



Hybrid IoT solutions for the foundry industry

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Internet of Things (IoT) capable technologies in foundries

- Continuous improvement necessary by global economic environment changes
- High pressure to increase productivity and quality while reducing environmental impact and costs
- Addressing the challenge with lean tools and commercial efforts
- Interconnect equipment and process offers a significant potential to raise efficiency to a new level
 - Increase production efficiency by creating transparency of the production status
 - Fast reaction on production interruption by company-wide fault information and condition monitoring system
 - Predictive maintenance concepts based on predictive analytics of real-time data allow proactive service and maintenance
 - Support operators by additional information and recommended actions

Internet of Things: How to start?

- Foundry owners are aware that they must invest in digital solutions but most of them hesitate to start.
- Federation of the German Foundry Industry* published a guideline to help foundries to analyze their digitalization level and to give them approaches for development



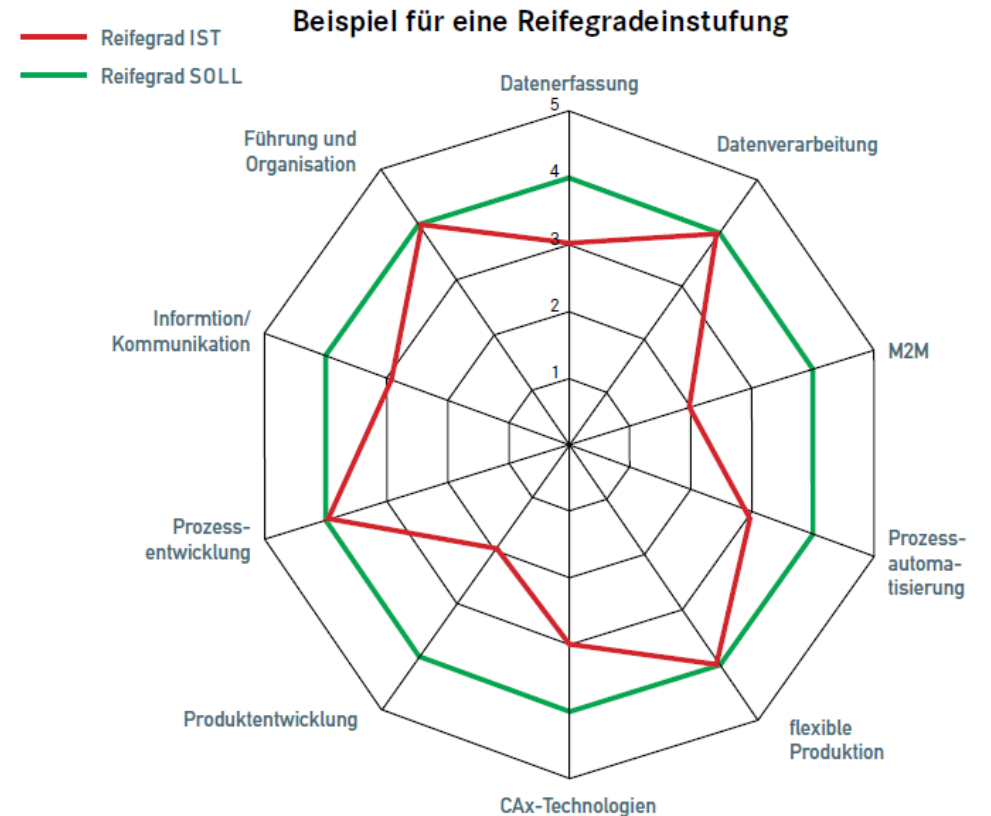
BDG Kompass – Gießerei 4.0

Entwicklungsschritte zur digitalen Produktion

*Bundesverband der Deutschen
Gießerei-Industrie
Arbeitskreis Gießerei 4.0

Guideline “BDG Kompass”

- Data acquisition in production
- Data processing in production
- Machine to machine communication (M2M)
- Process automation by using robots
- Flexible production, flexible resources
- CAx technology
- Product development
- Process development
- Information and communication structure
- Employees, management and organization



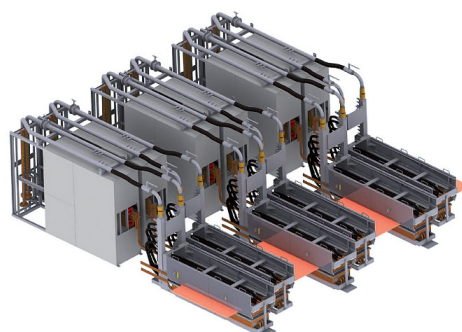
ABP Induction – People. Technology. Success.

