

INDUSTRY 4.0

MANUFACTURING IN THE
AUTOMOTIVE SUPPLY INDUSTRY
USING THE EXAMPLE BOSCH

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BOSCH MANAGEMENT SYSTEM
SENIOR CONSULTANT

Rapid development of the connection of people and things

**2020
7 billion
connected
people**

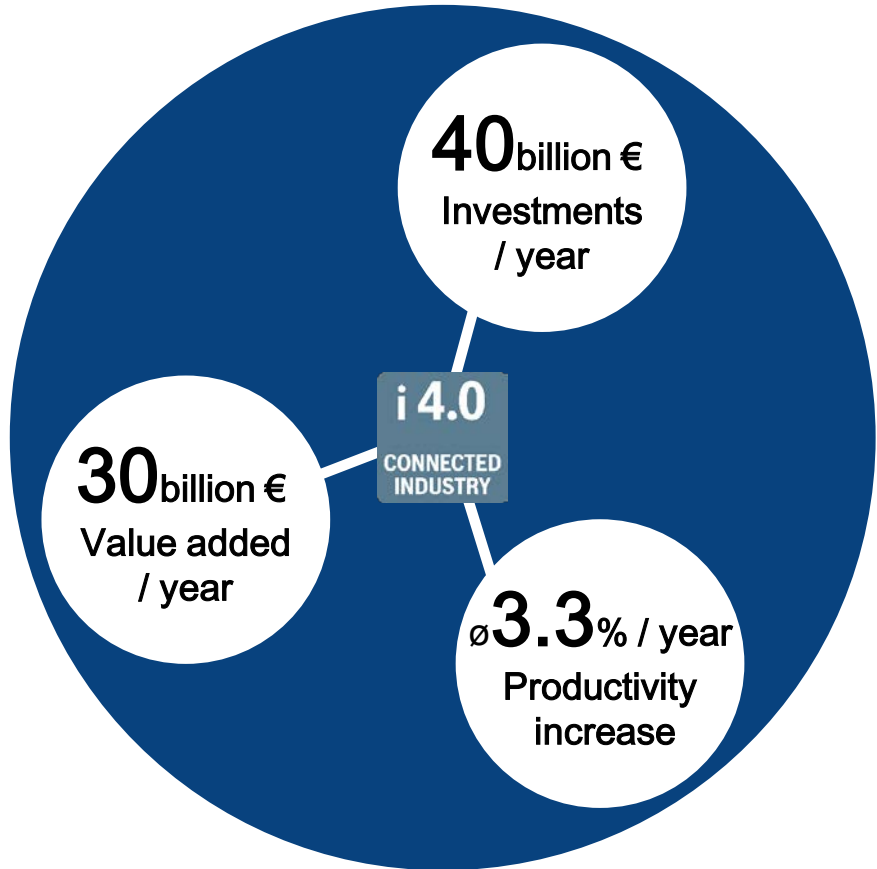
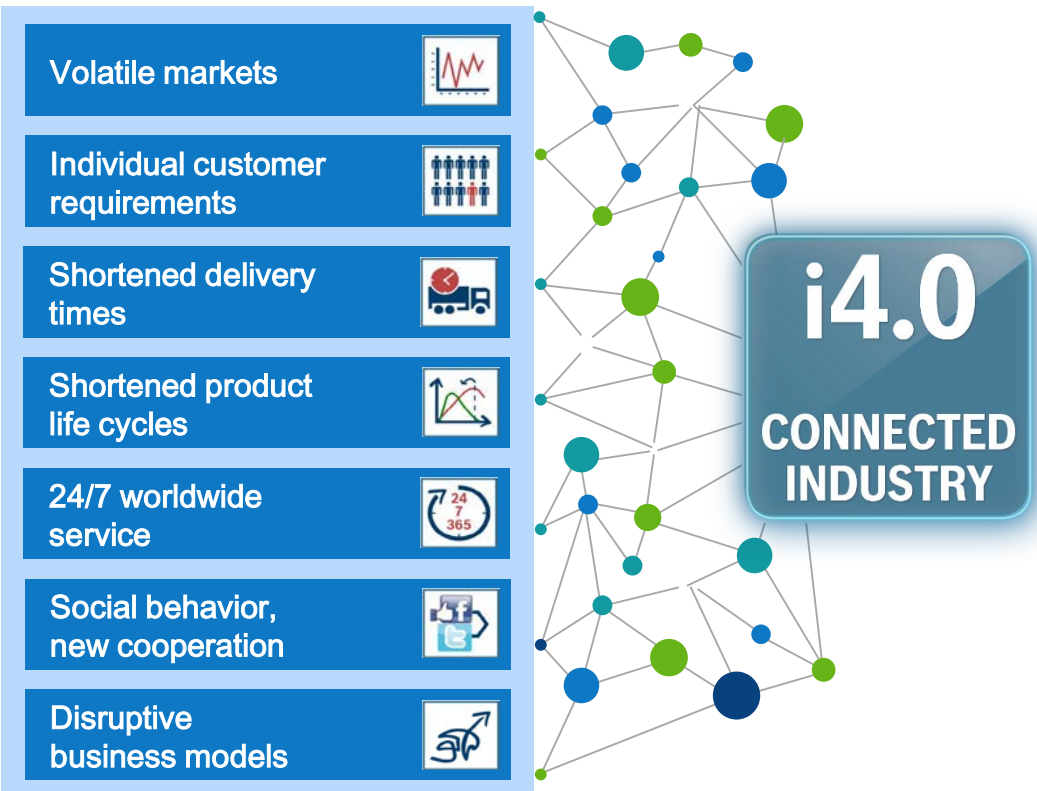
1995
15 million
people have
access to the
internet*

