



worldwide expertise in
electromechanical components



Cebi Group

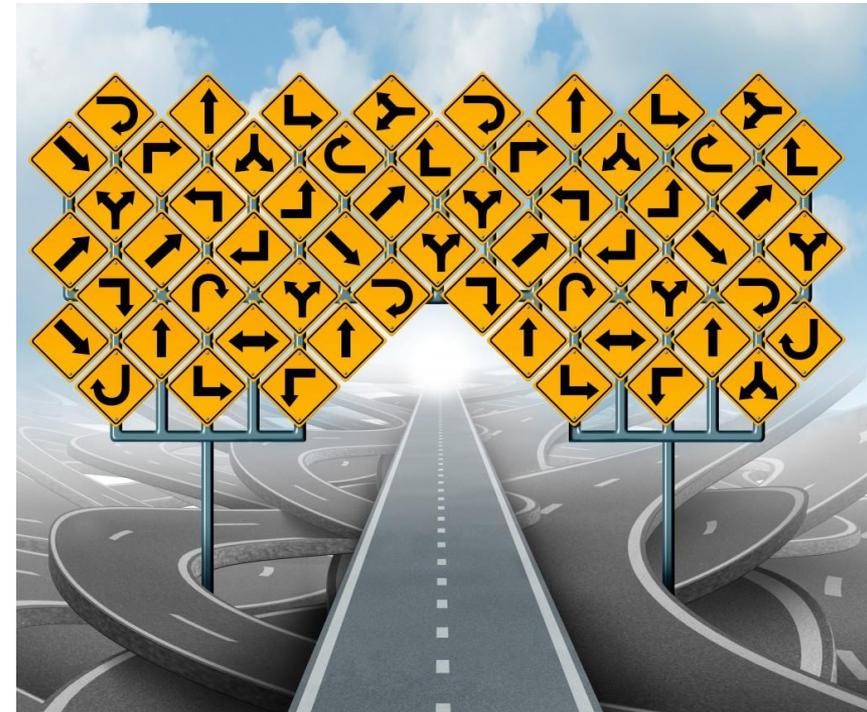


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electromechanical components



In 2019, we sold
209 272 238 parts

worldwide of more than
5 000 part numbers



Every one of these meets the highest standards....

