



Man vs. Machine?

Self-driving cars and digital factories

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Internet of Everything (IoE): A key driver of economic growth

Outlook **2020**



6 trillion USD
Economic impact of IoE



50 billion
connected devices
and machines



> 250 million
connected cars

Source: Forrester, Gartner, McKinsey Global Institute



Internet of Everything (IoE):

Considerable sales potential for the automotive industry



€57 bn

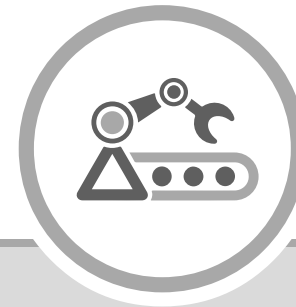
Focus market 2020



Digitalization is Changing Companies Fundamentally: Products, business models, and IT/production



Products



IT/production



Megatrends in the Automotive Industry

Digitalization is setting the pace of innovation





Digitalization

The car has already become a rolling computer

More than

170

sensors

Up to

90

control units

More than

150

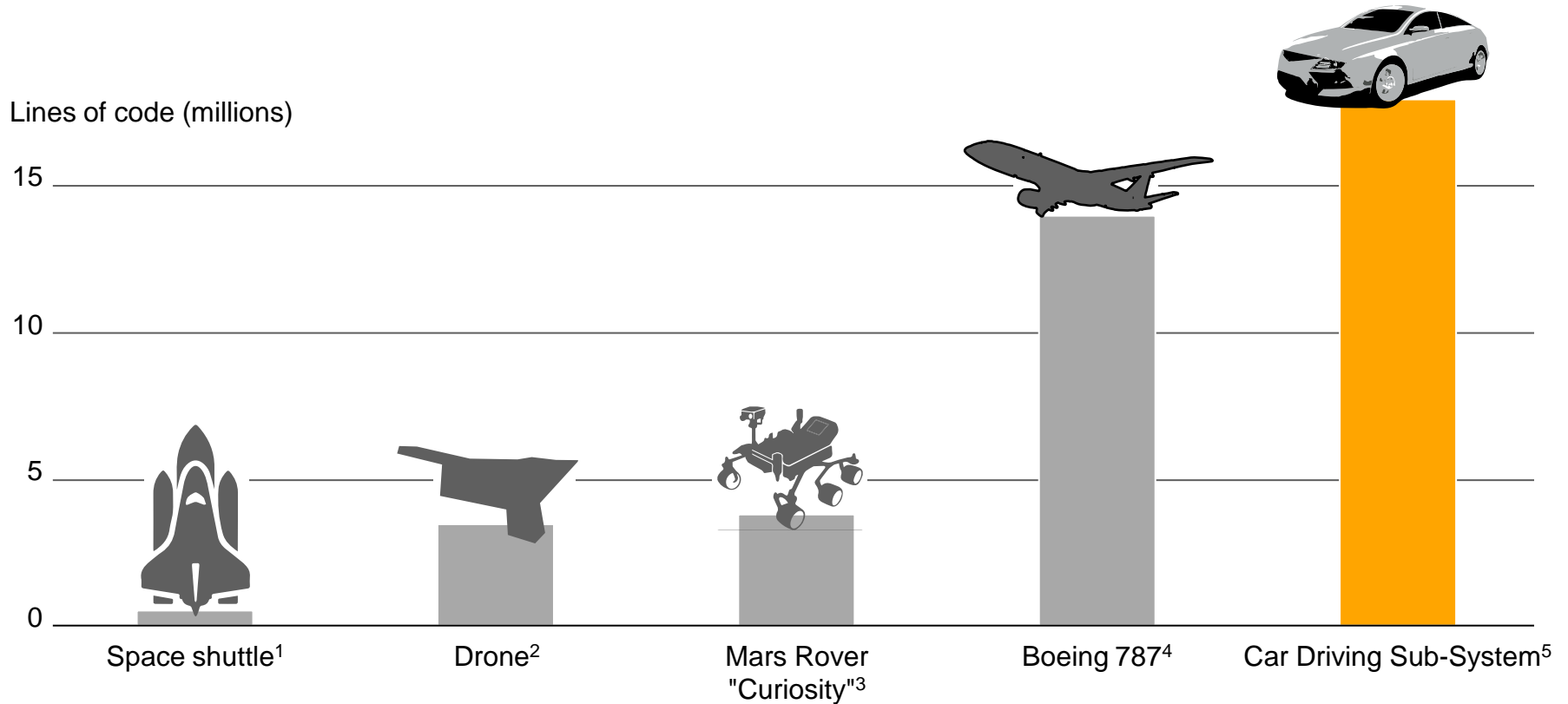
actuators





Digitalization

The proportion of software contained in cars has risen rapidly



¹ http://www.nasa.gov/pdf/418878main_FSWC_Final_Report.pdf and NASA

² <http://www.wired.com/2012/11/navy-killer-drone/> and Northrop

³ http://www.verticalsysadmin.com/making_robust_software/ and NASA

⁴ Boeing

⁵ Own estimates

> 2025

FULLY AUTOMATED

- Monitoring of the system not required
- Driver does not need to be able to take over the driving task

Example: Highway driving up to 130 km/h

2020

HIGHLY AUTOMATED

- Monitoring of the system not required
- Driver needs to be able to take over the driving task with lead time

Example: Stop-and-go (highway)

2016

PARTIALLY AUTOMATE

- Monitoring of the system required
- Driver needs to be able to take over the driving task at any moment