400+
Employees

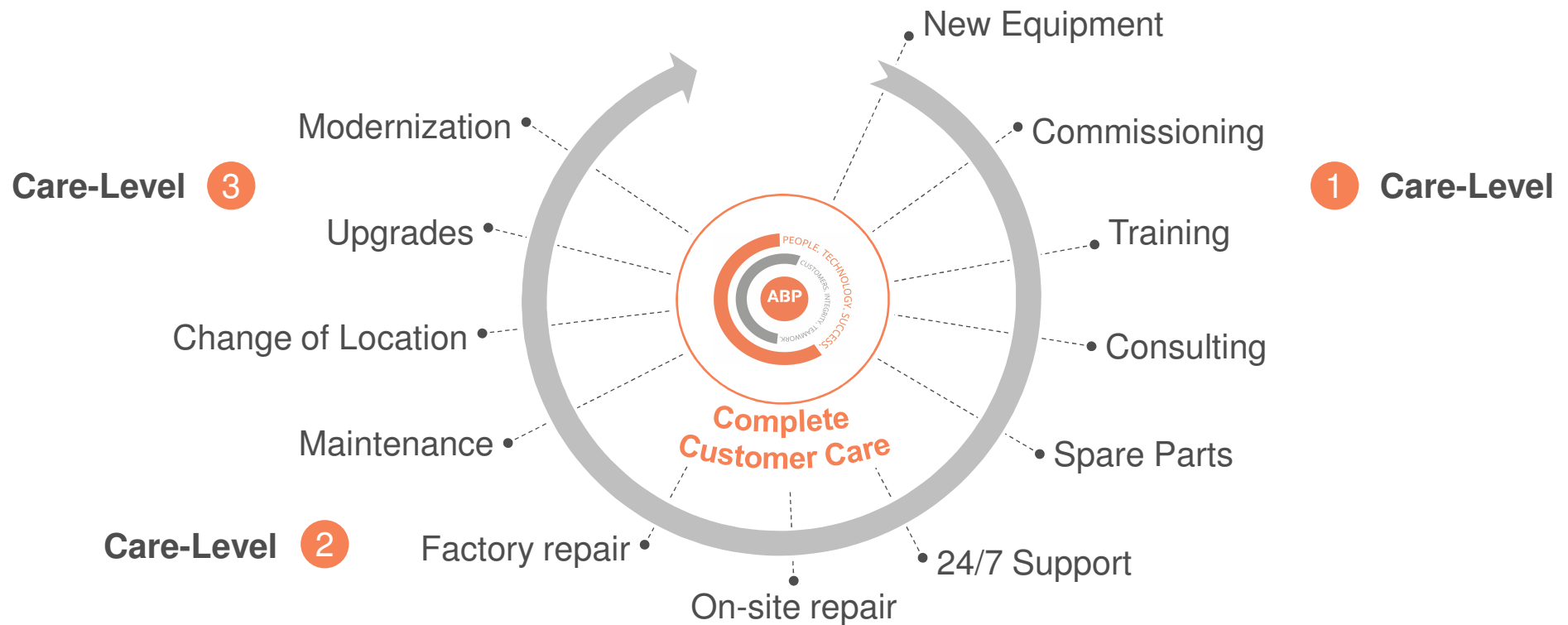
9 Location on
5 continents

116 years of innovation
