INDUSTRY 4.0 @ BOSCH

Dr. Bruno Fazzari

Industry 4.0 live at Bosch
Dual strategy for Connected Industry

Leading Provider

Leading User

Packaging

Connected Devices and Solutions

Bosch Rexroth

Provider with external business

Engineering and Business Solutions

Software Innovations

...

Logistics

Data Mining

Research

Internal enabler

Bosch Sensortec

...

250+ Bosch plants worldwide

i4.0 | 06/15/2016
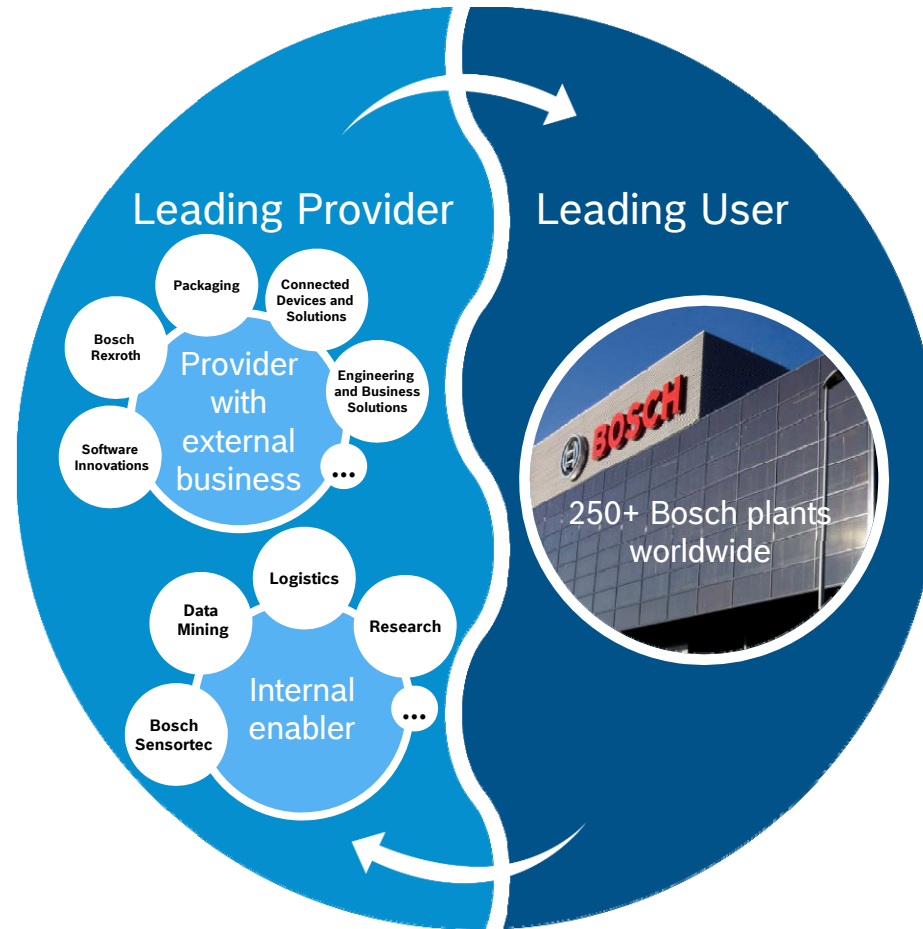
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i4.0 use cases and benefits– examples

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

LOGISTIK AWARD 2014
VDA | Verband der Automobilindustrie

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Production quality: Smart tightening

Estimate: down time reduced by **10**%

Estimate: failure costs reduced by **10**%

Failure reaction time drastically reduced

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Flexible Automation - APAS assistant

