



Vacuum Technique

Capital Markets Day 2019

Geert Follens, Business Area President

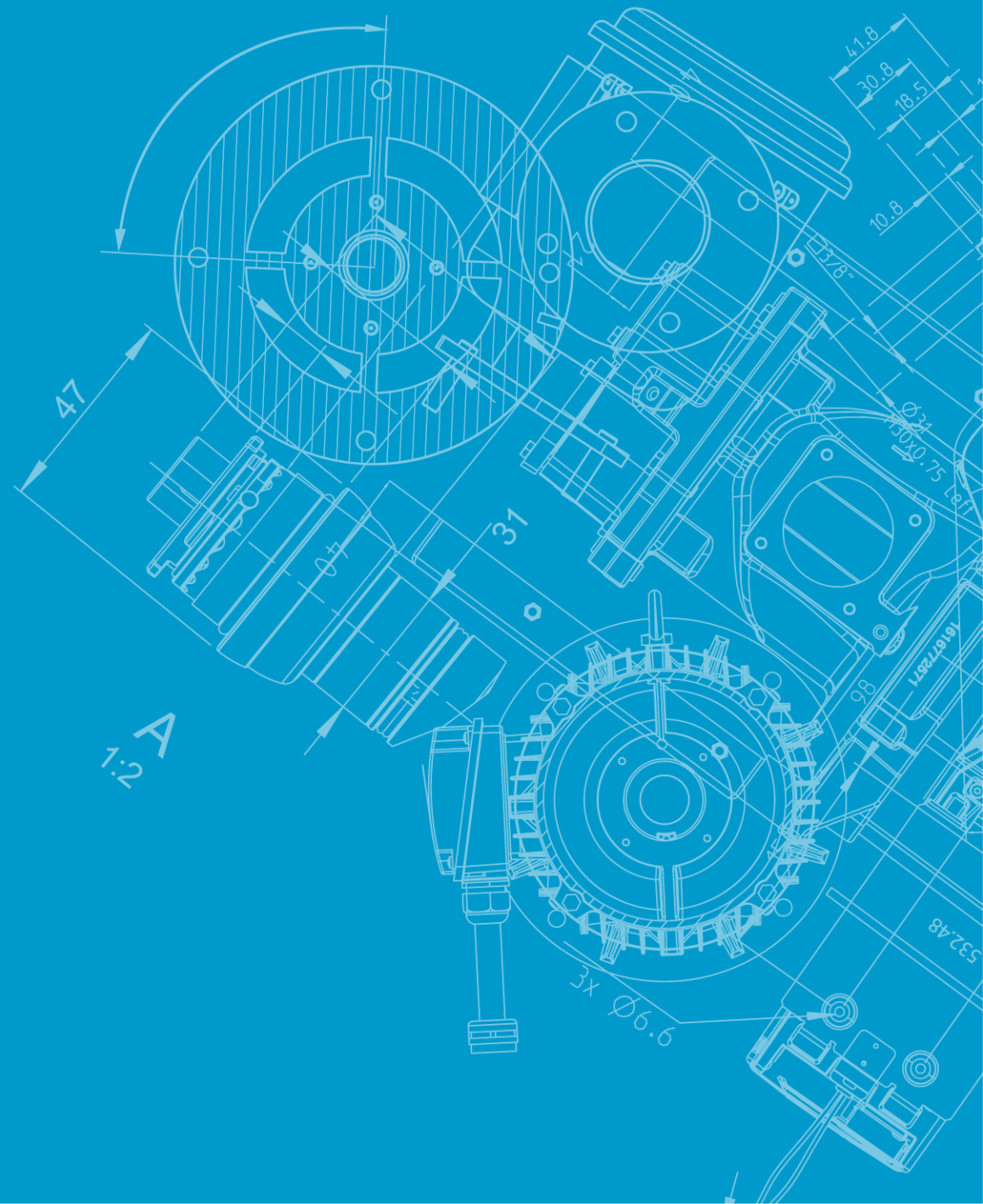
Agenda



- 1 Facts in brief
- 2 The market and business fundamentals
- 3 Strategy for growth
- 4 Summary



