



Operations

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Chief Operating Officer

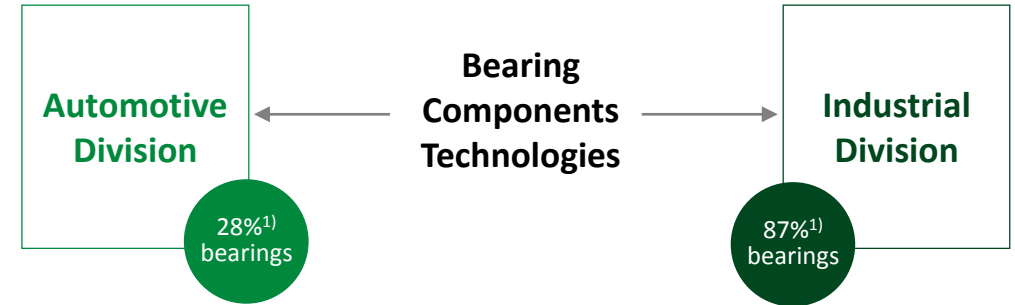
- 1 Overview
- 2 Production excellence
- 3 Flagship initiative "Factory for tomorrow"
- 4 Outlook
- 5 Summary and key statements

Global integrated manufacturing footprint

Key aspects

- ▶ 66,800 production staff worldwide at 74 plants in 23 countries
- ▶ High vertical integration with up to 65% internal added value
- ▶ Schaeffler Production System concentrating on quality and efficiency