**2020
50 billion
connected
devices**

1997
6 million
computers
with internet
access

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Industry 4.0: challenges & chances



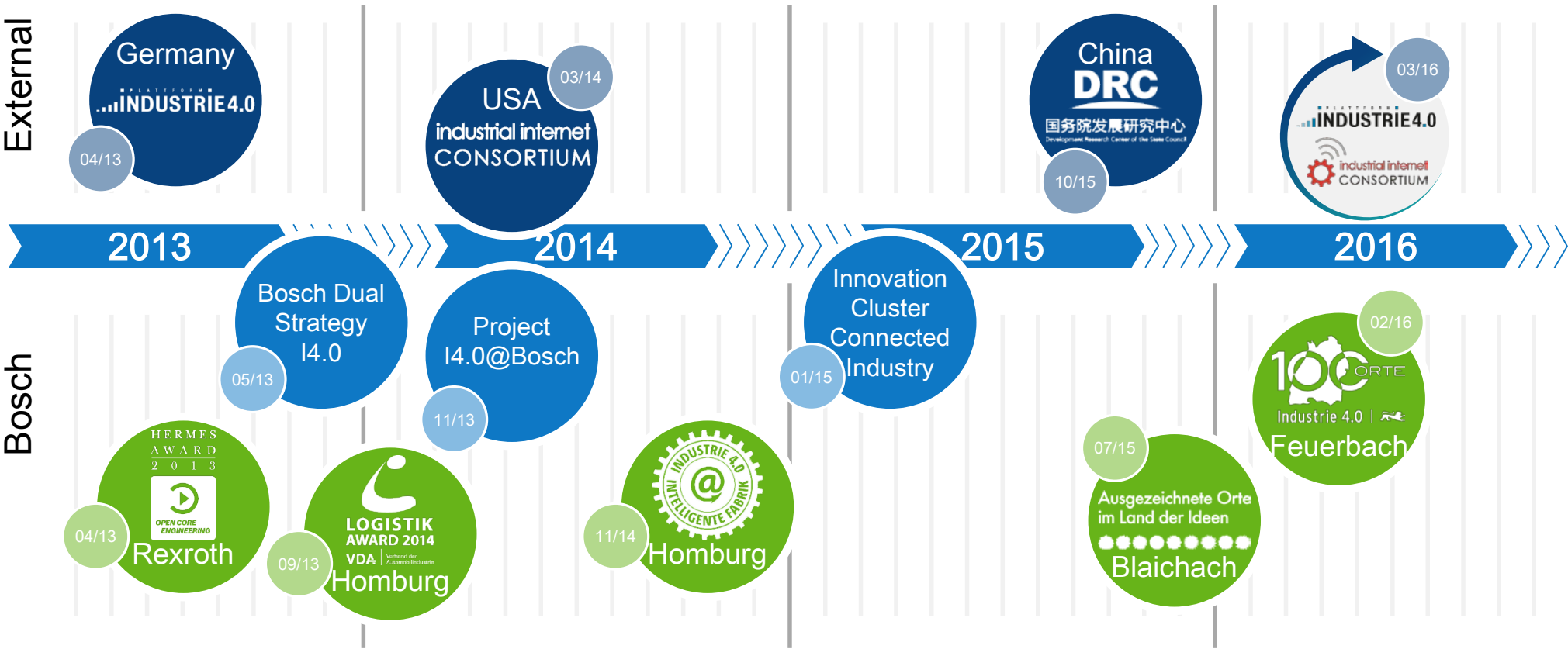
1) Added value potential of selected industries until 2025 by I4.0 in Germany; Source: Industrie 4.0 – Volkswirtschaftliches Potenzial für Deutschland; Studie BITKOM 2014
 2) Added new workplaces until 2025 by I 4.0 in Germany; Source: BCG Study for Wirtschaftswoche