Facts in brief



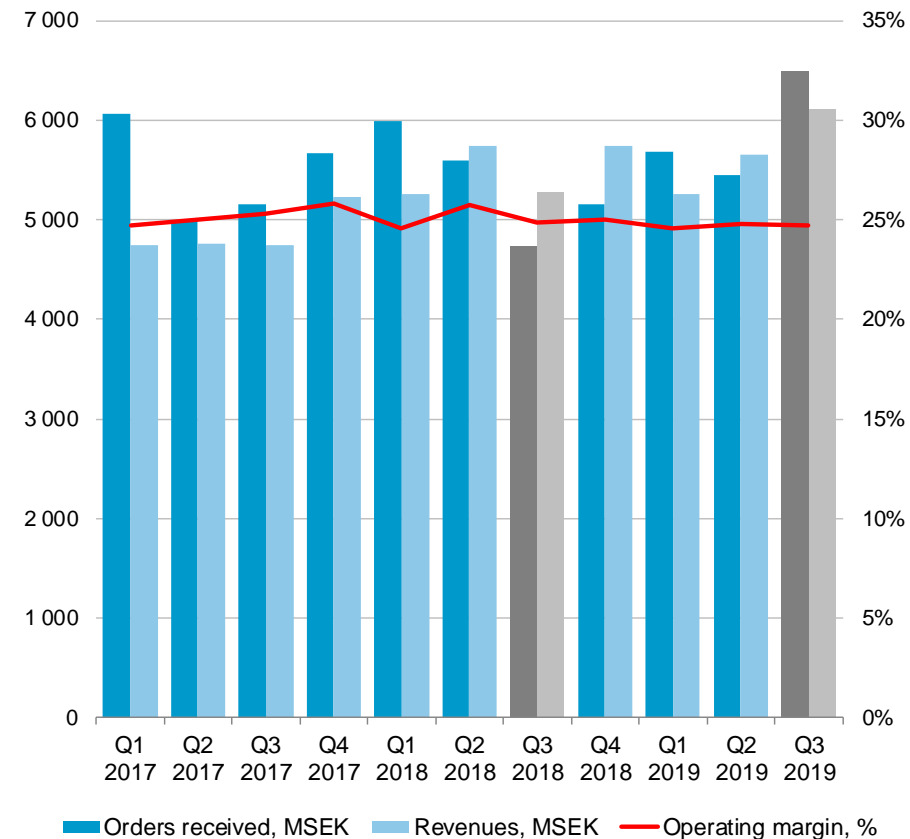
Vacuum Technique

ROCE
23%

Growth drivers

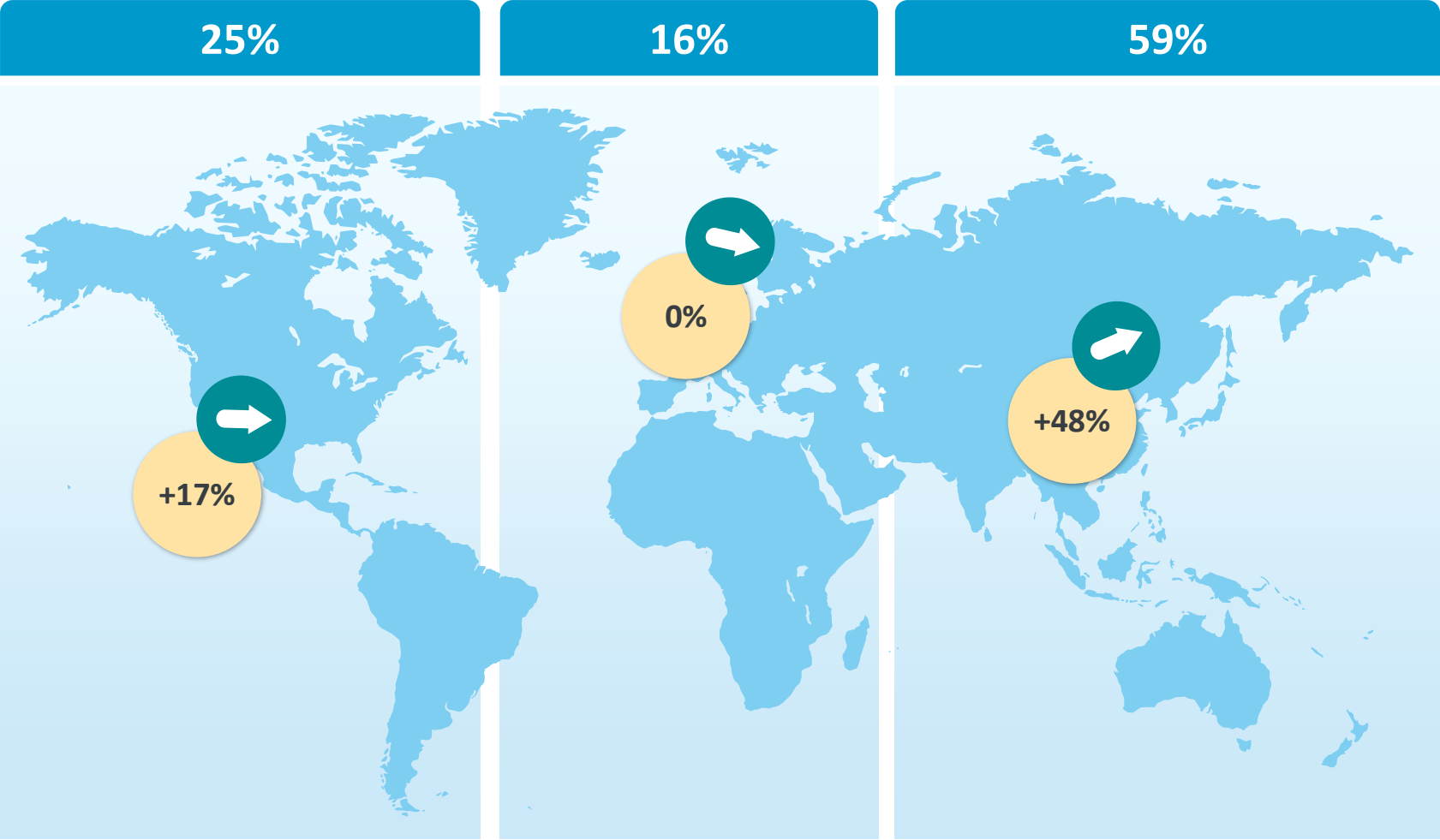
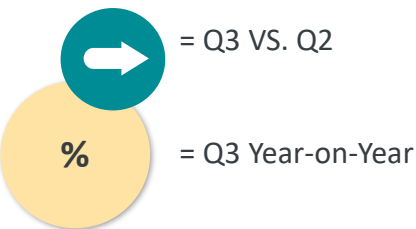
- Climate change (Drive for efficiency, batteries)
- Miniaturization (Moore's law)
- New industrial production processes
- Digitalization (IOT, 5G, VR, AI...)
- Sophisticated healthcare
- Service 24/7 (Connectivity)
- Global to local investments