Integrated approach – Internal bearings supplier for both divisions



¹⁾ Of divisional sales 2015

Best-in class manufacturing technologies



Forging



Machining processes



Forming methods



Plastics technology



Heat treatment



Grinding and Honing



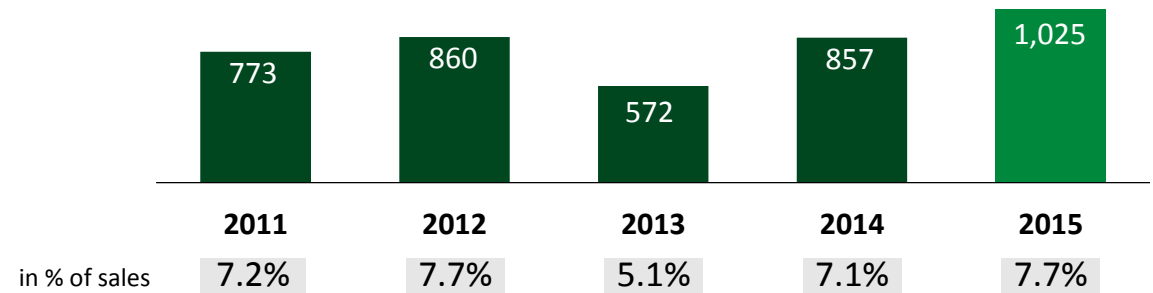
Coating and Phosphating



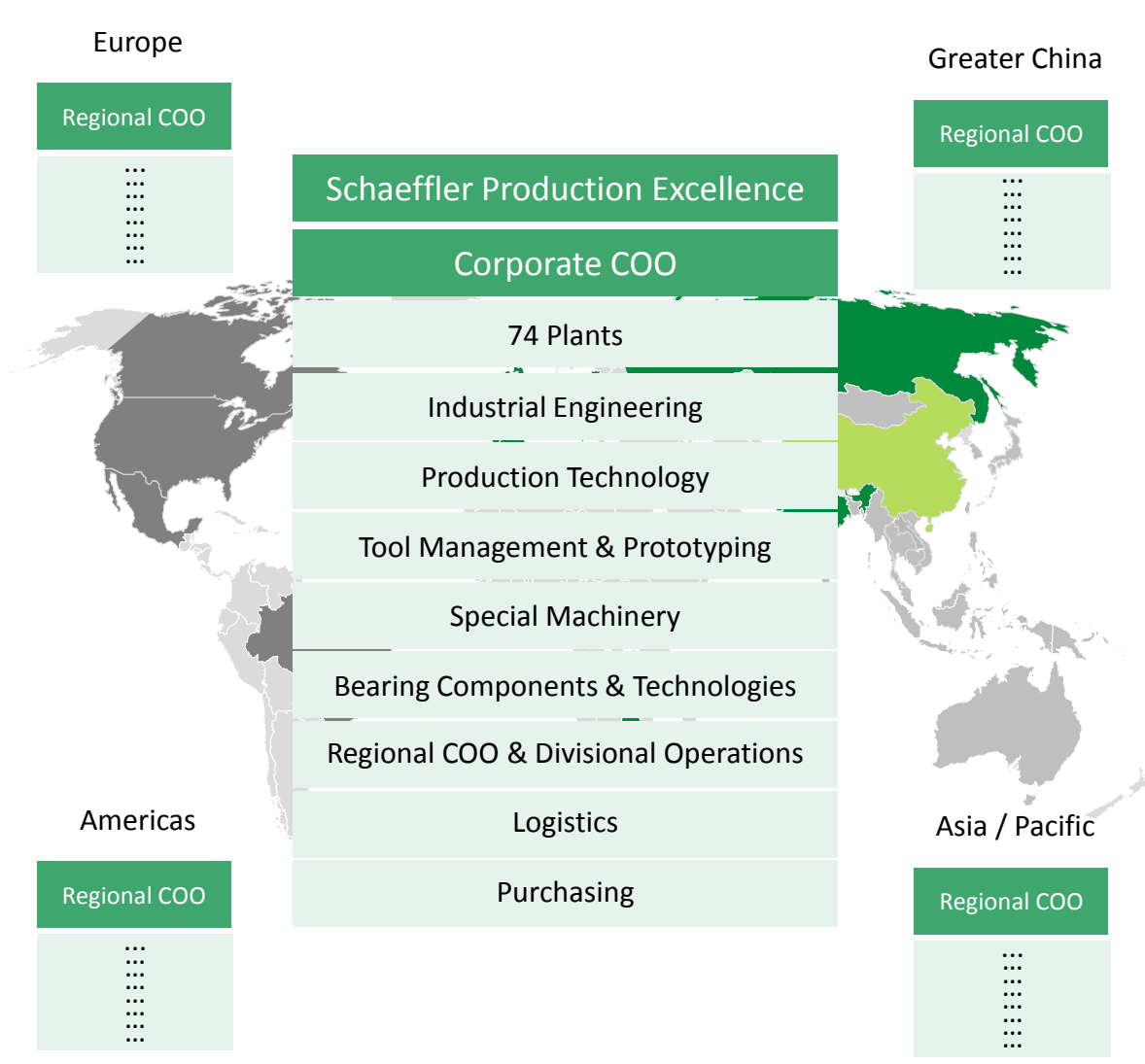
Assembly

Capex

EUR mn