Features of Industry 4.0



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i4.0 our journey and achievements



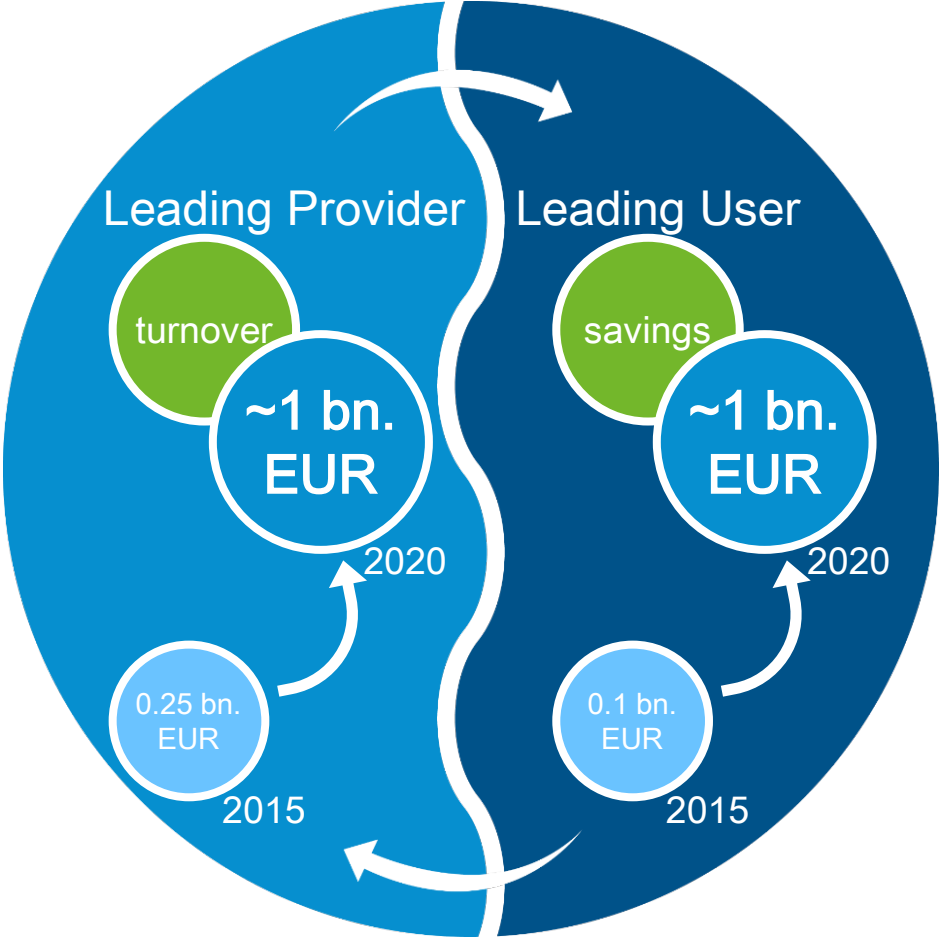
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Dual strategy for Connected Industry



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Dual strategy for Connected Industry



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i4.0 use cases and benefits – examples