Example: Stop-and-go up to 30 km/h

Automated Driving
A gradual introduction



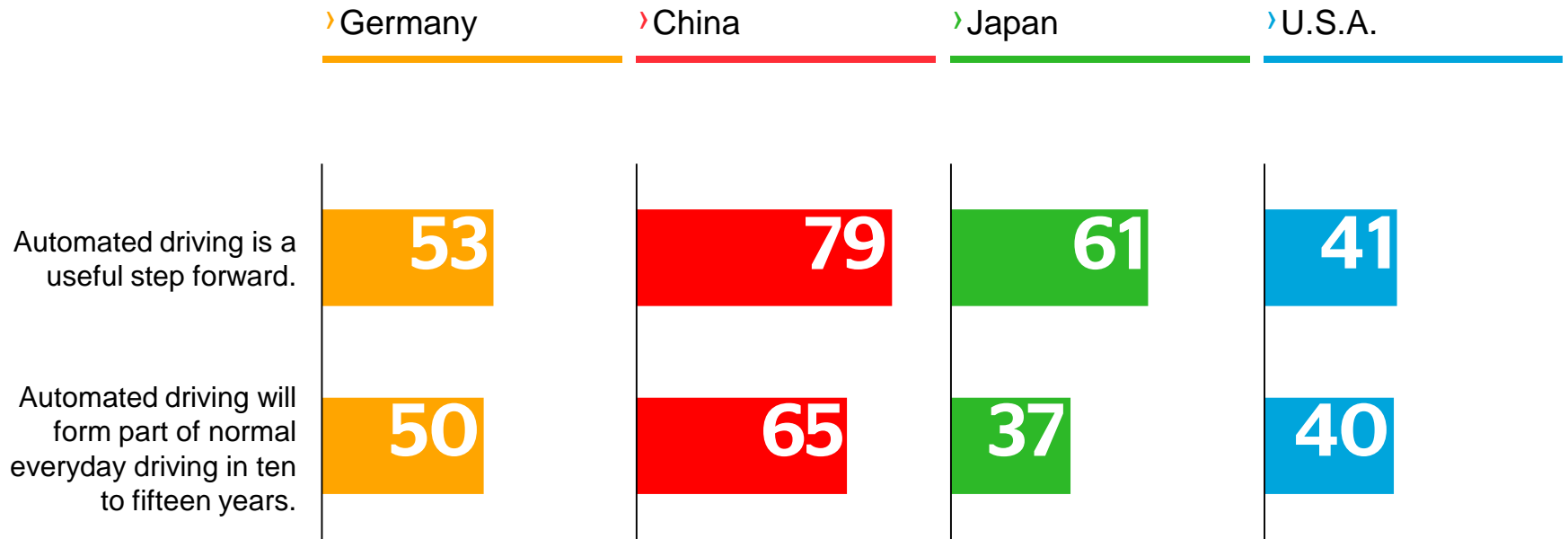


Automated Driving
Relieving drivers when required



Automated Driving

Car drivers expect entry into normal everyday driving

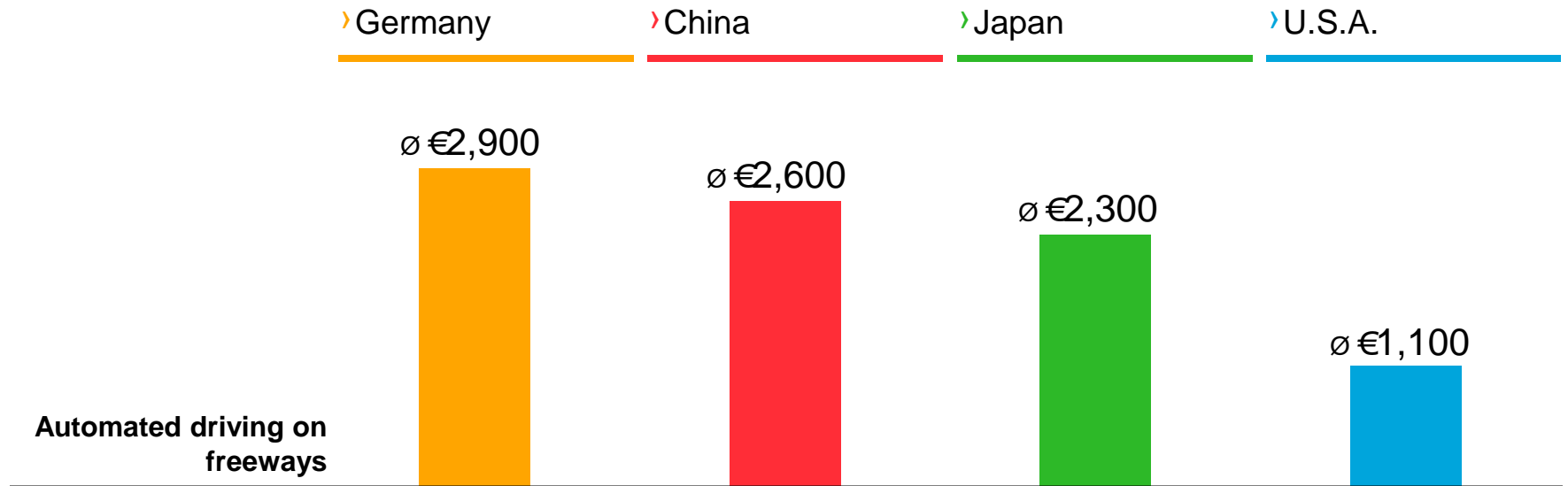


Figures in %
Proportion in agreement shown