...and was the cheapest offer

Innovation at heart

3500 employees in total

11 production sites

182 500 m² covered area

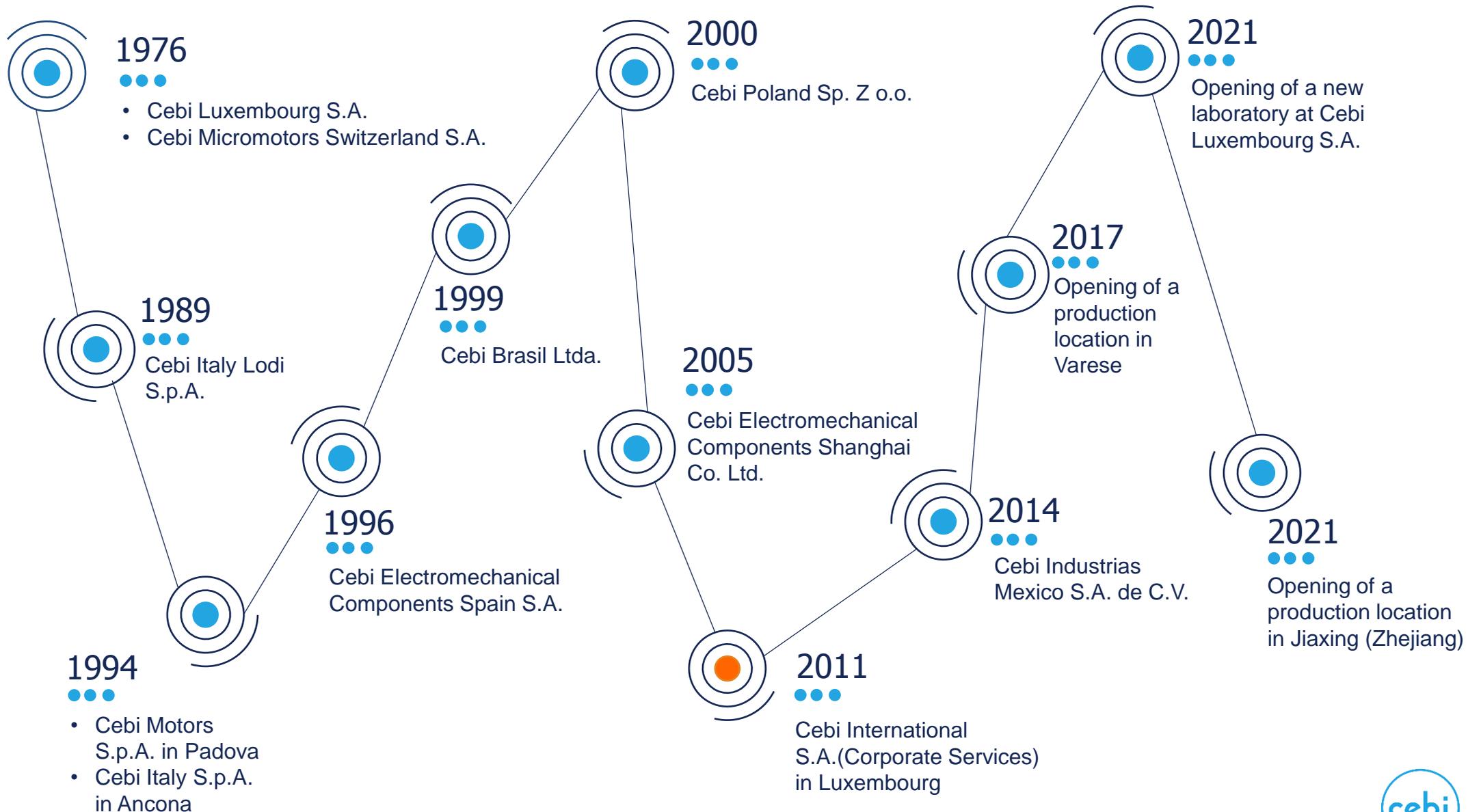
7 R&D centers

And 300 employees in R&D

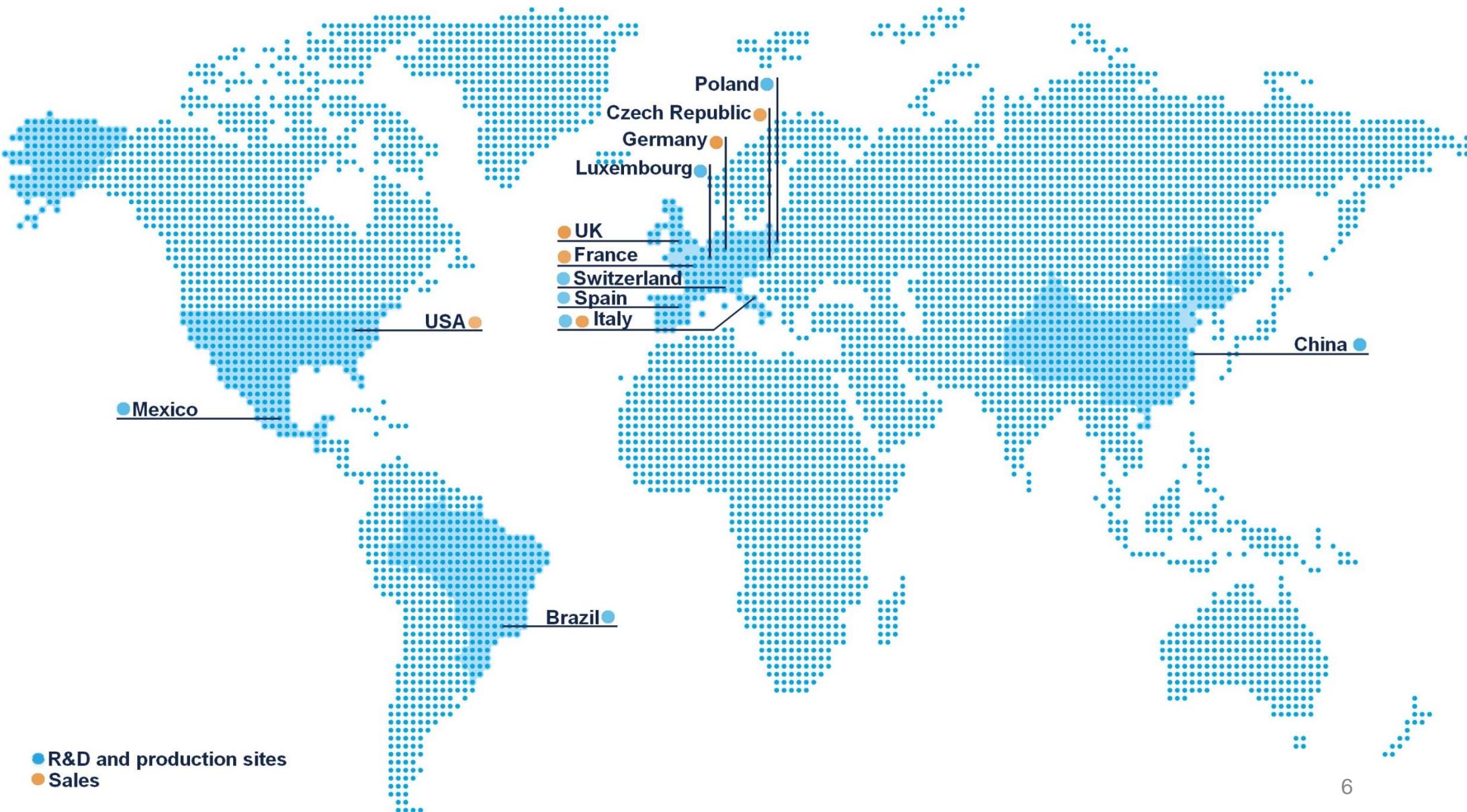
1 Development center for automatic assembly lines