Global operations organization – Global technology network



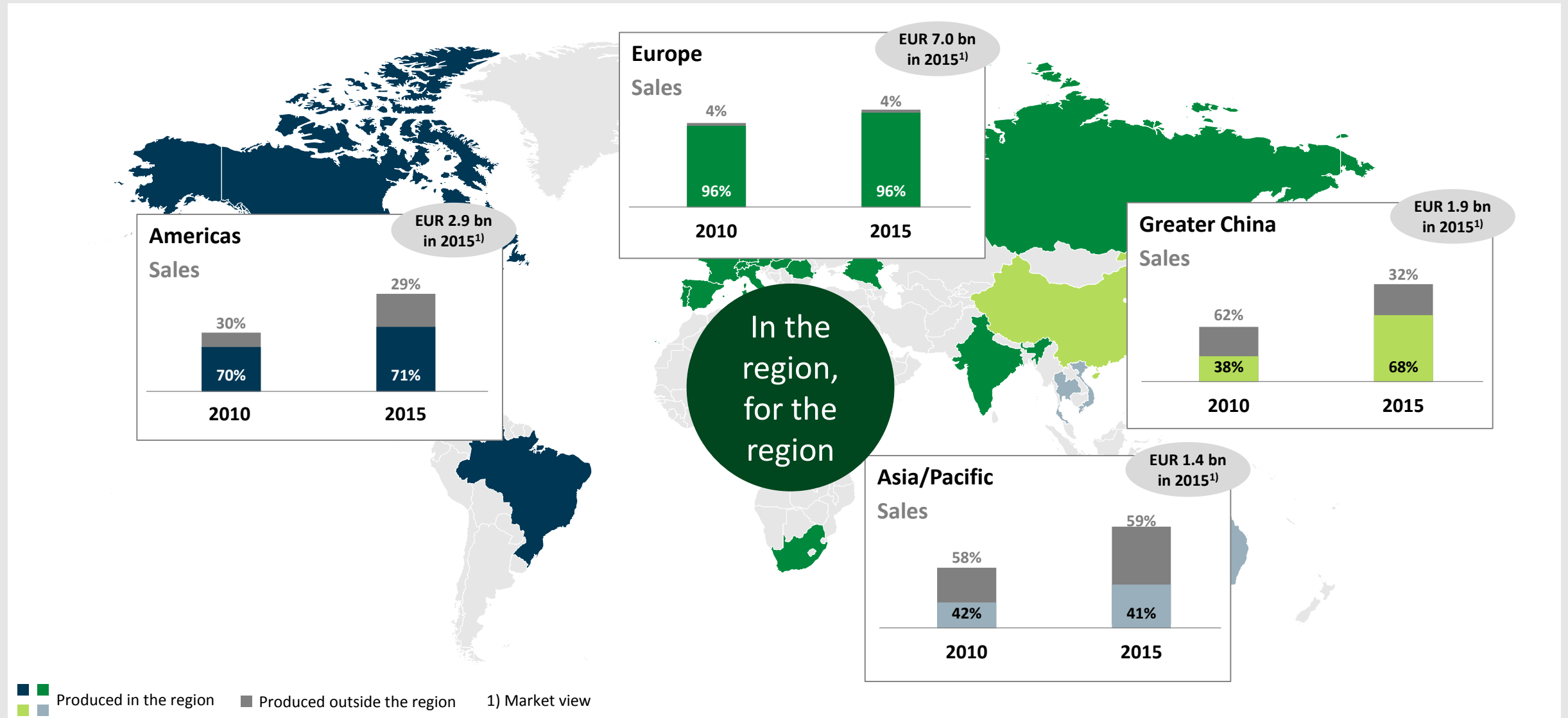
Key aspects

- ▶ Uniform organizational structure in all regions
- ▶ High degree of standardization
- ▶ Speed in industrialization
- ▶ Early involvement and deep influence in product development
- ▶ Own competencies in special machinery building
- ▶ Integration of external and internal added value (with Purchasing)