Orders, revenues and operating margin

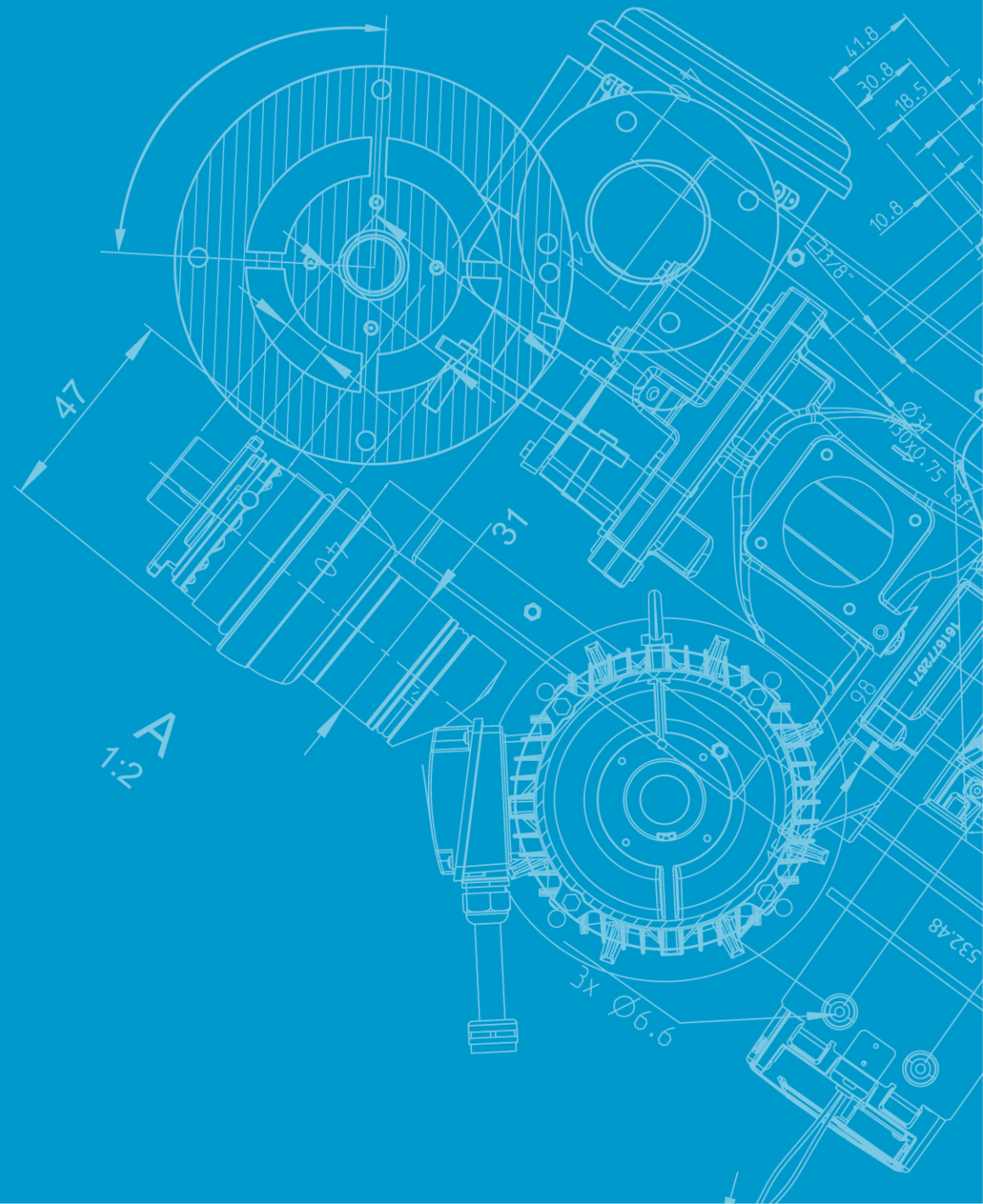


Orders received – Local currency Q3 2019

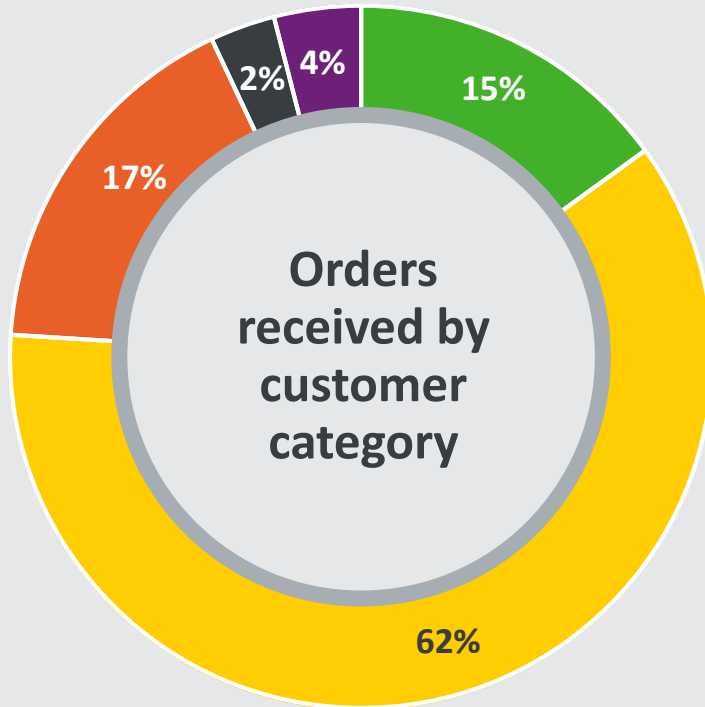
SHARE OF ORDERS
RECEIVED YEAR TO DATE:



The market and business fundamentals



The markets we operate in



General manufacturing

- Market leader in the global steel degassing industry.
- Increasing applications due to new industrial processes.



Electronics

- Consumers demand 'electronics as necessity'.
- Presence in all semiconductor fabs.
- Semiconductor technology advances and manufacturing capability are critical.



Process industry

- Taking market share across the process industry – food, chemical, metallurgy.



Other – Scientific

- Enabling progress in space simulation.