13 sales offices

History



Our locations



Corporate Social Responsibility

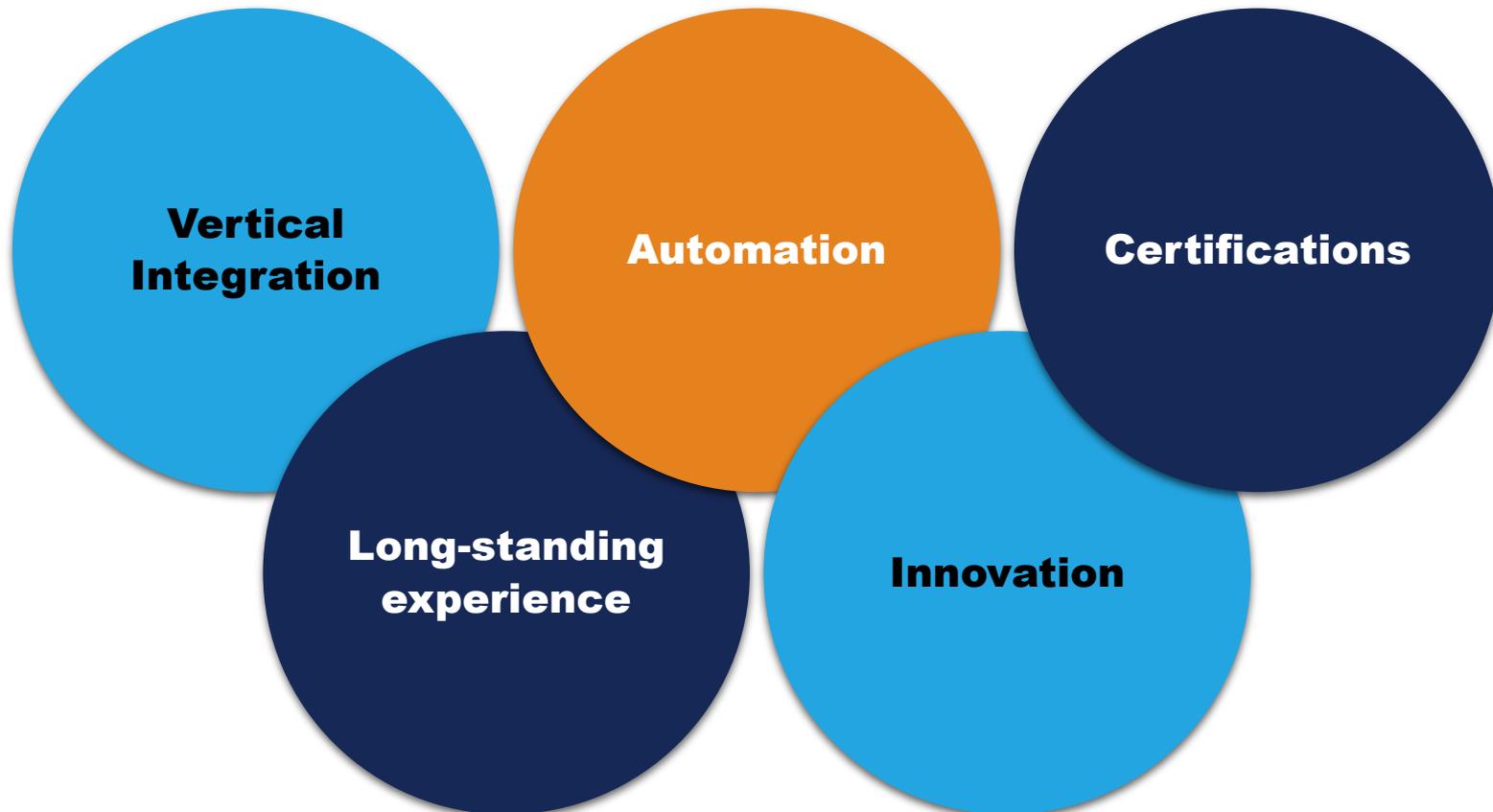
We believe we can contribute to shape a better, greener and more socially future for our employees and the generations to come.

- Donation to several charity organizations majorly in the domain of healthcare and education
- Sponsoring local and well-known basketball teams
- Commitment to reducing energy consumption in its plants
- Involvement in reforestation
- Implementation of training platforms and programs
- Organization of several events for its employees
- *and plenty others...*

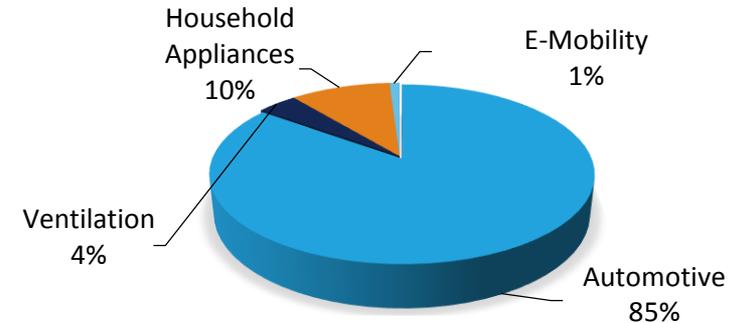


About us

Building on long-standing experience and continuous investment, we offer an advanced portfolio of innovative solutions responding to future functional and environmental ambitions.



4 business sectors



Cebi Group has developed a broad range of products that improve safety, performance and comfort for every driver.



Cebi supplies its products to a high percentage of the household appliance manufacturers in the world.