customer success

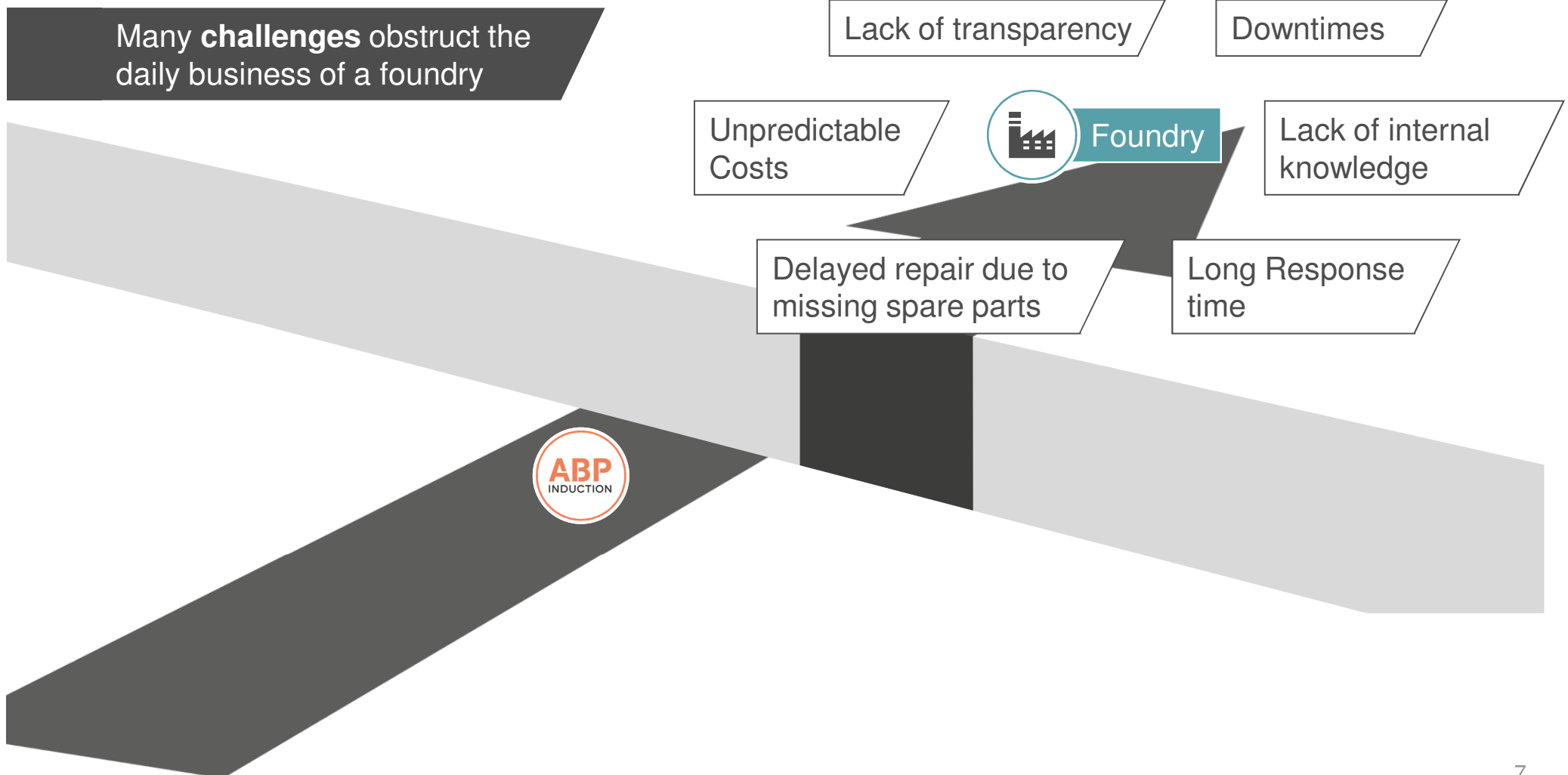
Melting: Foundry & Steel making
Heating: Steel & Forging