Digital Supply Chain

- ✓ stock saving
- ✓ efficiency increase
- ✓ transparency along supply chain

Convertible Equipment

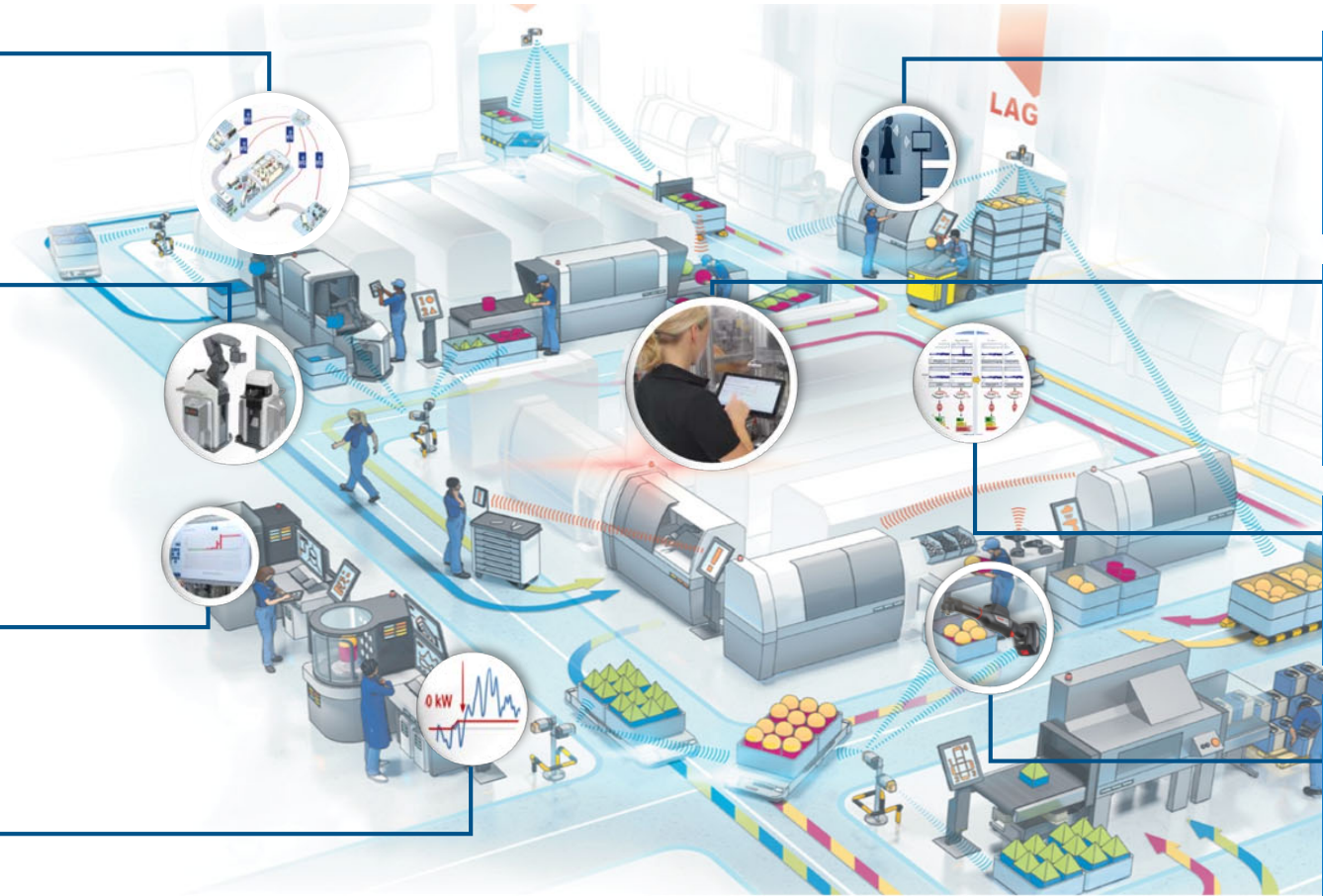
- ✓ fix cost reduction
- ✓ efficient M2H collaboration
- ✓ human relief of heavy load / repetitive tasks