- Flexible
- Mobile
- Collaborative
- Connected
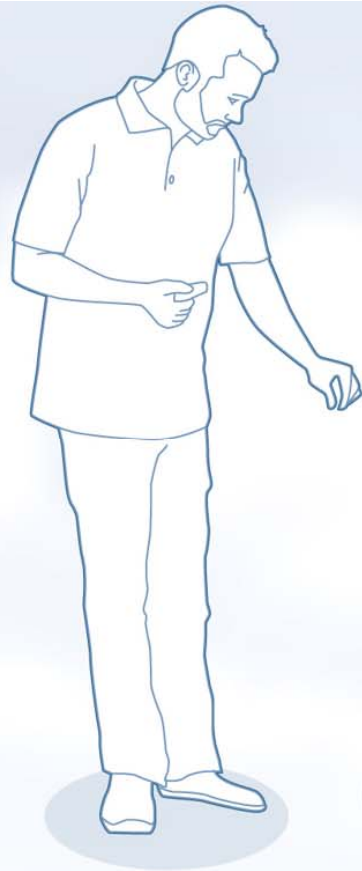
Direct and safe collaboration
Sensorskin

Autonomous recognition of objects
Integrated 3D image processing system

Configuration instead of programming
User interface

Sensitive three-finger-gripper
Universal gripper

Workspace monitoring Additional feature
APAS speed switch

Location-independent
Quick release castors

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Shopflor Transparecy − Active Cockpit

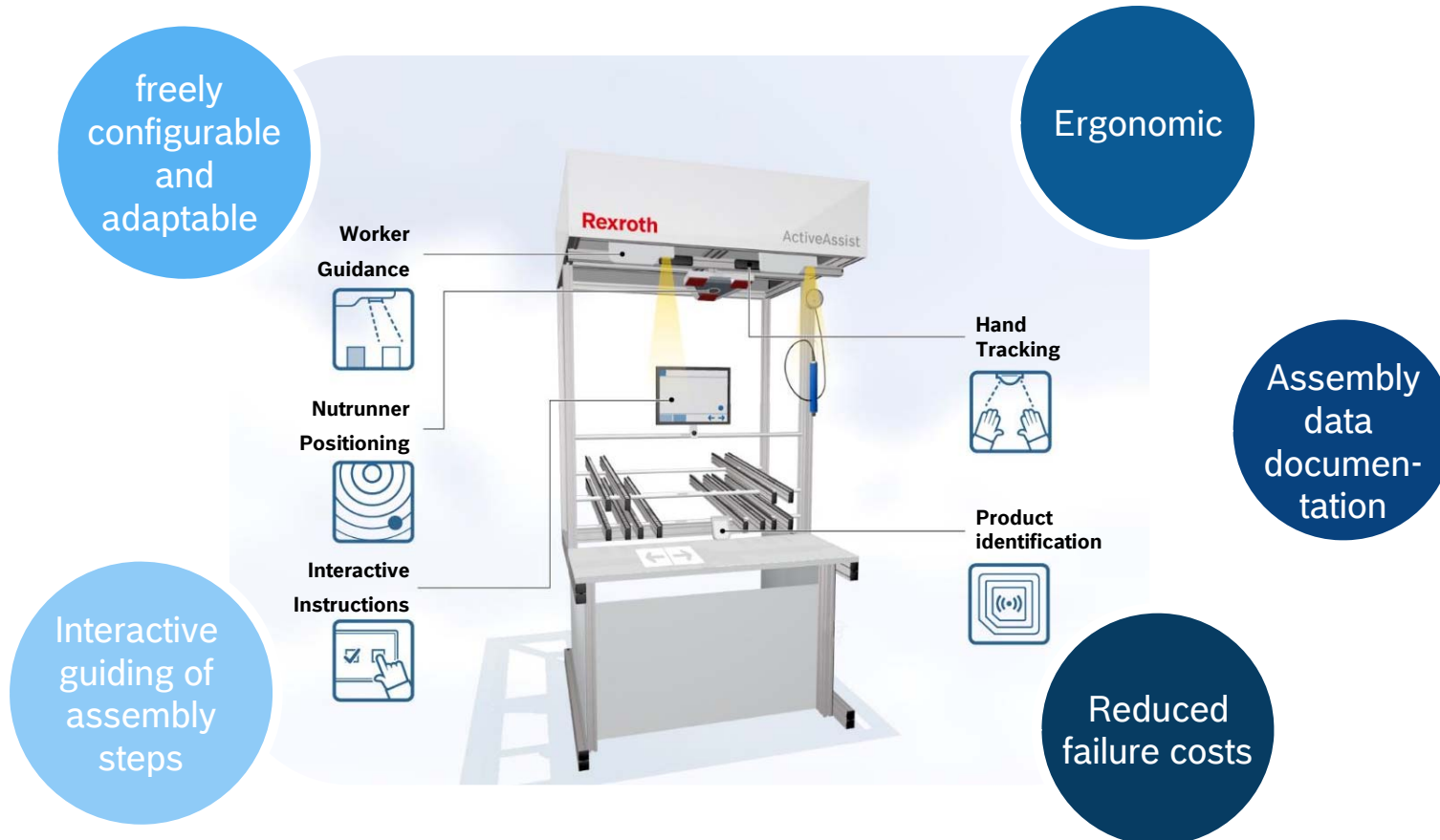Interactive info & communication platform