ABP's conventional service solutions



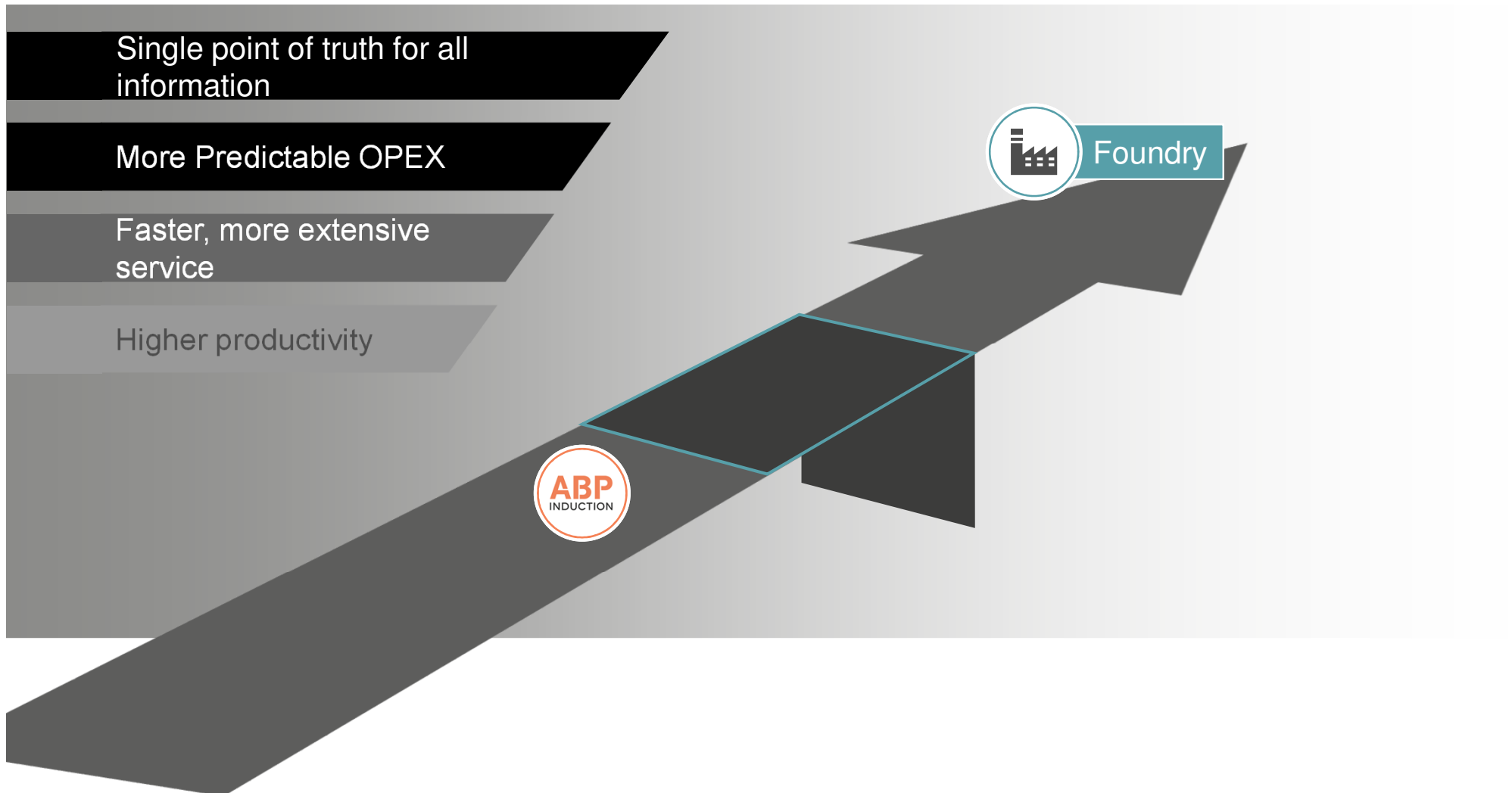
Foundries were confronted with many challenges ...



