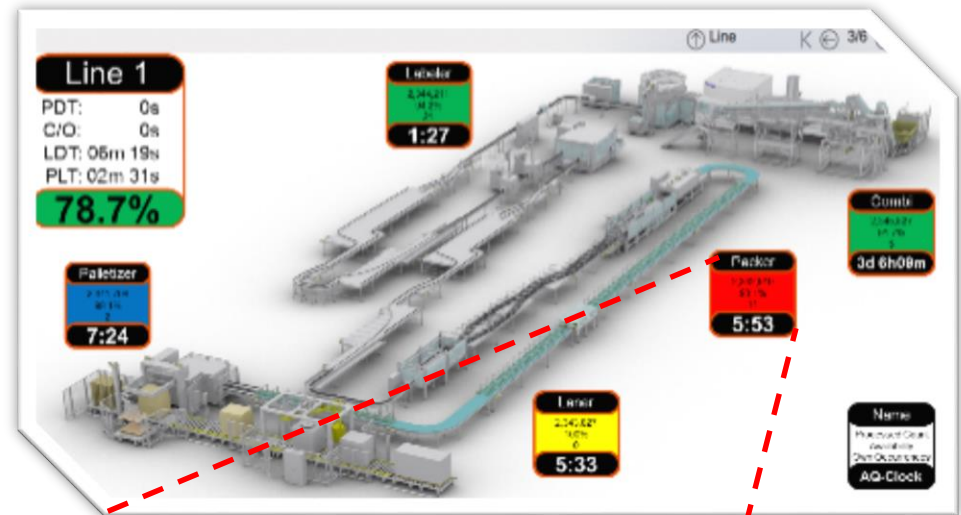
Scope

Equipment capable to provide timely and smart notification for better operator reactivity

- Continuous line status monitoring
- Notification of specific alarms on equipment / line
- Anticipation of change-over action
- Anticipation of raw material buffer replenishment needs

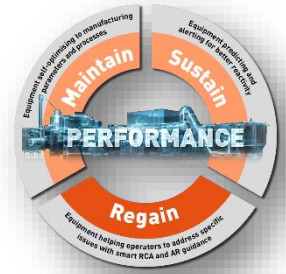
Benefits and value

- **Increased production uptime** (reduced unplanned maintenance)
- **Reduced operator skills**
- **Improved operator support**
- **Improved OEE** (reduced downtime)



How Super Combi easily regains performance

Intuitive interface – RCA Solving



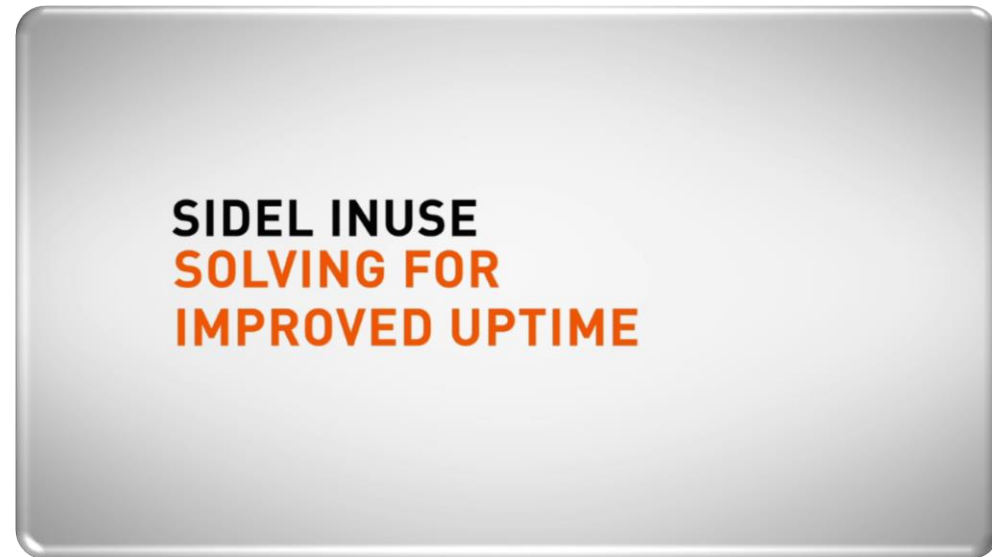
Scope

Equipment providing expert step-by-step guidance for accelerated Root Cause Analysis (RCA) and solving:

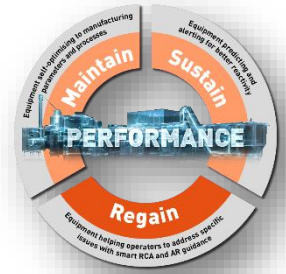
- Machine self-evaluating downtime issues
- Machine guiding operators for RCA
- Machine communicating with Big-Data repository and Sidel's knowledge-base to refine RCA capabilities

Benefits and value

- **Simplification** of procedures and **ease of use** (faster fault cause identification and clearer guidance how to restart)
- **Reduced operator skills**
- **Increased production uptime** (reduced MTTR)
- **Improved OEE** (reduced downtime)



Intuitive Interface – Augmented Reality



Scope

Equipment providing step-by-step guidance to perform specific actions and tasks (change-over, maintenance)

- Geo-localisation for contextual guidance
- Continuous visual feedback on progress and access to machine's status, manuals and documentation

Benefits and value

- **Simplification** of procedures and ease of use
- **Reduced operator skills**
- **Increased production uptime** (reduced MTTR)
- Improved OEE (reduced downtime)