Automated Driving

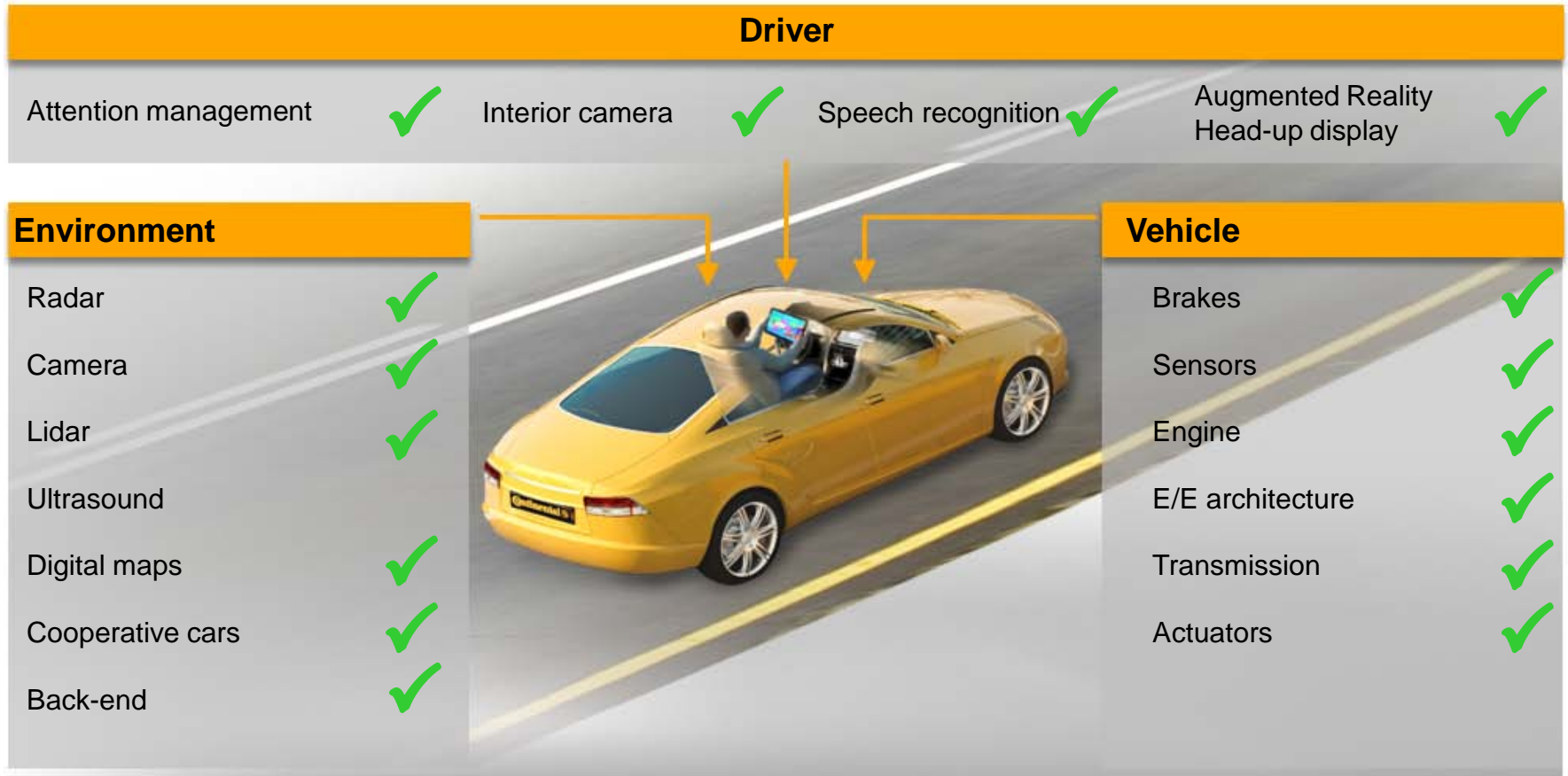
Anticipated additional costs at a realistic level



Figures in %
Proportion in agreement shown

Automated Driving

Suppliers must prove their systems expertise



✓ Continental portfolio



Digitalization Is Changing Every Dimension of a Company: Products, business models, and IT/production