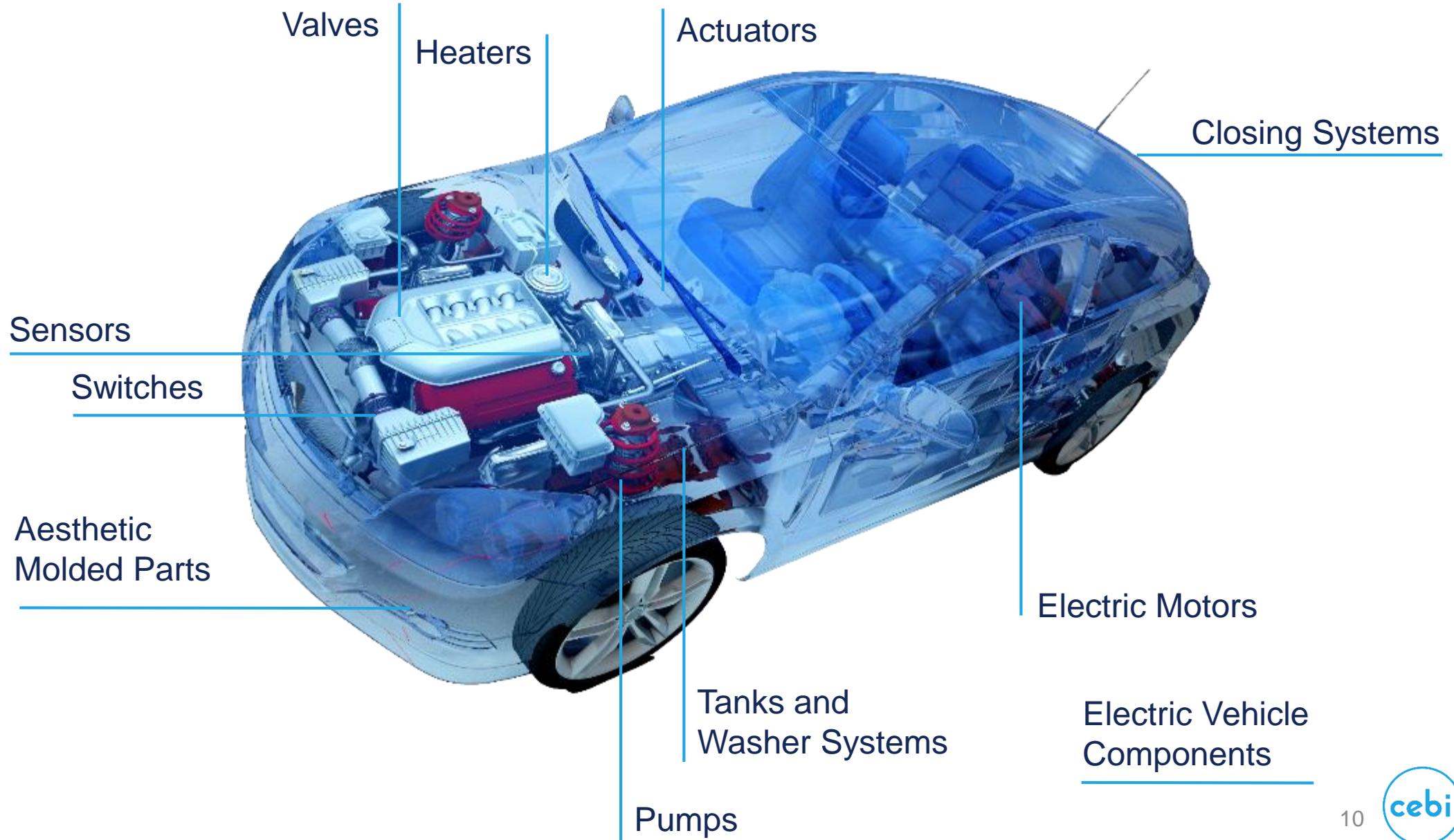


Cebi's tailor-made solutions for setting air in motion are used in residential and industrial applications.



Cebi's interest towards environment led to the creation of a new business sector for electric and hybrid vehicle.

Automotive



Sensors

- Water, Diesel and Oil Temperature Sensors
- Cylinder Head temperature Sensors
- Speed and Position Sensors
- Water Presence Sensors
- Air Temperature Sensors
- Level Sensors



Tanks and washer Systems



- Washer systems
- Flex Fuel Tanks
- Coolant Expansion Tanks
- Brake Fluid Tanks



Switches

- Oil Pressure Switches
- Temperature Switches
- Differential Pressure Switches



Pumps

- Circulation Pumps
- Washer Pumps



Valves

- Overpressure Valves and Non-Return Valves
- Thermostatic Valves



Heaters

- Diesel Fuel Heaters
- PTC Air Heaters
- Blow-by Heaters



Actuators

- HVAC Actuators
- Light Shield Actuators
- Headlamp Leveling Actuators
- Active Grill Shutters
- Actuators for fuel Door and E-Charge Module



Electric Vehicle Components



- Vacuum Pumps
- Battery Chargers
- DC/DC Converters
- Traction Motors



Electric Motors

- Seat Adjustment Motors
- Window Lifter Motors
- Sliding Door Motors
- Trunk Latch Motors



Closing Systems

- Hood Latches
- Tail Gate Latches
- Self-Closing System



Aesthetic Molded Parts



- Interior parts of the vehicle
- Exterior parts of the vehicle



Household Appliances

Temperature Sensors

Temperature Switches

Fan Motors



Fan Motors

- Oven Motors
- Refrigeration Motors
- Condensate Pumps



Temperature Switches

- Bimetallic Thermostats
- Capillary Thermostats



Temperature Sensors

- Temperature Sensors



External Rotor Motors

- External Rotor Asynchronous Motors (AC)
- Electronic Motors



Condensate Pumps

- Condensate Pumps



Electric Vehicle Components

- Vacuum Pumps
- Battery Chargers
- DC/DC Converters
- Traction Motors



Technologies

Manufacturing technologies

- Metal stamping and cutting
- Deep drawing
- Aluminum die casting
- Rotor winding
- Injection molding
- Electronics manufacturing
- Heat staking
- Ultrasonic and laser welding

Design technologies

- Complete product lifecycle management
- Modern analytical tools
- Rapid prototyping
- Electronics and software development
- Fully equipped laboratories for testing and validation



Fields of Innovation

Product innovation

- Premium performance and reliability based on state-of-the-art tools and competences
- New functionality through integration of electronics and software
- High energy enabling advanced alternative propulsion

System integration

- Optimized functionality through smart integration of components within vehicle systems or subsystems



Fields of Innovation



Industrialization competence

- Vertical integration from raw material to product including electronics
- In-house production equivalent thanks to Bimatic, our development center for automatic assembly lines
- Industry 4.0 level of automation



Open innovation

- Public and private partners
- Research institutions
- Industrial consortia

Moving in a smarter and faster way to remain a key provider of electromechanical solutions to the industry.