Shop Floor Mgmt. Information

- ✓ real time data
- ✓ fast escalation
- ✓ paperless

Power / Energy Management

- ✓ peak reduction
- ✓ energy cost saving



Operator Support

- ✓ agility & quick reaction
- ✓ quality increase
- ✓ efficiency increase

Predictive Maintenance

- ✓ improve OEE
- ✓ no sudden breakdown

Adaptive Testing

- ✓ increase efficiency
- ✓ less invest

Quality Improvement

- ✓ instant feedback
- ✓ fast identification of error sources

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Logistics with RFID



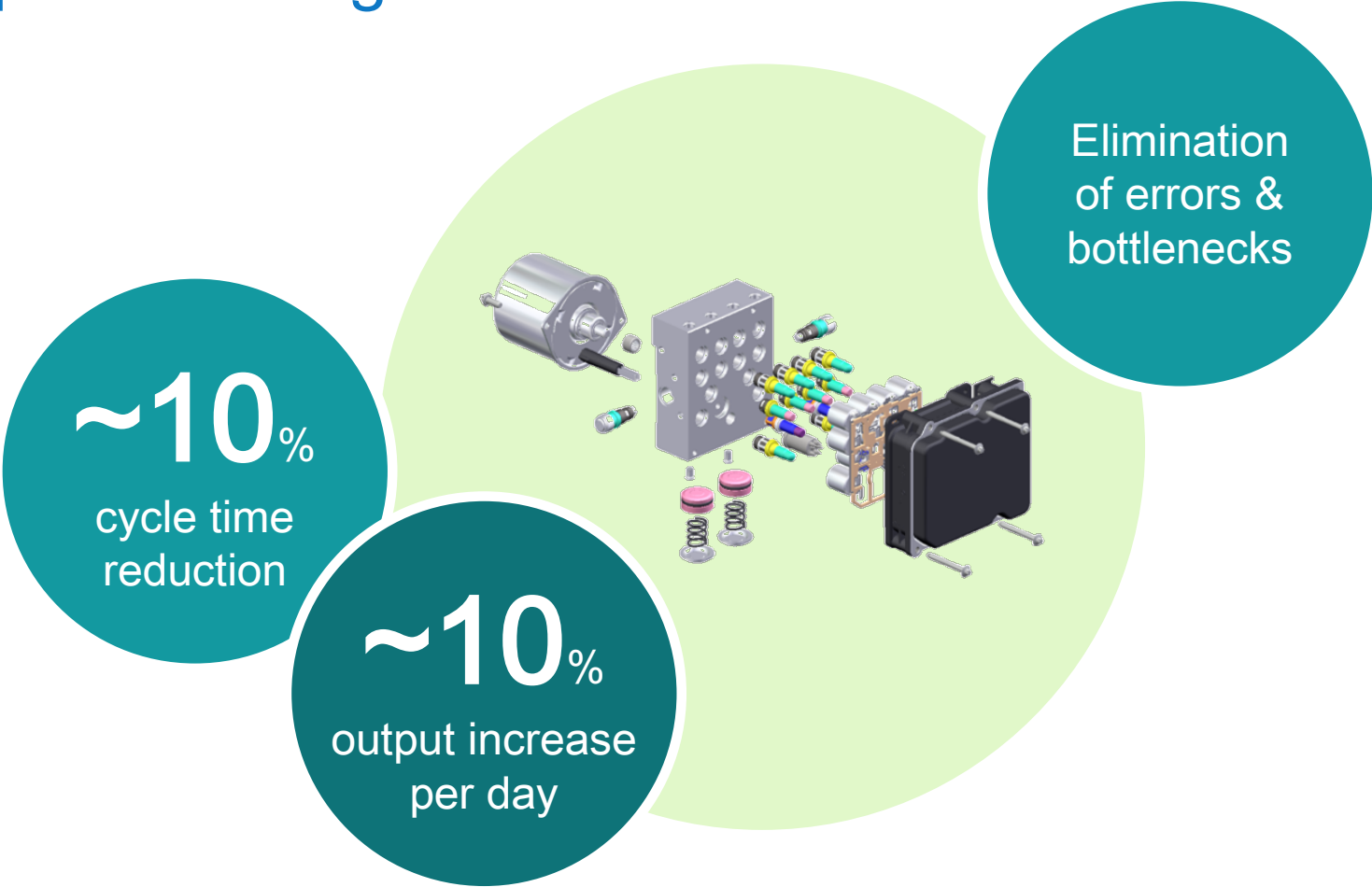
30%
reduction of stock
in processes

10%
efficiency increase
in processes



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Smart Adaptive Testing



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i4.0 in an entire line – example Homburg