Products

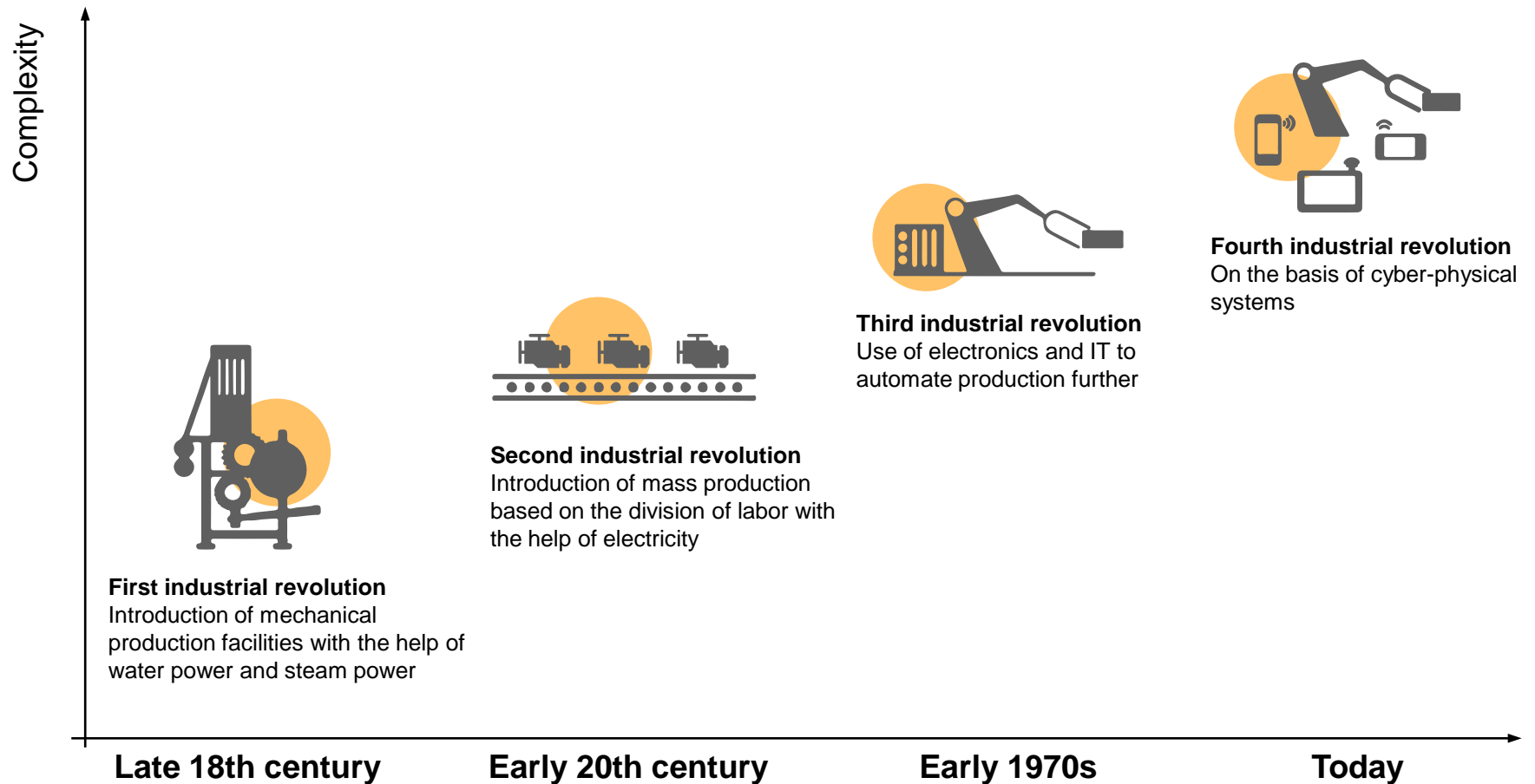


IT/production



Industry 4.0

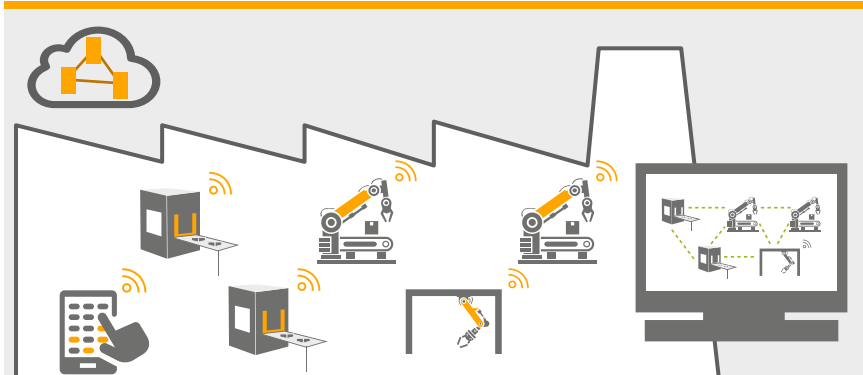
Demarcation



Industry 4.0

Key aspects

Vertical integration and connected production systems