**DIGITALLY-AIDED AND
INTUITIVE GUIDANCE
FOR CONSISTENT APPLICATION
OF PROCEDURES**

Agility 4.0™

Case 3 – Services

Ensure performance over time with Sidel Group Services



- **Accelerated** speed to sellable product
- **Sustained** higher performance
- Built-in **machine intelligence**, with focus on new maintenance agreements offering

Maximise equipment availability with modular maintenance solutions

Time and Material



Tailored preventive maintenance

Fixed Price



Condition-based
maintenance at fixed cost

Performance Based



Available soon

- Shifting **from mass production to mass customisation**, with no compromises on performance criteria
- Our Group's programme – Agility 4.0™ – is designed to help customers embrace this move, supported by our **performance-based Services**

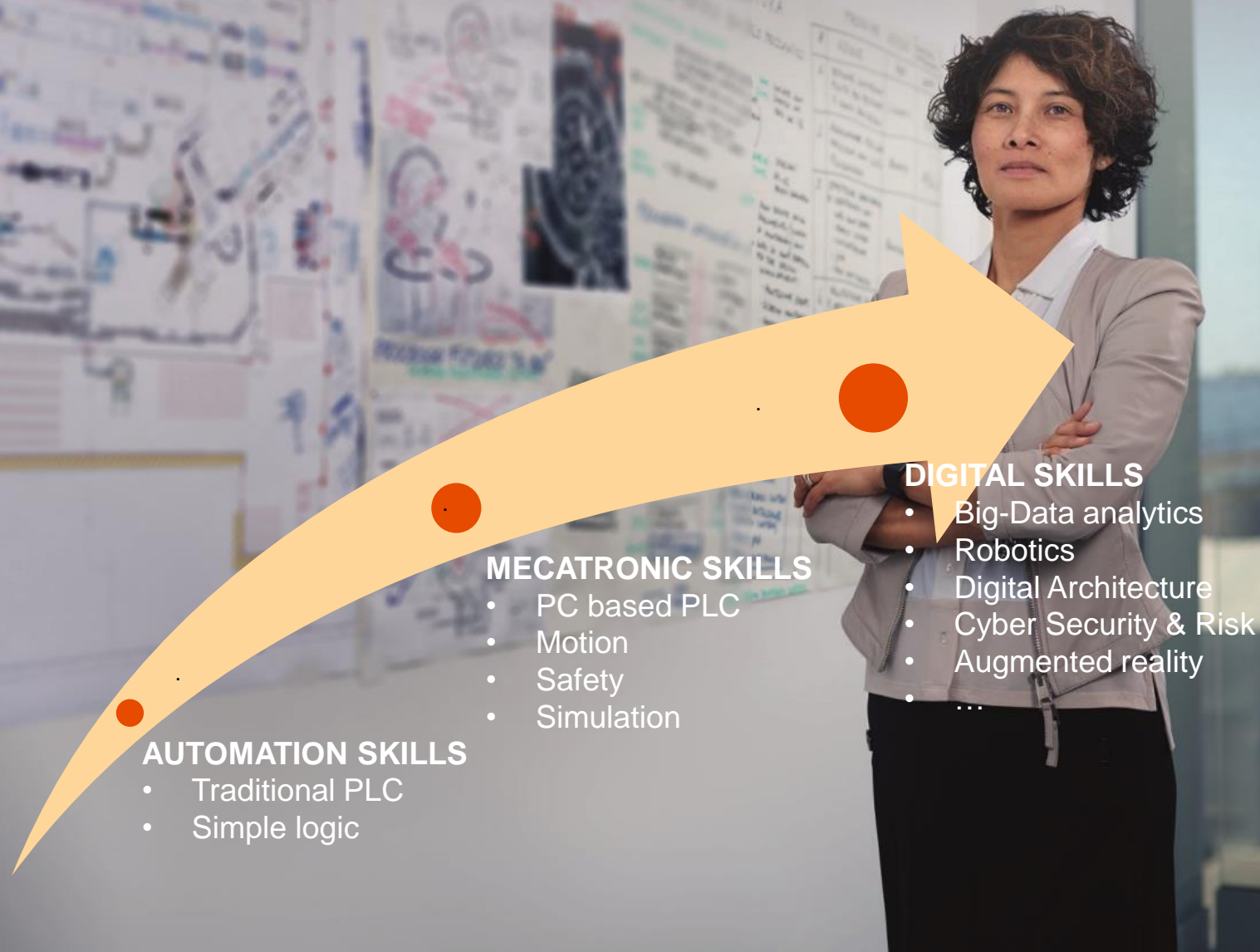


Key benefits – two-ways

- We help manufacturers improve performance
- We design and improve our solutions more efficiently

Industry 4.0 is leading to a new business model

Internal challenges: changing skills



The Sidel Group is formed by the union of two strong brands, Sidel and Gebo Cermex. Together, we are a leading provider of equipment and services for packaging liquid, food, home and personal care products in PET, can, glass and other materials.

With over 37,000 machines installed in more than 190 countries, we have nearly 170 years of experience, with a strong focus on advanced systems, line engineering and innovation. Our 5,000+ employees worldwide are passionate about providing complete solutions that fulfil customer needs and boost the **performance** of their lines, products and businesses.

Delivering this level of performance requires that we continuously **understand** our customers' challenges and commit to meeting their unique goals. We do this through dialogue, and by understanding the needs of their markets, production and value chains. We complement this by applying our strong technical knowledge and smart data analytics to support maximum lifetime productivity to its full potential.

We call it **Performance through Understanding.**