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Luxembourg



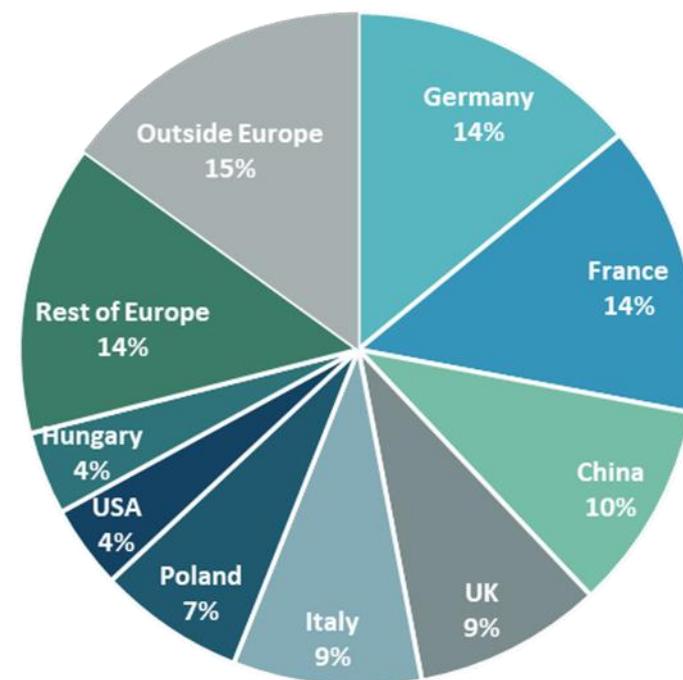
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- Established: 1976
- Covered area: 30.000 m²
- Finished products: 300,000 /day
- Employees: 650

- European leader in the field of temperature control
- Supplies 90% of the European automotive manufacturers
- Supplies almost 100% of the European household appliance manufacturers
- Most of the temperature sensors assembled in the European washing machines, dryers and dishwashers are made by Cebi Luxembourg.
- All Cebi-products are developed in its internal research and development department and tested in its own laboratory.





Cebi Luxembourg - automotive



The Cebi product range for the automotive industry includes water bottles for the windshield and headlamp cleaning systems, bimetallic temperature switches, temperature sensors, oil and water level sensors, diesel heaters, blow-by and PTC air heaters.



Cebi Luxembourg - household



The Cebi products for the household appliances area include temperature sensors and thermostats for washing machines, dryers, dishwashers, ovens, refrigerators and freezers.



Cebi has also developed thermostats and temperature sensors for industrial and other applications as for welding machines and central heating.



Agenda 25 Nov 2021



15:00: Welcome and opening

Anthony Auert, Cluster Manager - Automobility, Luxinnovation

15:05: Introduction

Etienne Jacqué, Corporate R&D Manager, Cebi International

15:10: General presentation of the Cebi Group

Etienne Jacqué, Corporate R&D Manager, Cebi International

15:40: Industry 4.0: deployment & benefits

Guillaume Policarpo, Industry 4.0 Project Manager, Cebi International

16:10: Testing services for complete product qualification

Nicolas Hoffmann, Laboratory Manager, Cebi Luxembourg

16:30: Q&A and exchange on collaboration opportunities

17:00: End of the event



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•••
• **Cebi Industry 4.0 programme**