Horizontal integration via value-added networks



Digital consistency of engineering along the entire value chain



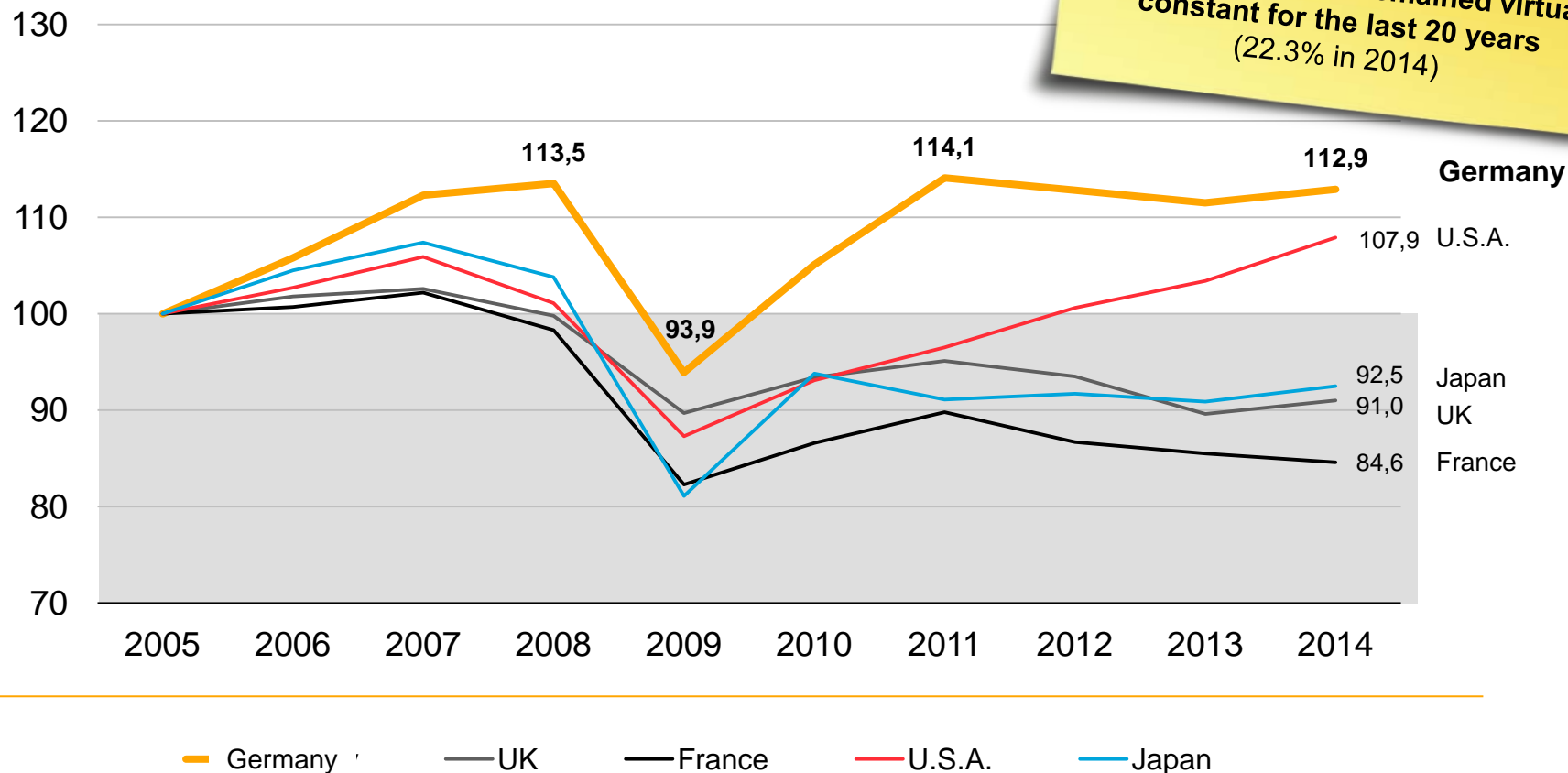
Humans as directors of value creation