Global integrated production network



High localization rates with further potential



Our strategic concept "Mobility for tomorrow"

Key mega trends

Society trends

- ▶ Urbanization
- ▶ Population growth

Technology trends

- ▶ Increasing complexity
- ▶ Digitalization

Environmental trends

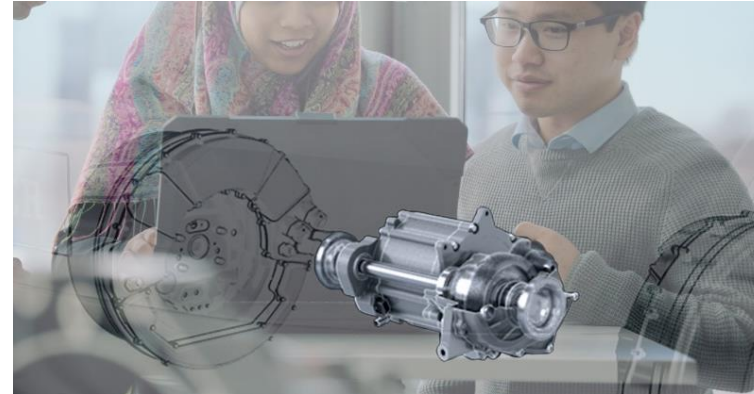
- ▶ Renewable energies
- ▶ Availability of resources

Economic trends

- ▶ Globalization
- ▶ Affordability

4 focus areas

Eco-friendly drives



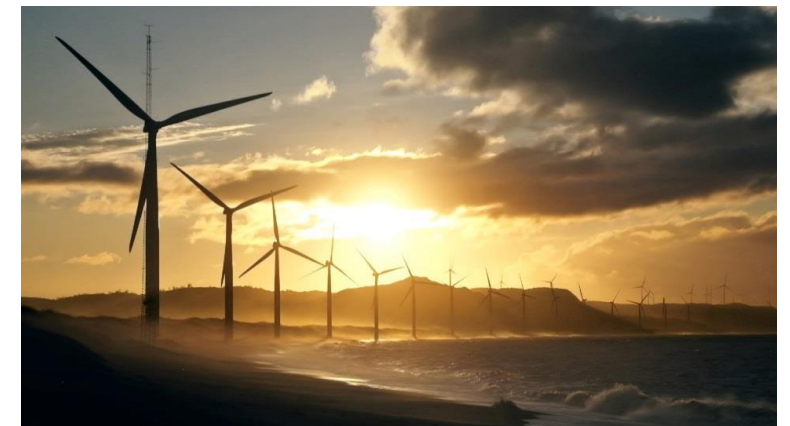
Urban mobility



Interurban mobility



Energy chain



Key challenges ...

Higher complexity leads to ...

... adaption of **production technologies** to secure cost competitiveness

... **new concepts for assembly**

... **risk of lower value add** through a more balanced product mix of components and systems



... and how we meet them

- 1 **Improving efficiency in existing operations**
- 2 **Industrializing complex mechatronic products and systems**
- 3 **Controlling and increasing internal value add of complex mechatronic products and systems**