Planning
Logistics

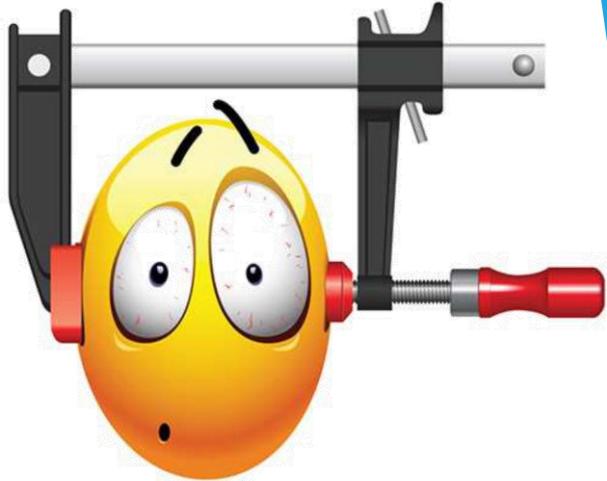
Time to Market

Complexity

Quality
Reliability

Efficiency
Cost

Pressure to Standardize



Pressure to Customize

Customer
requirements

Diversity

Innovation

Compliance,
Regulation

Transparency

QMS



DMS



ERP



MES

CRM

Orchestration

Automation

Innovation

Interoperability

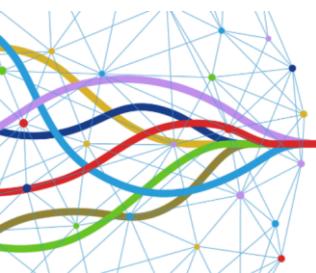
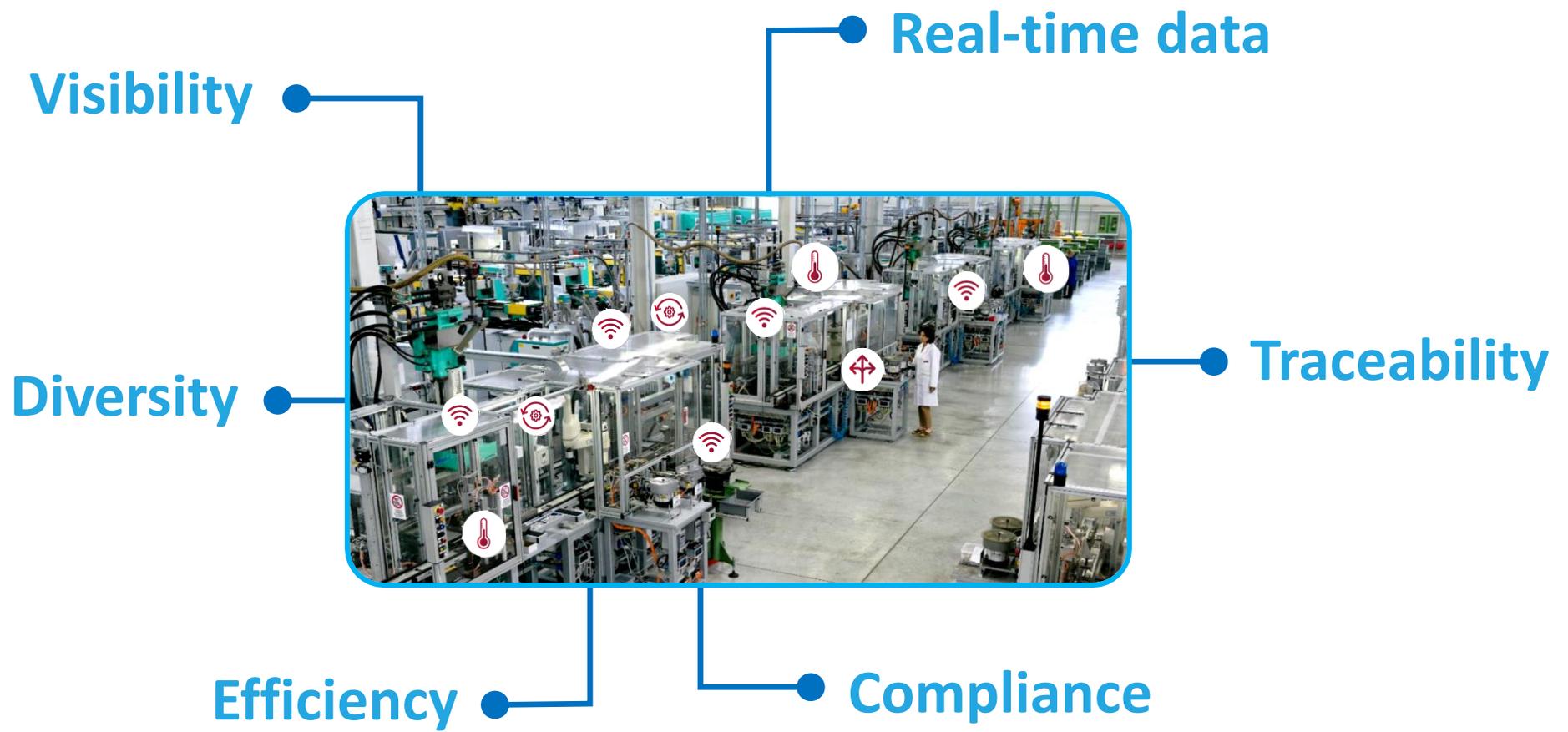
Revolution

PLM

Industry 4.0



Digitalization benefits



Towards a data driven decision making

Our digitalization partners

To address the digital agenda and deploy the “One Cebi” strategy, we have surrounded ourselves with the following partners:

- Industry 4.0:



- QMS (Quality management system) and PLM (Product lifecycle management):



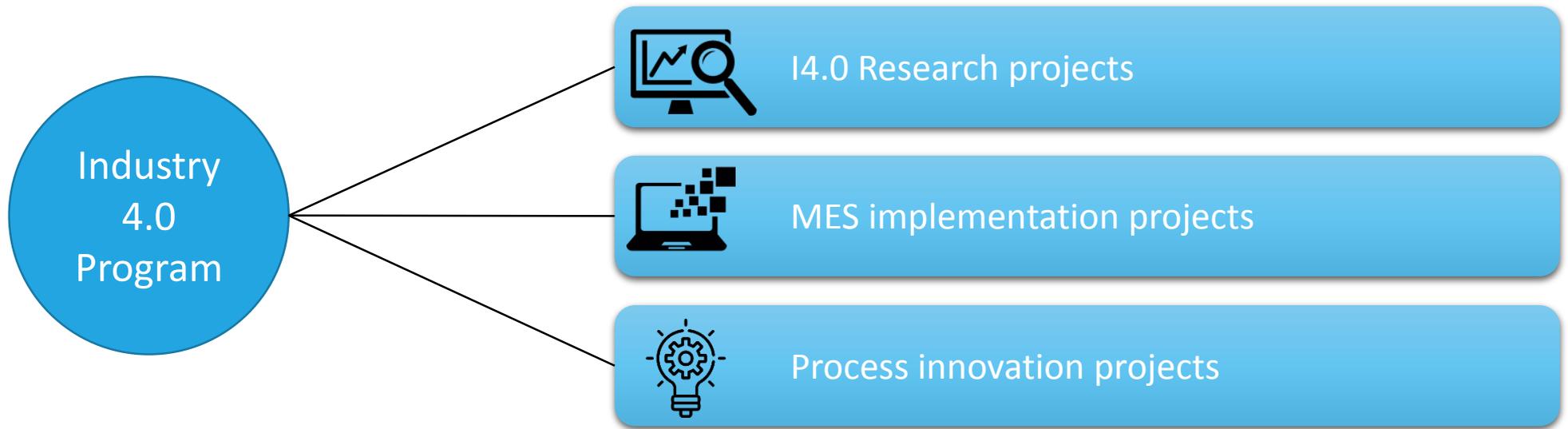
- CRM (Customer relationship management):



- Change management:



Our Industry 4.0 program



Our ambitions:

- Optimize **efficiency** of production equipment,
- Better manage **increasing complexity**,
- Increase **agility** and **responsiveness**,
- Better serve our **customers** and **employees**,
- Reduce **time to market**.