Production Index – Manufacturing Industries

Germany leading the industrial nations

Index 2005 = 100

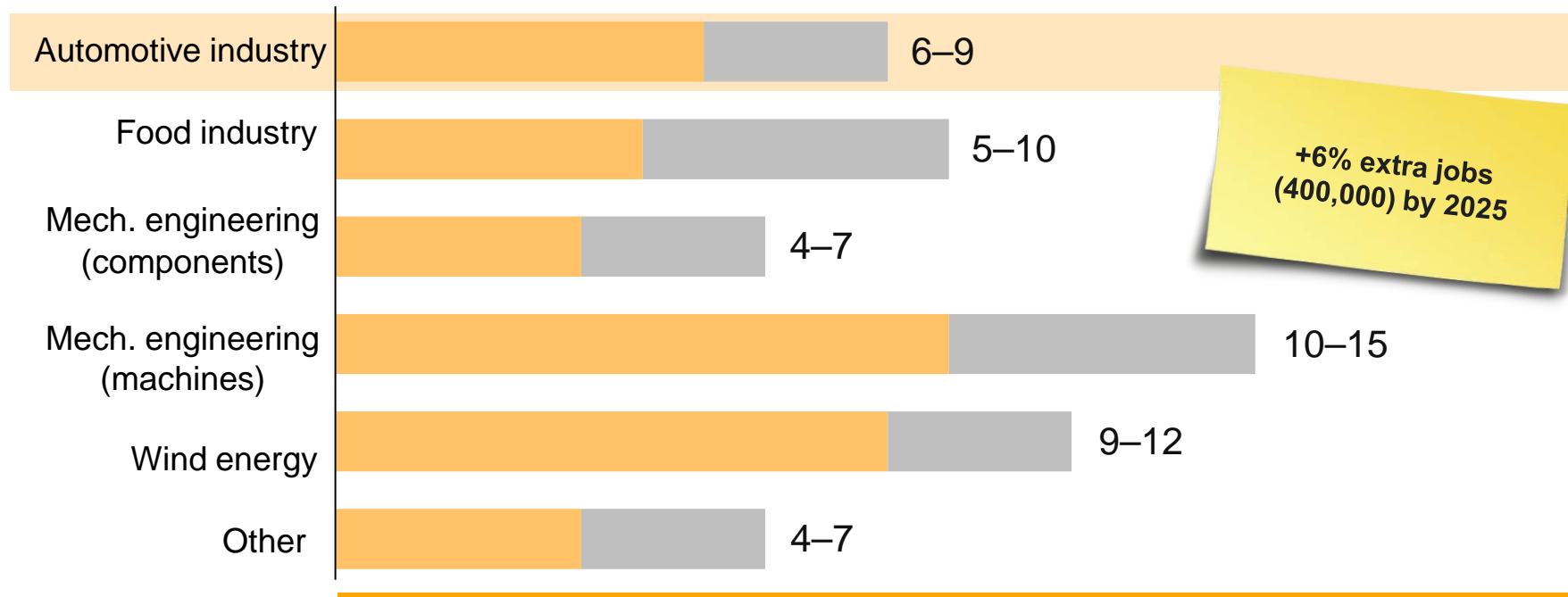


Source: Statistisches Bundesamt (Federal Statistical Office)/United Nations