1 Improving efficiency in existing operations



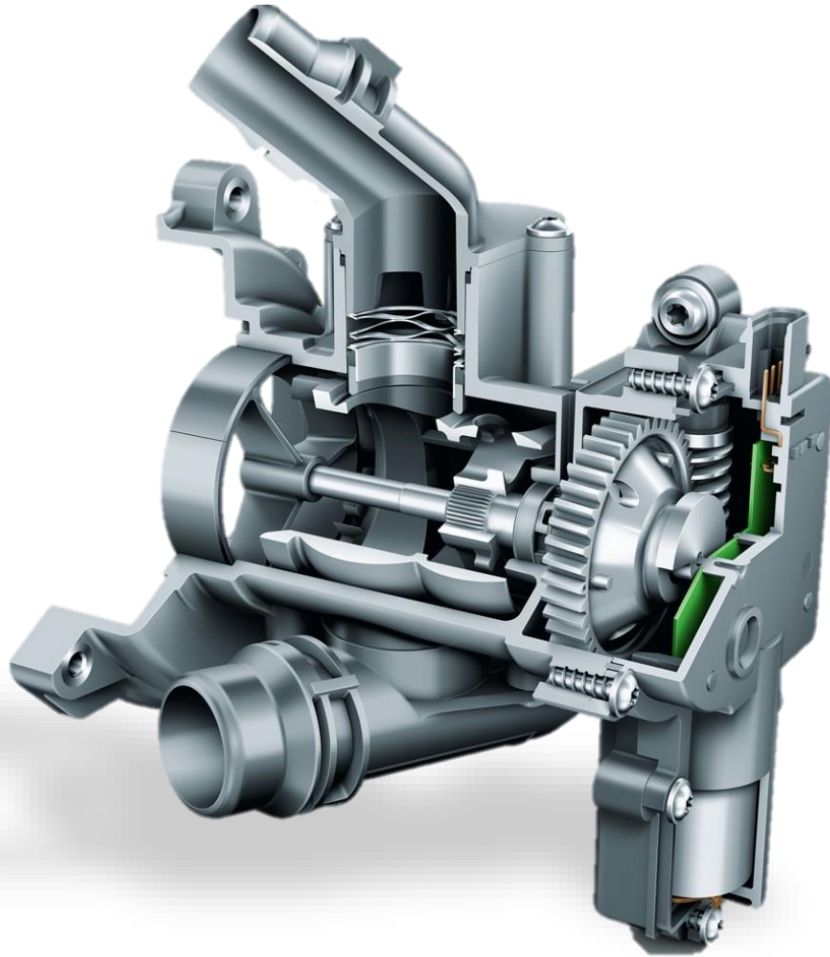
Solid formed tapered roller bearings

- ▶ New "Two in One" production for tapered roller bearings
- ▶ 50% of material saving and 30% reduction of process steps
- ▶ Increases output from <10 parts per minute to 60 ringsets per minute
- ▶ Increases competitiveness in high volume market for standard bearings



New production equipment for tapered roller bearings

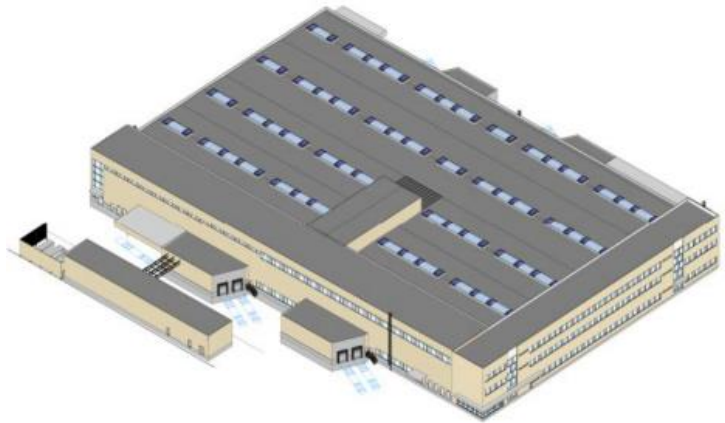
2 Industrializing complex mechatronic products and systems



Value add:
25 %

Thermal management module

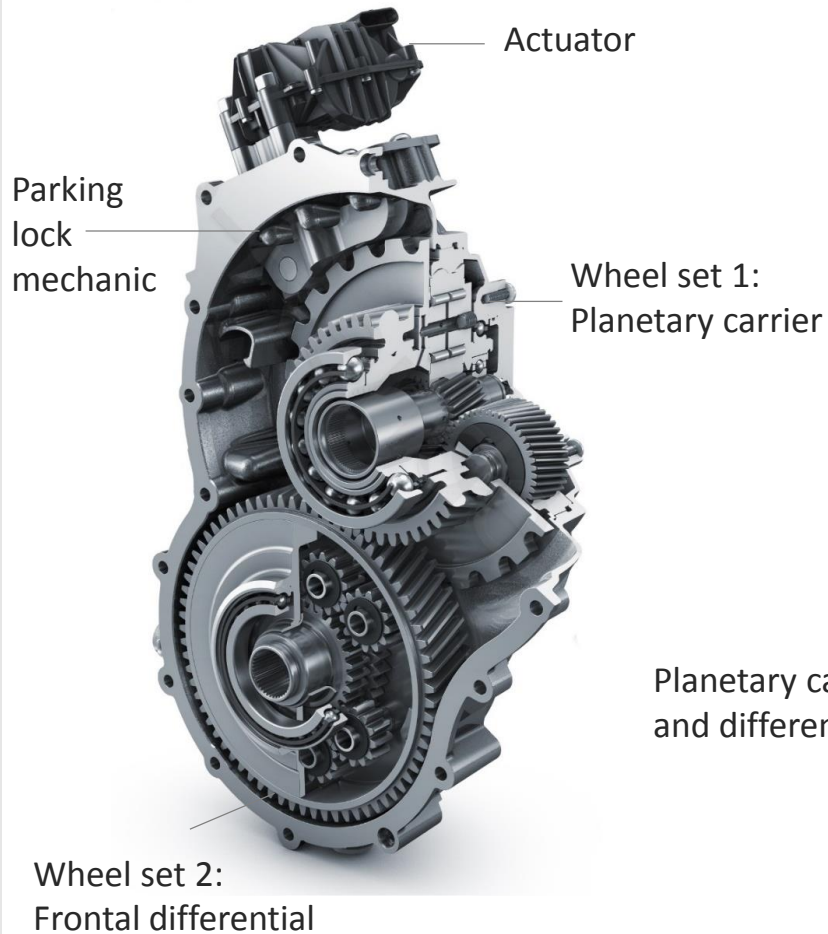
- ▶ High purchase content
- ▶ Contains high performance materials tooled and produced inhouse
- ▶ New manufacturing plant for Thermal Management Modules in Czech Republic