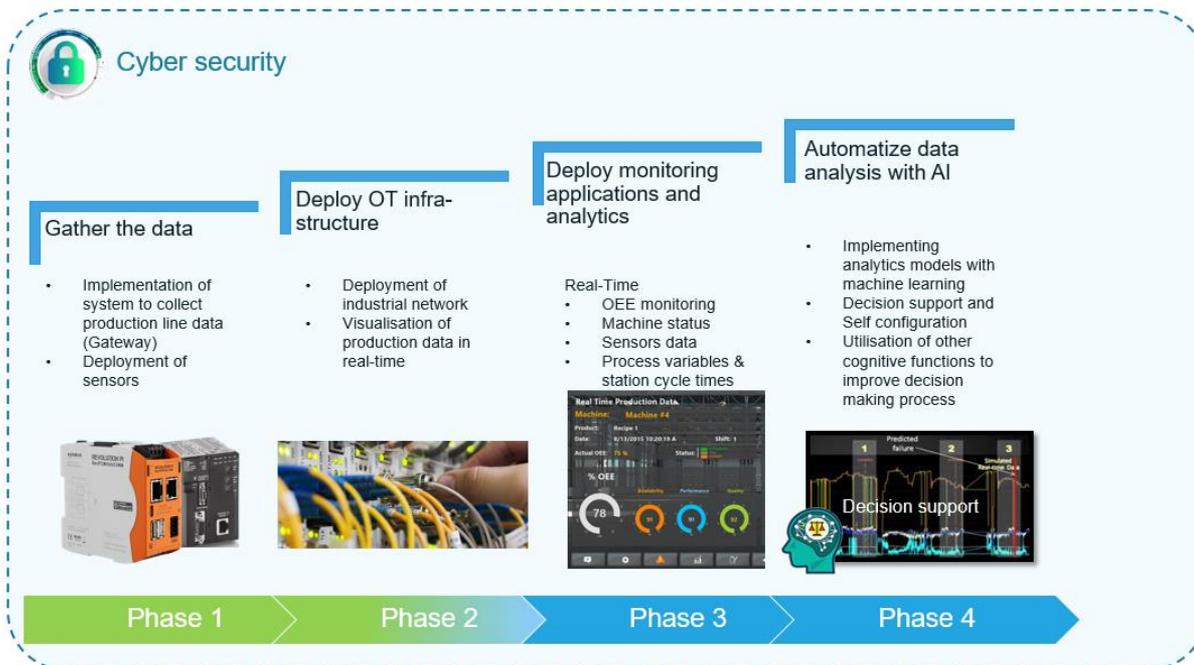
Research project: Industry 4.0 @ Cebi

Purpose: connecting production lines to IT systems in order to automatize data collection, analyze it with Artificial Intelligence in order to increase efficiency of production equipment (OEE) and facilitate the work of our employees.

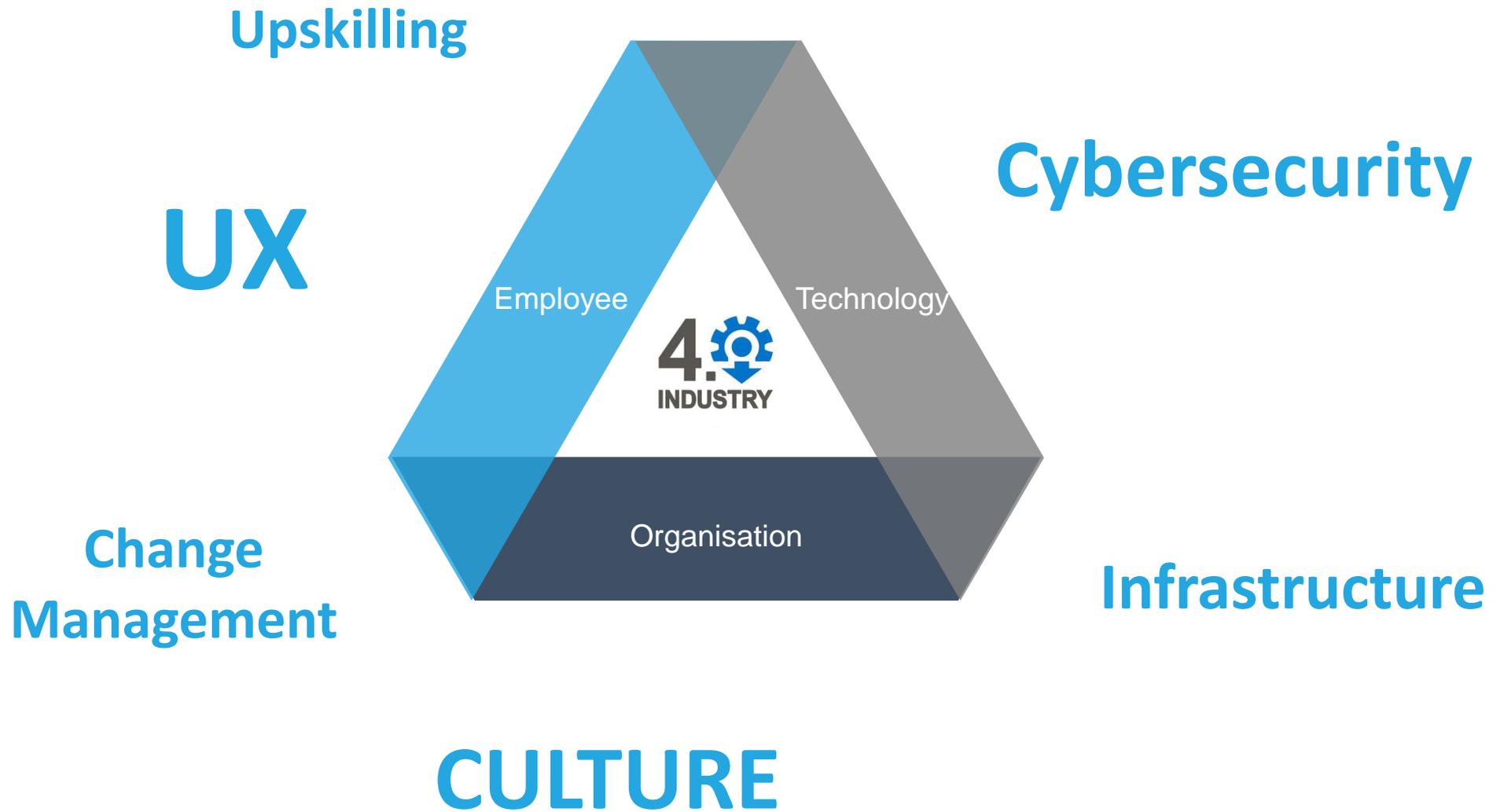
$$OEE = \text{Availability} \times \text{Performance} \times \text{Quality}$$