30%
stock reduction,
no setup

Up to
0.5 mio €
savings
year / line

10%
output
increase

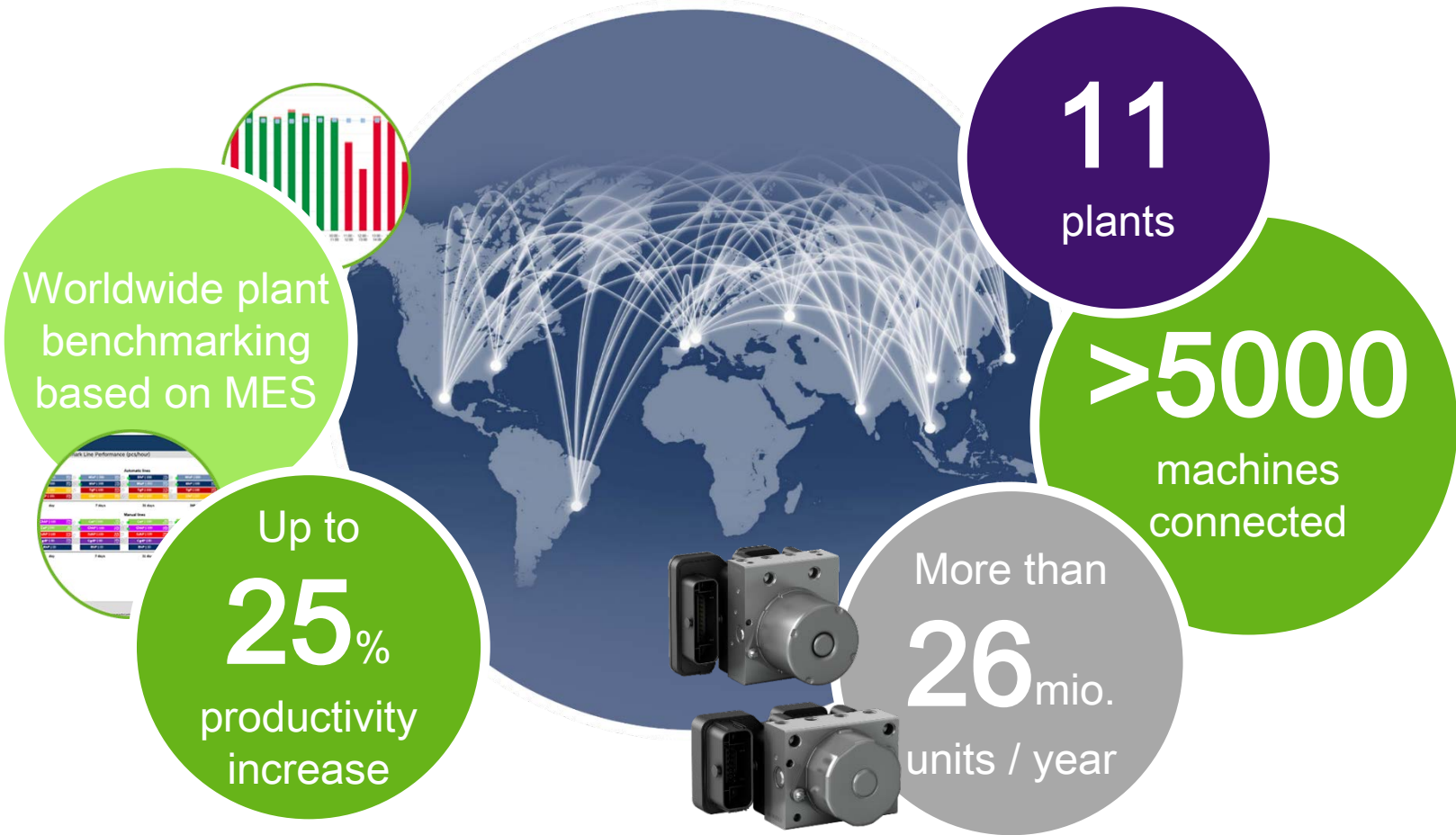


People as
key players



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i4.0 in an IPN – example ABS / ESP