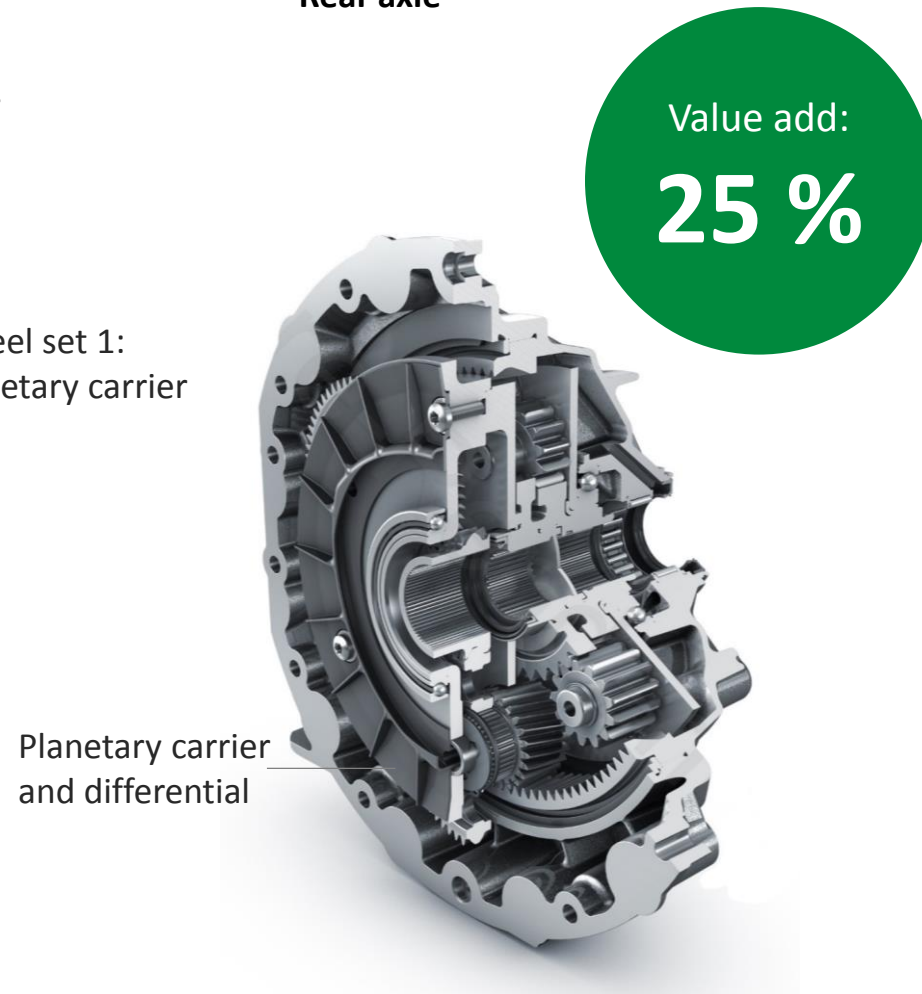
New building in Svitavy, Czech Republic

3 Controlling and increasing internal value add of complex mechatronic products and systems

Front axle



Rear axle



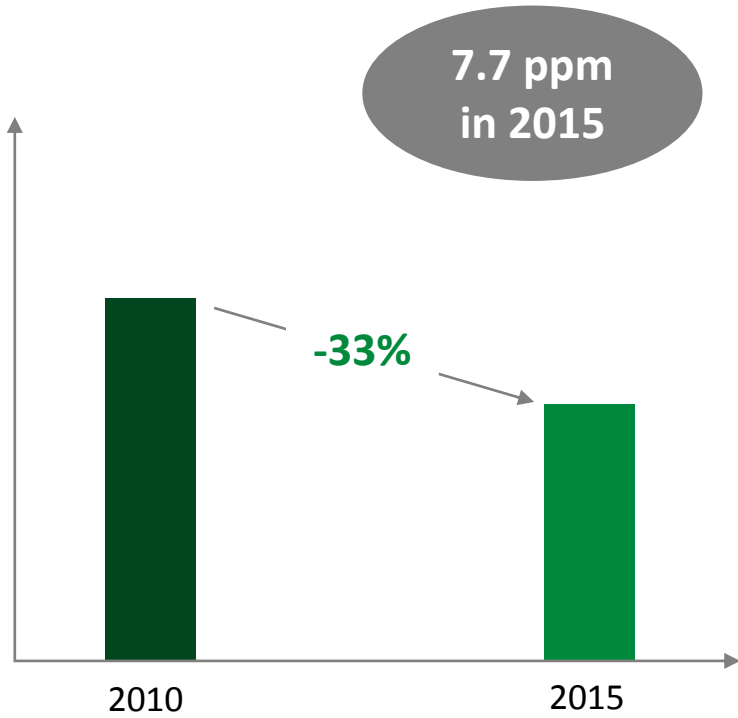
Electric axle

- ▶ Management of complex purchasing and logistics processes
- ▶ Production of gears increases value add:
 - Purchase of gears in the past, now own production
 - Development of new groundbreaking production technology for cogwheels
 - New production technology (forming instead of cutting) leads to 80% reduction of process time and 20% higher fatigue strength