Industry 4.0

Significant increases in productivity possible by 2025

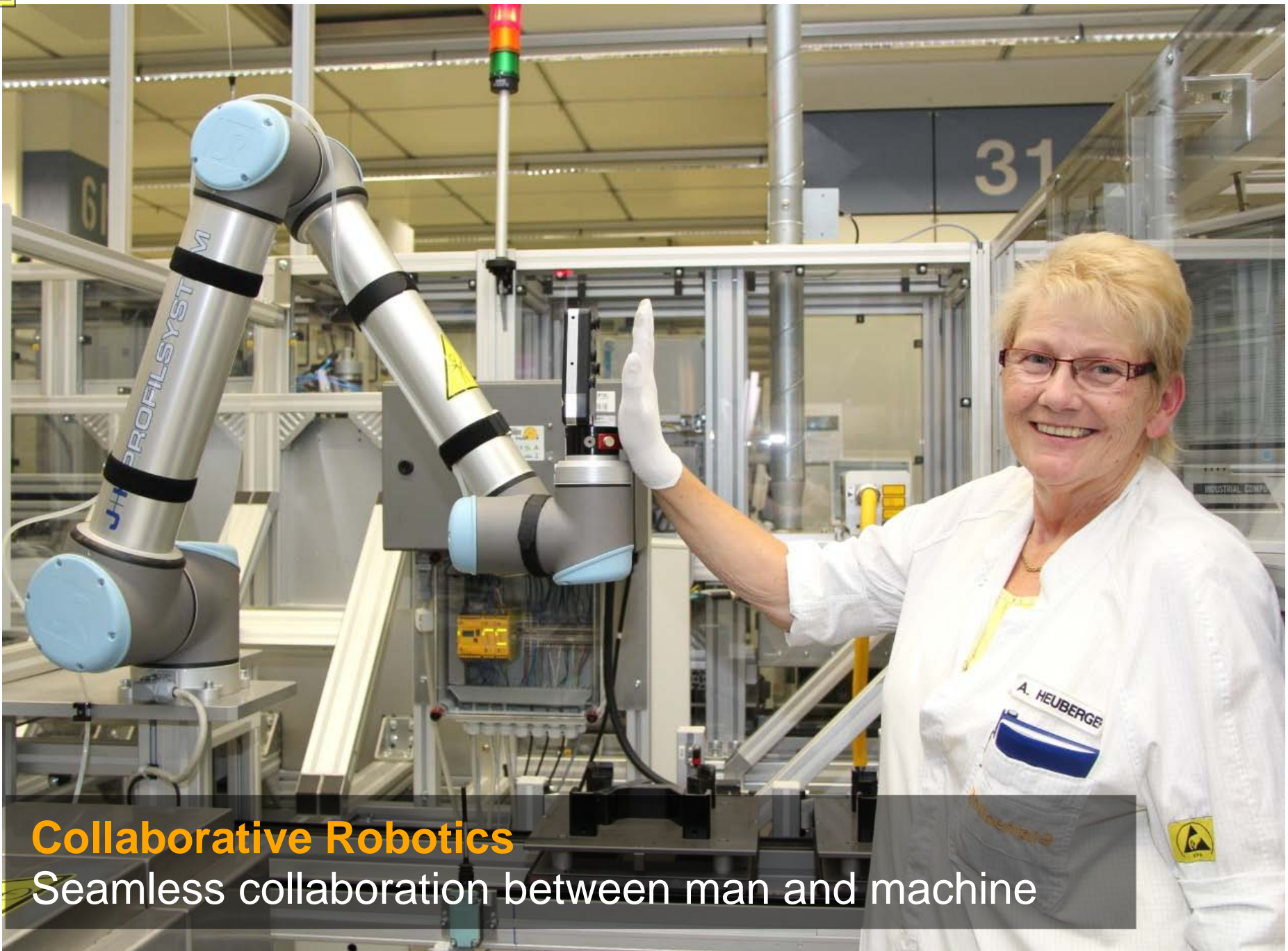
Potential additional productivity by 2025 thanks to Industry 4.0 (%)