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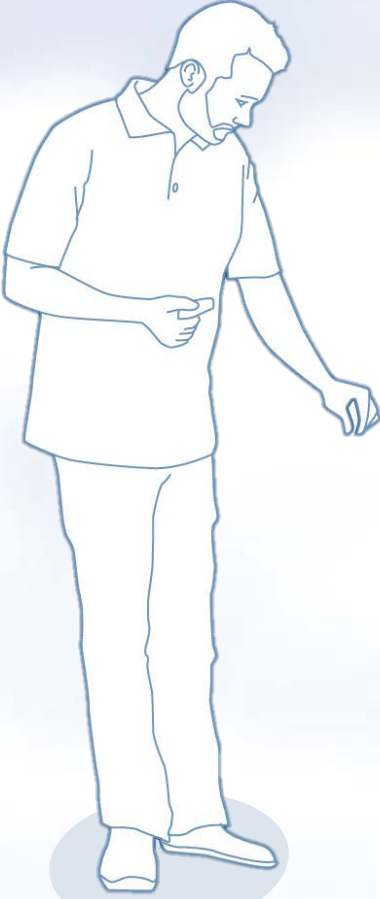
Production quality: Smart tightening



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Flexible Automation - APAS assistant

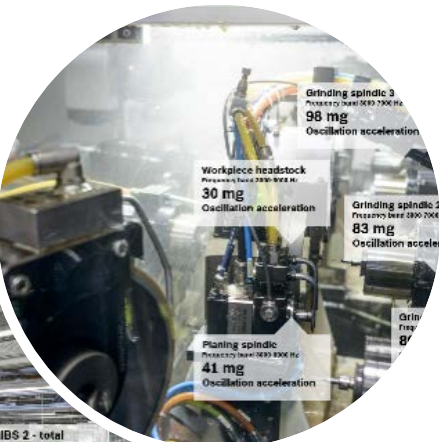
- Flexible
- Mobile
- Collaborative
- Connected



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Bosch Energy Platform

40%
cost reduction for compressed air in Blaichach plant

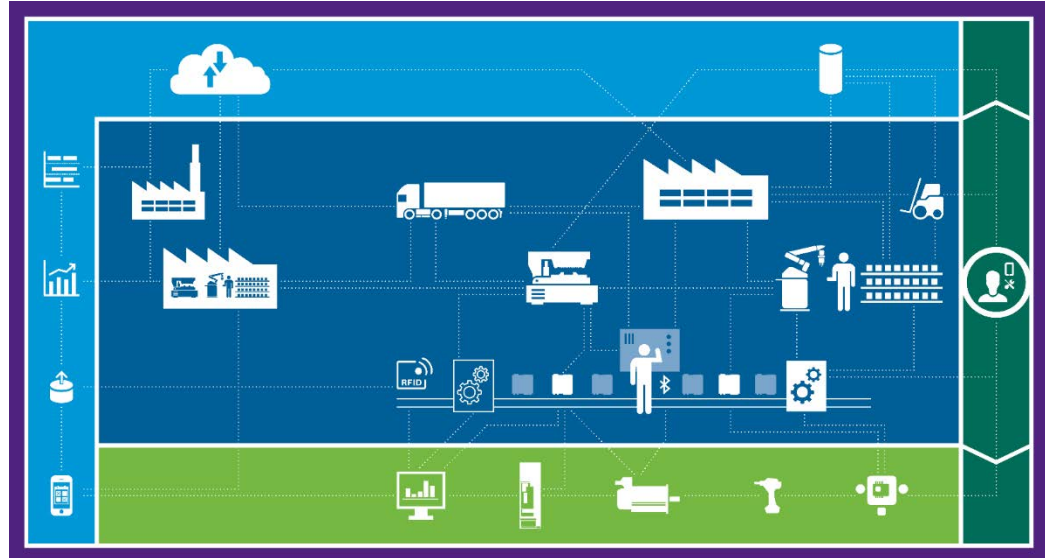
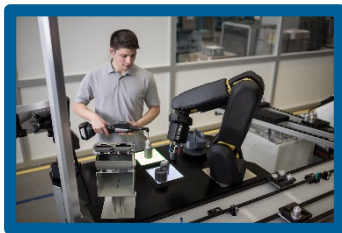


Reduction of energy consumption
1.65 Mio. EUR
p.a. in Homburg plant

Improved resource efficiency with condition-based maintenance



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- Software Solutions**
The element that links all modules and subsystems along the value stream with people and third-party systems.
- Logistics and Manufacturing**
Solutions that connect machines and whole manufacturing lines to value-creation networks.
- Field Level Equipment**
Components, modules and systems that enable the integration of equipment into networked i4.0 environments.
- Services and Consulting**
A broad range of services and consulting including collaborative projects to test new business models.
- Solution Sets**
Customer-specific combination of Bosch i4.0 components and systems resulting in an integrated solution.

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Thank you for your attention!