Concentration on quality, cost and delivery performance

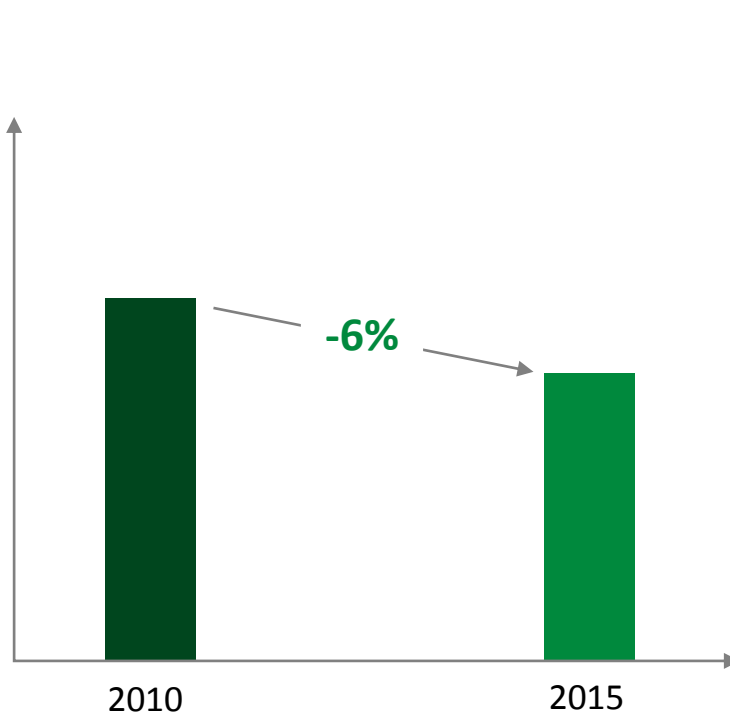
Quality

No. of customer complaints



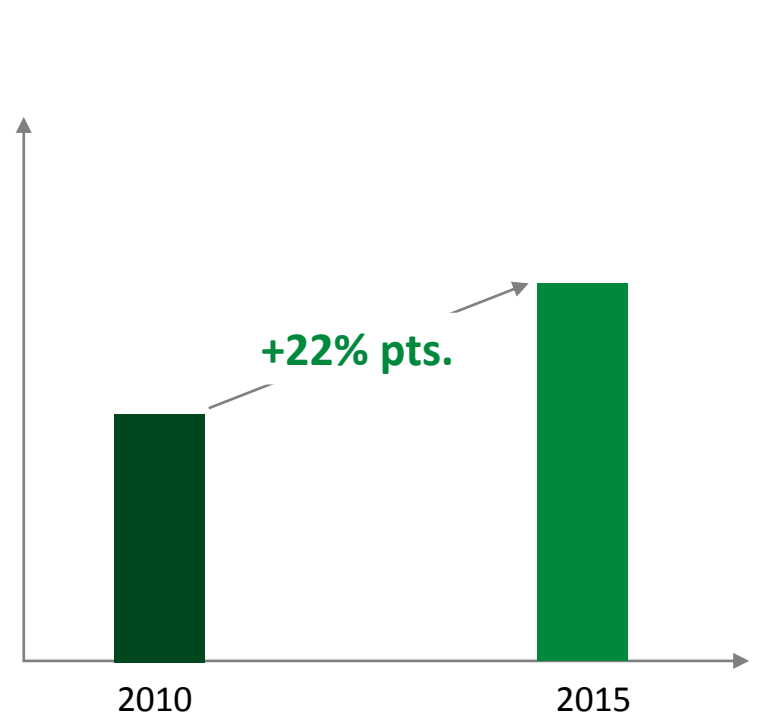
Manufacturing Costs

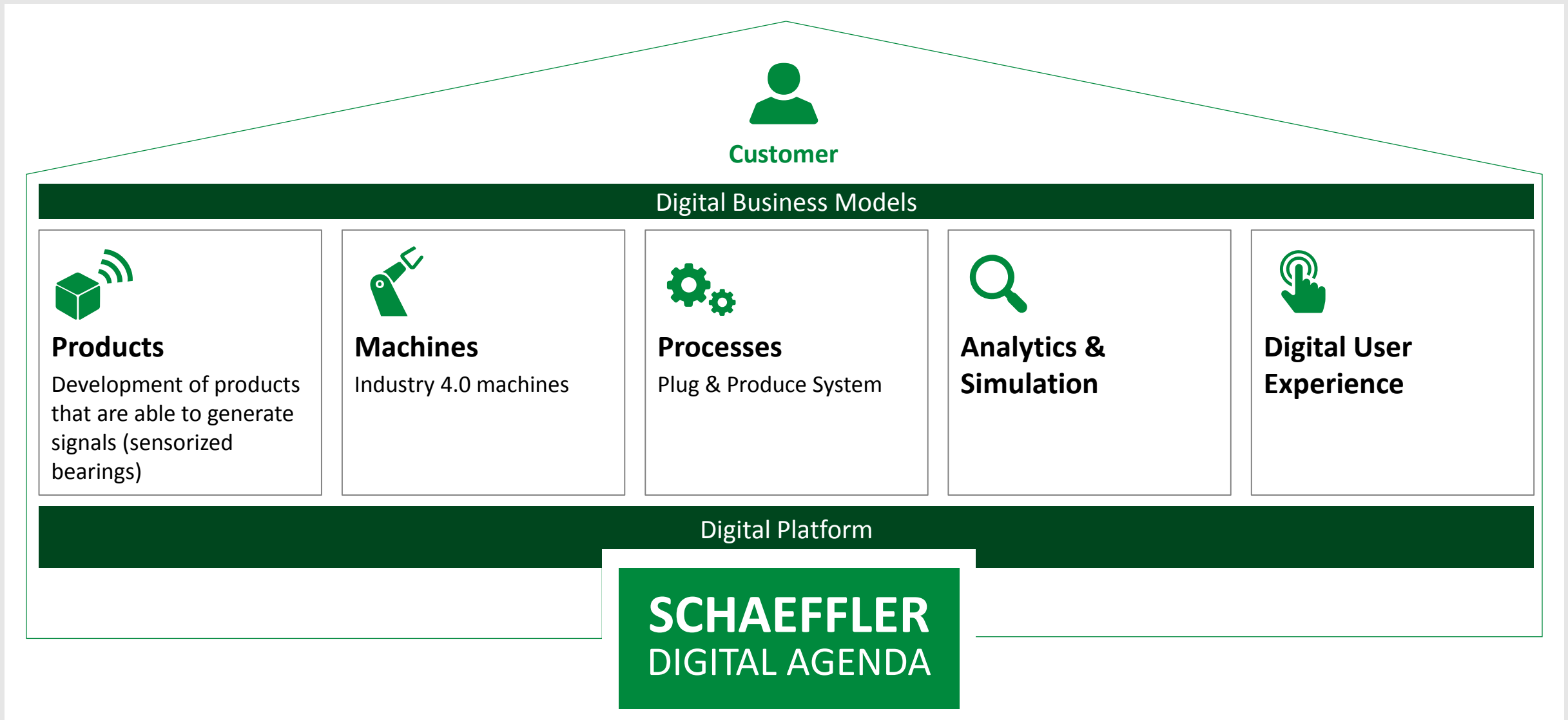
Indexed (2010=100%)