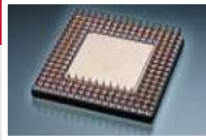
Service



Vacuum – a growing market

Global/ Technology trends

Miniaturization



- Moore's law
- Low power use
- 3D structures

Climate Change



- Exhaust regulations
- CO₂ footprint

Data Economy



- Connectivity
- AI
- Machine learning

Healthcare



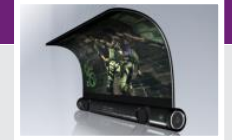
- Personalised medicine
- Life sciences

Transportation



- Autonomous driving
- Electric cars
- Hyperloop

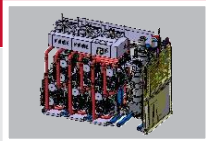
User interface



- Foldable Oled
- Electronics as necessity

Customer Applications

Vacuum intensity



- EUV
- Minimal footprint systems

Energy / Legal



- LED & Solar
- Efficiency
- Abatement performance

Processing power



- Quantum computing
- Memory
- Edge Computing

Data Analysis



- MRI
- Wearables
- Mass spectrometers

Electrical



- Lithium-ion batteries
- Electric vehicle applications

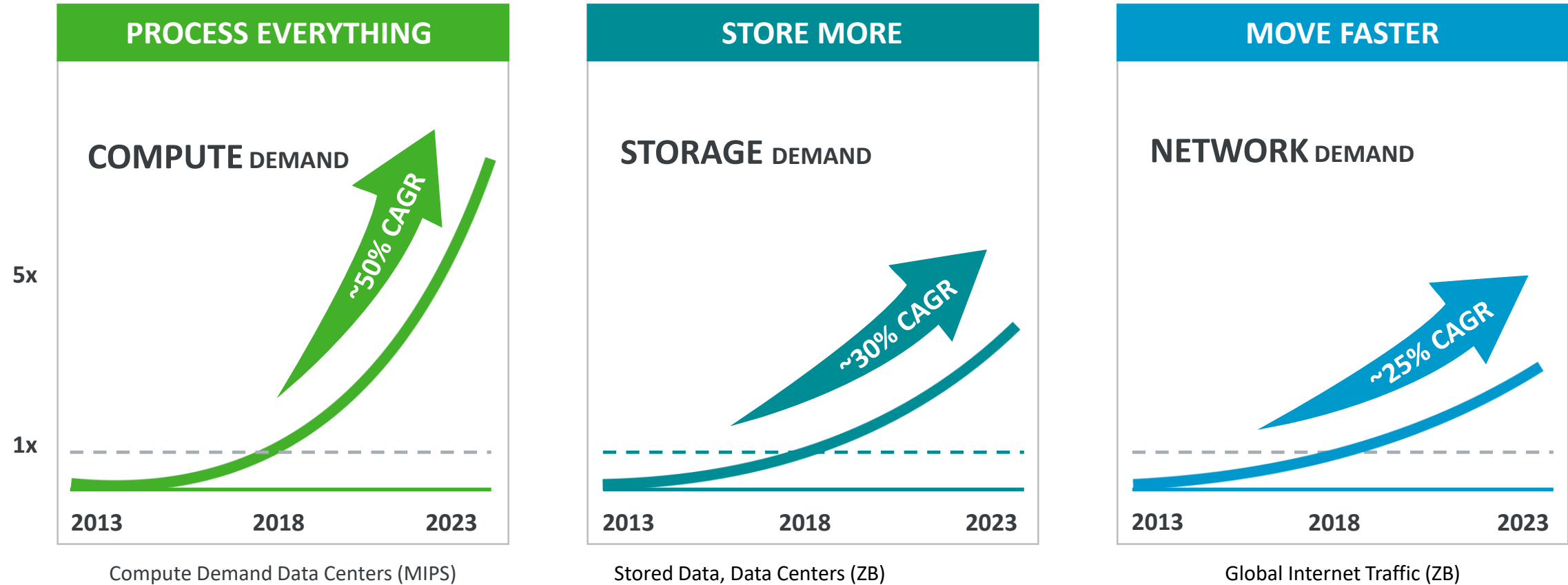
Connectivity



- Mobility
- 5G
- VR

Data growth estimates and driving forces

DATA GROWTH DRIVES COMPUTE, STORAGE, NETWORK DEMAND



Sources: Global Internet Traffic; Cisco VTNI Forecasts (2016,2017,2018). Stored Data, IDC Data Age 2025 (2018). Compute demand, Intel analysis. Processed and analysed by Atlas Copco.