**Total additional productivity:
5-8% (€90-150 billion)**

Source: Boston Consulting

■ Additional increase in productivity ■ Range



Collaborative Robotics

Seamless collaboration between man and machine



Training

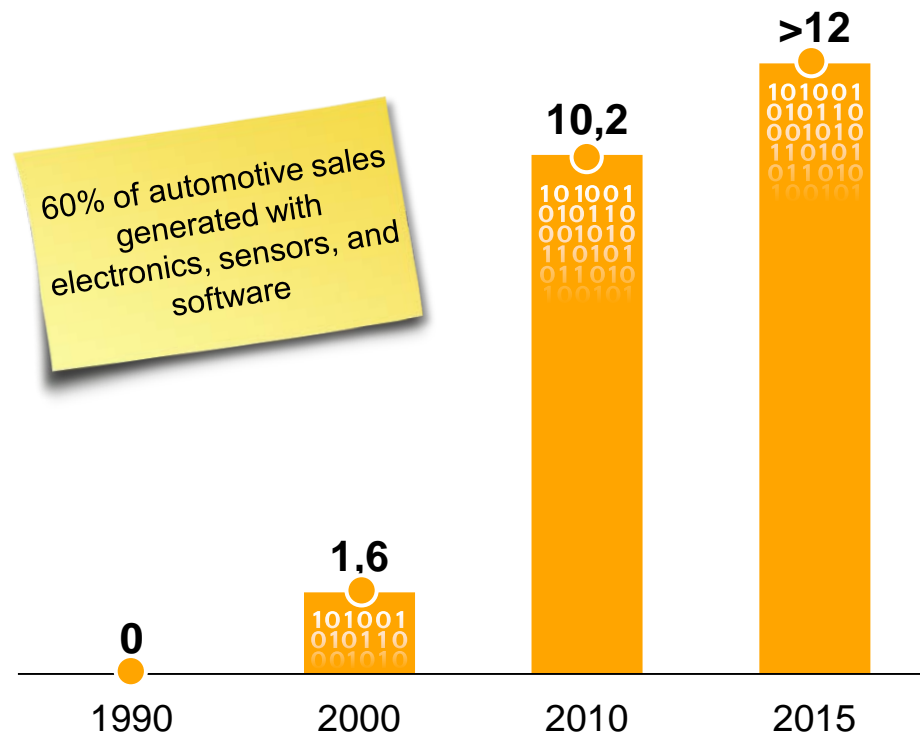
Automotive software developers



Continental

Already a software company

Sales generated with digitalized technologies (€ billion)



Digitalization at Continental today

> 12 €billion sales generated with digitalized technologies

80% of innovations in automotive thanks to software functionality

12.000 software developers
Continental is one of the major "software firms" in Germany



Software is the "new wheel" of the industry
Nothing works without it anymore

Continental 

The Future in Motion