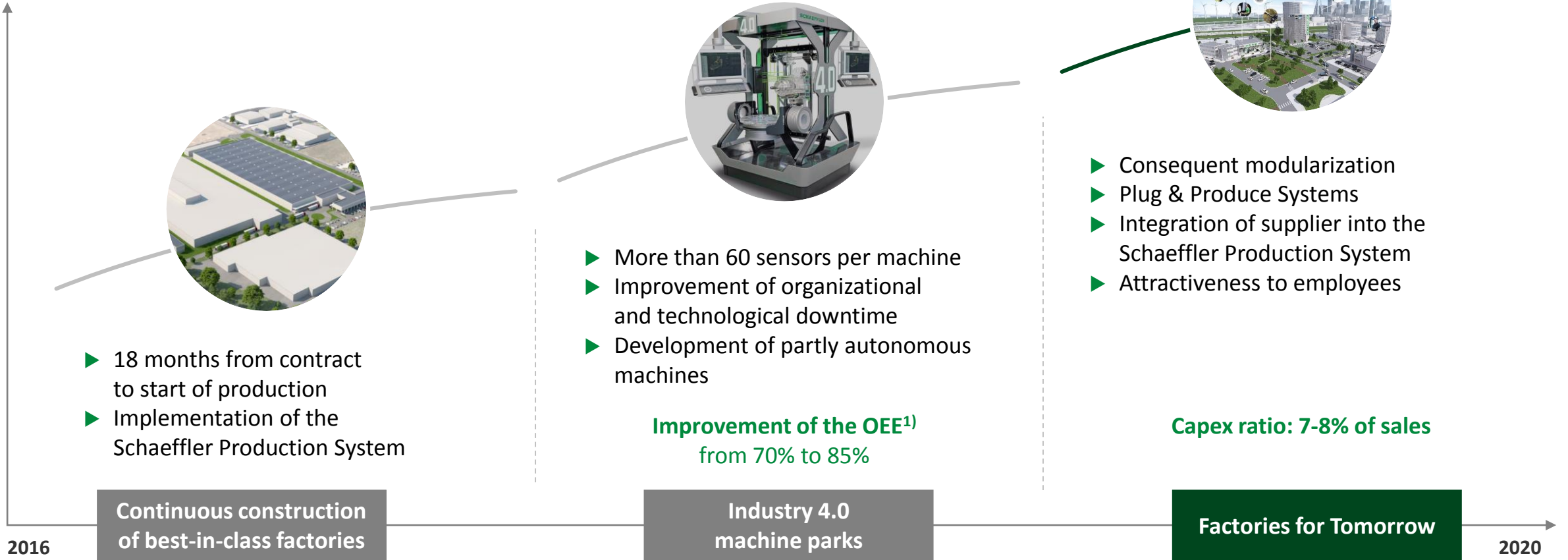
Delivery Performance

in %



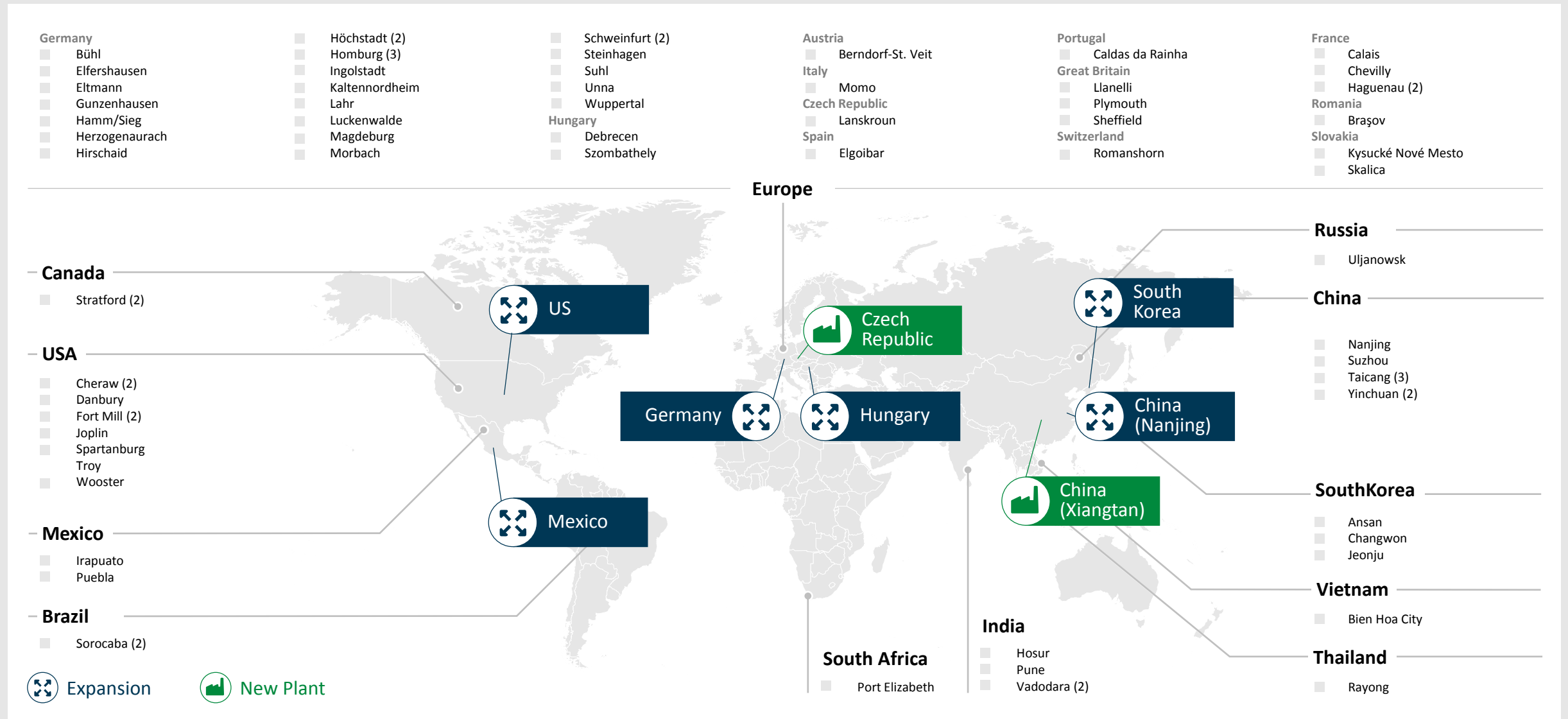


Innovation and efficiency in operations



¹⁾ Overall Equipment Effectiveness

New plant and plant extensions in 8 countries until 2020



Key messages

1 **Integrated production approach** for both divisions with Global Operations organization and Bearing Component Technologies as internal supplier for roller bearings business

2 We will further **enhance our global network** of strong plants and production technology – localization rates are expected to further increase from current high level

3 Our capex ratio is expected to **remain stable at 7 – 8% of sales** until 2020

4 We will **pioneer solutions** for digital production processes and focus on "factories for tomorrow" as part of our Digital Agenda

**PRODUCTION
EXCELLENCE**