Extensive and innovative product offering across applications

Atlas Copco GHS central vacuum system



Edwards Ezenith integrated vacuum & abatement system



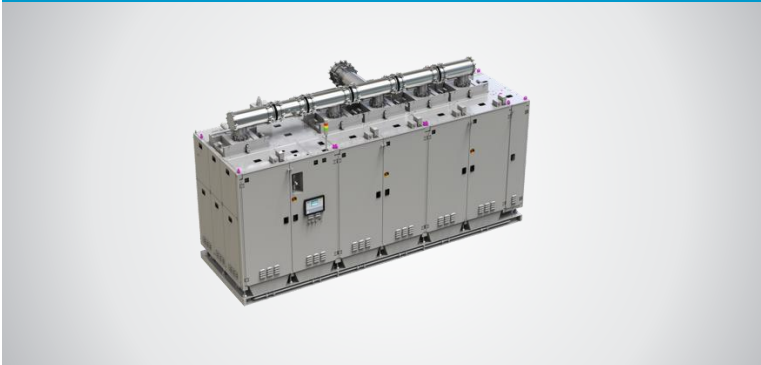
Leybold steel degassing vacuum system



Edwards nXRi multi stage roots



EUV



Edwards CTI & Edwards Polycold cryo pumps and coldheads

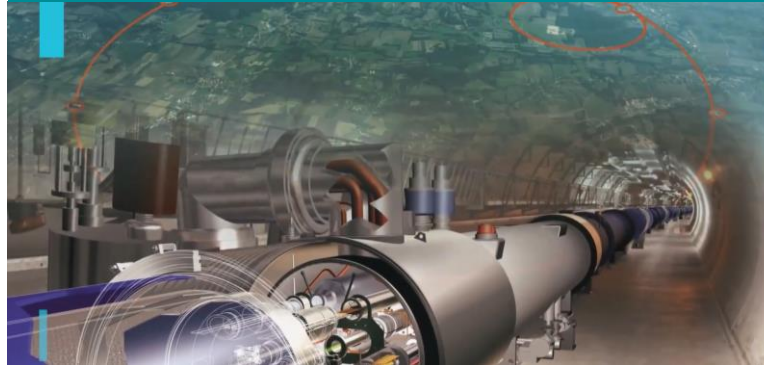


Market trends and driving forces

Battery production



Hyperloop



Automotive electronics



Technology in healthcare



Quantum computing



Freeze drying



Sustainable profitable growth

Strategy for profitable growth - Summary



Product offering from rough to ultra high vacuum

Extensive pump range



Vacuum systems



Accessories



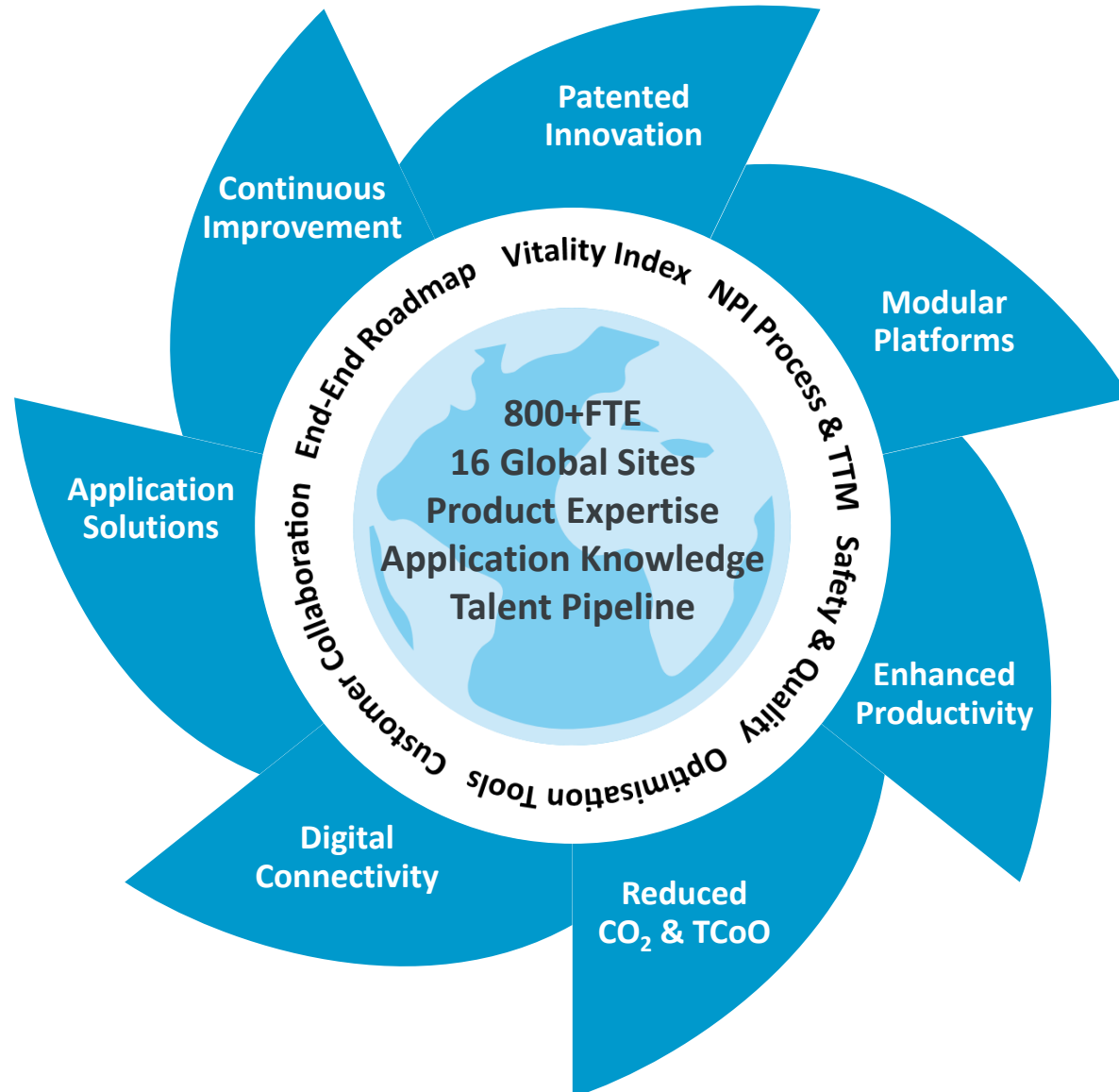
- Product coverage 70%
- Multi brand strategy
- Modular design
- Customer applications
- Innovation centers
- Localized systems delivery

Strategy for profitable growth – Innovation

People

Processes

Product



Recent product launches

Continuous focus on innovation with more than 20 new products launched in past year

Industrial & Scientific



Leybold – Novadry



Edwards – EDO, dry scroll



Atlas Copco – DSS dry scroll



Edwards – EXDM



Leybold – TURBOVAC
MAGiNTEGRA MAG2207iS



Edwards – nXR50/80i
Multi Stage Roots

Semiconductor



iXH XCEDE



iXM XCEDE



New Atlas high flow
environmental
technology



iForest EVO

Cryogenics

MaxCool 2000



Cryogenics

Cryo



- PVD coating and Ion implant processes
- Oled evaporation and encapsulation
- Industrial coating
- Space simulation

Polycold



- Industrial coating
- Sample cooling
- Wafer chuck cooling
- Cryogenics refrigerators: MRI scanners
- Dilution refrigerators: quantum computing

Miniaturization – Support technology investments

- **Pumps working in extreme harsh conditions**

- Temperature: cooling + heating
- Corrosive gasses used: XCEDE coating
- Deep etch and deposition