Up to 60' saved per day

Live data for Moring Round (Notes, mailing,escalation)

Data collection from different sources (SAP,MES, SQL,Office

Fully customized by java widgets

i4.0 | 06/15/2016

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Active Assist Industry 4.0 Workplace

freely configurable and adaptable

Ergonomic

Worker Guidance

Hand Tracking

Nutrunner Positioning

Assembly data documen-tation

Interactive Instructions

Product identification

Interactive guiding of assembly steps

Reduced failure costs

Rexroth   ActiveAssist

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Industry 4.0 live at Bosch
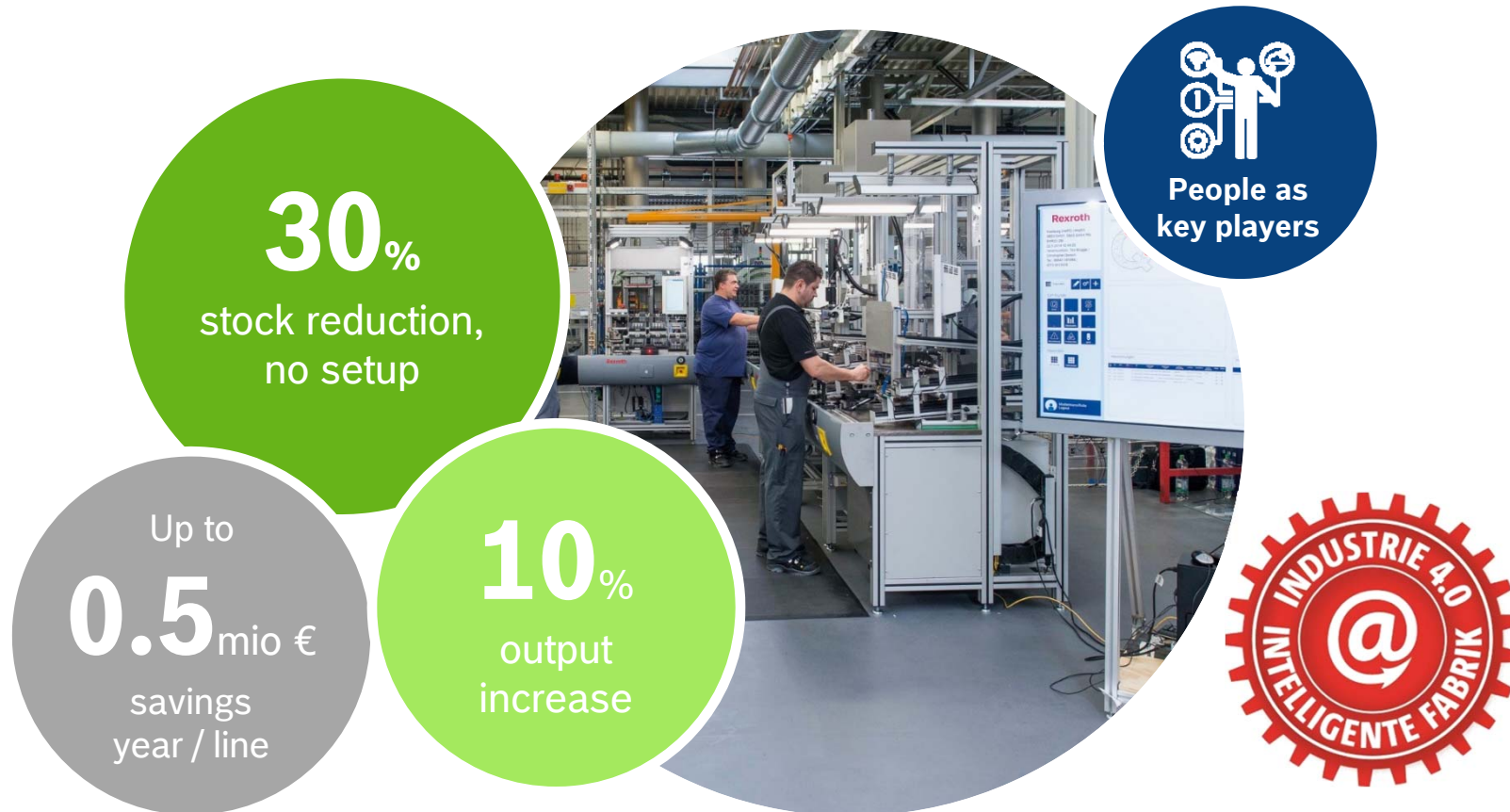## Open Core Engineering