Objective: Giving Cebi methods and standards to deploy a common Industry 4.0 approach across the Group

Timeline: 4 years (from mid-2018 to mid-2022)



 Digitalization is a socio-technical journey





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● ● ●
● **Cebi Testing Services**

CEBI Group R&D facility upgrade (Luxembourg)

- New facility and future lab investment started in end 2018
- Adding 700m² to make a total of 1,080m²
- Equipment investment approx. 3 MEUR (2018-2020) to cover Cebi Group needs beyond Luxembourg
- Large pieces of equipment listed below



- CEBI Laboratory aims to obtain the ISO 17025 certification in light of future testing services for external entities



 Building status July 2020



With a new laboratory at the cutting edge of technology, Cebi offers extensive state-of-the-art testing services for complete product qualification.



 **Thermal and Climatic Testing**

15 Thermal & Climatic chambers

 **Thermal Shock Testing**

5 Thermal Shock chambers

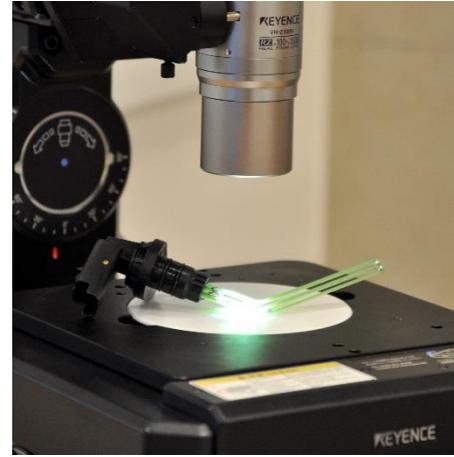
 **Mechanical Testing**

2 Vibration benches
2 Dedicated chambers



Environmental Testing

- 3 IP Equipment
- 2 Corrosion benches

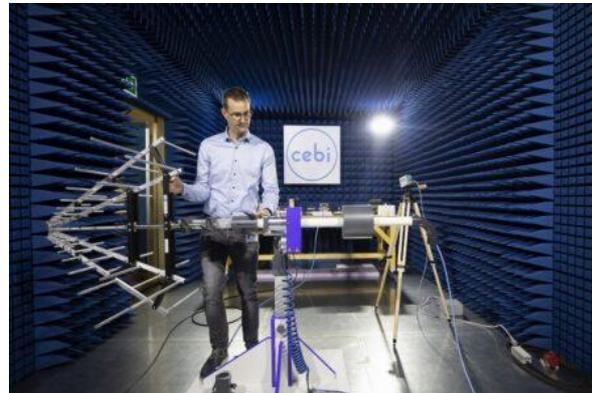


Material Analysis

- 1 X-ray
- 1 3D Microscope
- Material characterization Equipment

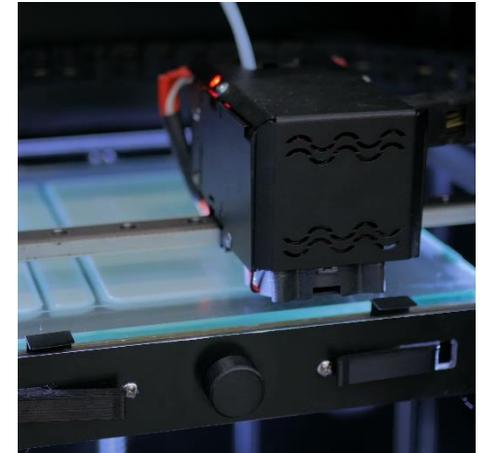
Electromagnetic Compatibility Testing

- Shielded anechoic chamber
- Instrumentation for Immunity, Emission & Electrostatic Discharge



3D Printing

- 1 3D Printer



Central Location



State-of-the-art
Equipment



 **Talk to us about
your project !**

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Dedicated Experts



 **Testing Services**



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