- **Enhanced lithography**

- EUV: H2 pumping and recycling

- **Footprint reduction**

- Matching envelope of the tool
- Integrated systems

- **Foreline temperature management**

- Controlled TMS

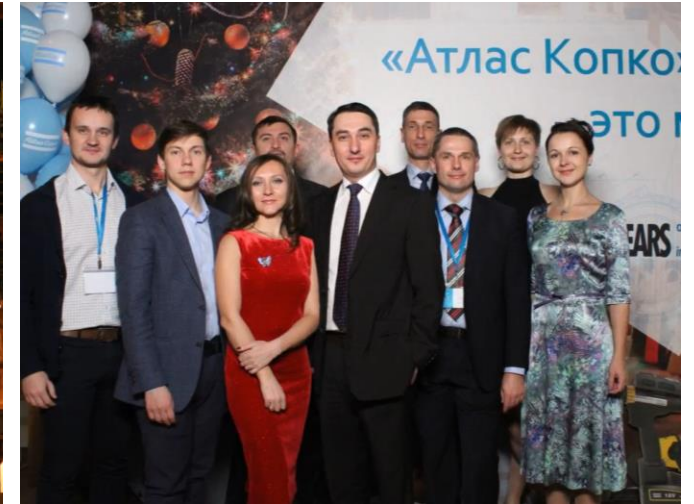
- **Meeting all legislative requirements**

- Abatement with exhaust control
- NOx management



Growth in general vacuum

- **New products**
- **New processes**
 - Lithium-ion batteries
 - Steel degassing
 - Food processing
 - Centralised installations
 - Point of use mass spectrometry
- **New territories**



China

- **Sales capability**

- Highly technical application knowledge
- Global Semiconductor understanding
- Customer proximity

- **Service Capability**

- Investments in hub capacity
- Training centres

- **Investments**

- Qingdao factory
- Shanghai Innovation Centre

- **Product Capability**

- Integrated systems
- Environmental solutions



Talent framework aligned to career levels

**VT business area
Early Careers**

**VT business area
Programs**
progresses
participants
towards business
leadership roles

**Atlas Copco
Programs**
from GM-1

Individual Contributor

Responsible for one's own work as well as supporting and guiding others.



Team Leader

Directly responsible for managing at least one employee, leading project teams, or applying expertise that directly impacts the work of others.



Business Leader

Directly responsible for the results of a business unit or a major segment thereof, responsible for a specific functional area of the business unit, or applies expertise on a national basis.



Global Leader

Directly responsible for the P&L of a global business, or a major segment thereof, responsible for a specific function of the global business or applies expertise on a global basis.



Strategy for profitable growth – Service

Vacuum Technique Service

- Leading edge technology & advanced service solutions to maximize customers' uptime providing low total cost of ownership in general vacuum applications.
- Convenience, quality & customer value.
- Mission to be present in every customer's service experience.
- Supporting efficiency in processes and enterprise systems.



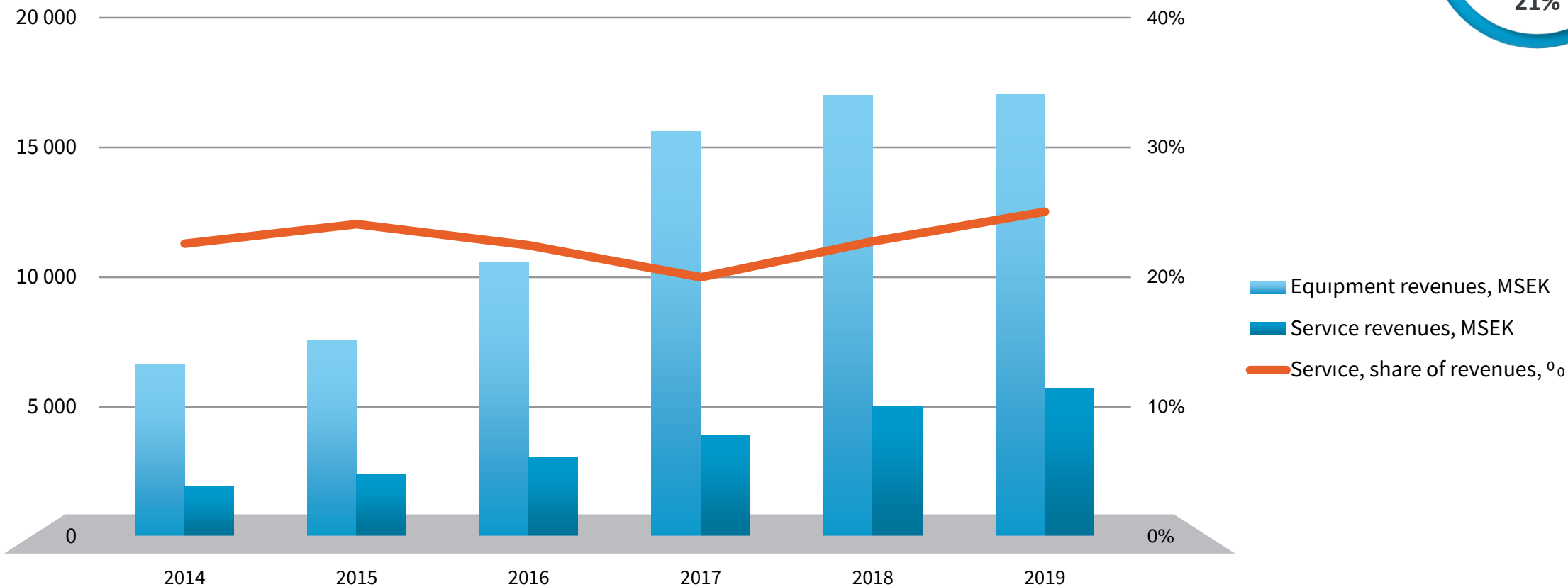
Semiconductor Service

- Supports the process vacuum and environmental needs our customers depend on in the semiconductor, display, LED and PV solar industries.
- Provide and support customer-based data-driven outcomes, with the clear aim of maximising customer throughput and uptime.
- Field Service, Service Product Management and Service Technology Centres.