New freedom in engineering

The revolutionary new approach to software engineering that enables unprecedented customization, speed, efficiency and automation intelligence. Open software interface for direct function access to control core.

**Rexroth
Servo Drive**
(used as test and
measuring unit)
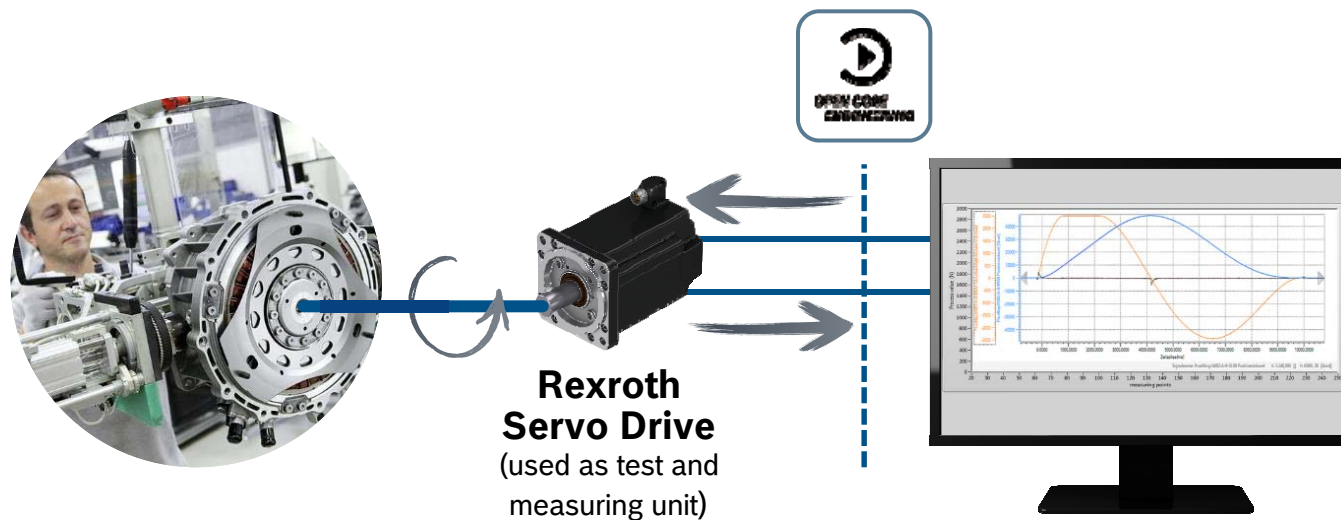
Open Core Engineering facilitates the networking in Connected Industry production

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Industry 4.0 live at Bosch
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

INDUSTRIE 4.0 @ INTELLIGENTE FABRIK

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