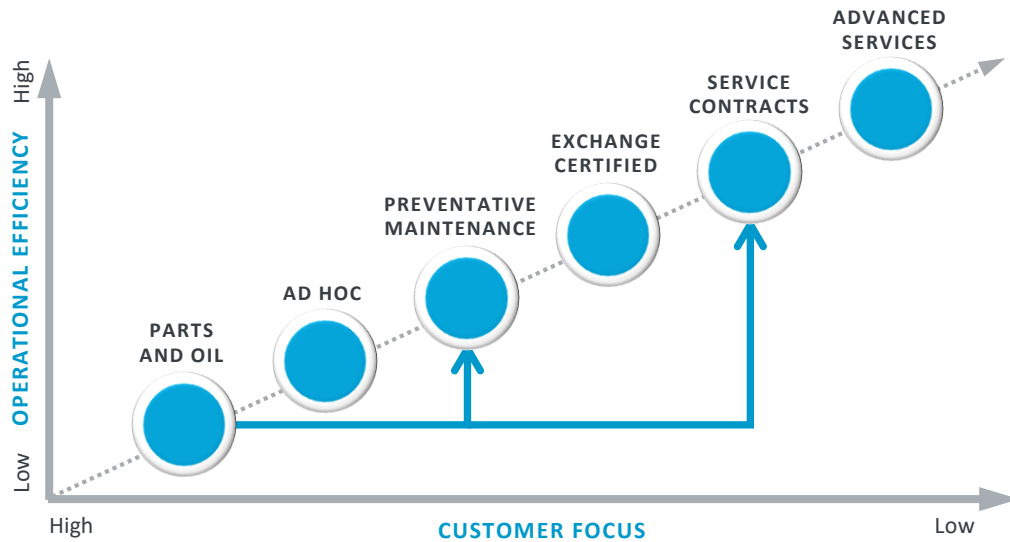


Vacuum Technique – Service

CAGR
Service
24%
Equipment
21%



The evolution of our offer



VEasy Quoter

Connectivity

Tailored service products

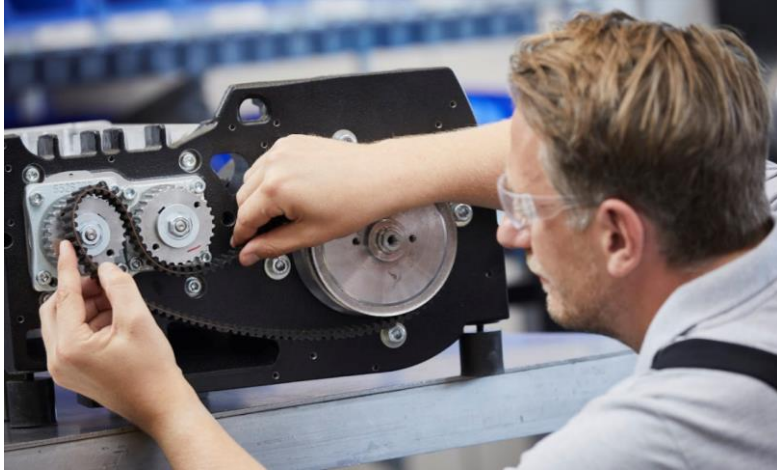
Competitor service

OEM contracts

Increased sales presence

Multi-branded service hubs

Strategy for profitable growth – Agility & resilience



Cost of sales management

- Product cost reduction
- Insourcing of subcontracted manufacturing
- Flexible workforce



Growth initiatives

- Service development
- Continuous investment in R&D
- Investment in growth markets



Optimize efficiencies

- Mergers of multi-branded factories, service centers, financial support services
- Sales & administration cost management
- Discontinued old, low-margin products

Summary – Vacuum Technique



- Accelerated technology development and product innovation
- Integration of new acquisitions
- Expand coverage in general industry – products and service
- Semi presence in focused markets – customer proximity
- People – talent development and gender diversity
- Continue to build agile structures and processes
- Further focus on resilient business models





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Forward looking statements

“Some statements herein are forward-looking and the actual outcome could be materially different. In addition to the factors explicitly commented upon, the actual outcome could be materially and adversely affected by other factors such as the effect of economic conditions, exchange-rate and interest-rate movements, political risks, the impact of competing products and their pricing, product development, commercialization and technological difficulties, supply disturbances, and major customer credit losses.”