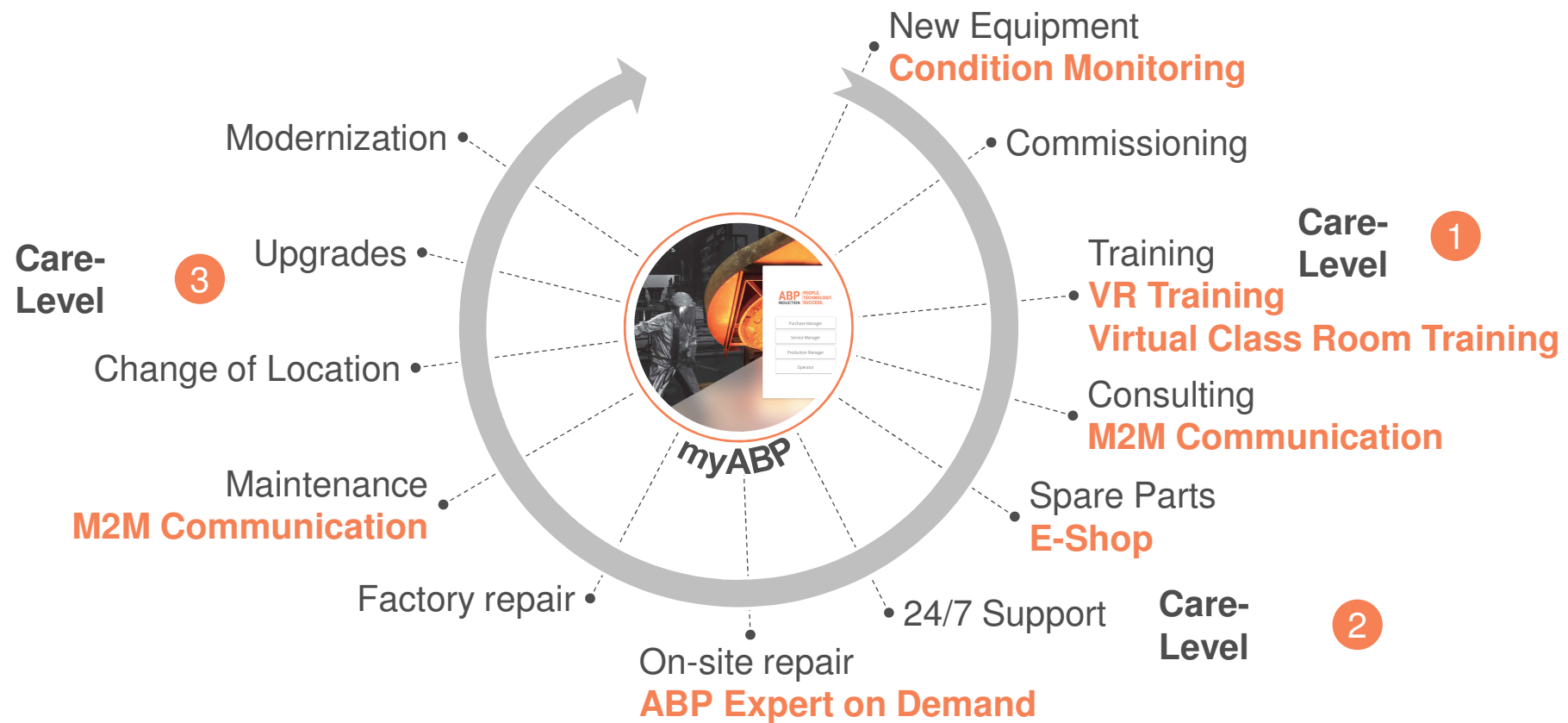
Overcome gap in support and service by hybrid IoT solutions

- Improve user's ability and maintenance level, driven by dedicated training programs and digital service tools
- Hybrid idea behind all solutions is to connect machines and processes with transparency by data connection
 - Real-time condition monitoring leads to an event triggered action plan for people in operation and maintenance
 - System compares operational figures with thresholds and is focused on deviations from the normal behavior
 - Training is brought directly to employees with new training modules based on virtual reality simulations
 - Artificial intelligence increases the predictive maintenance level for higher utilization of the production process

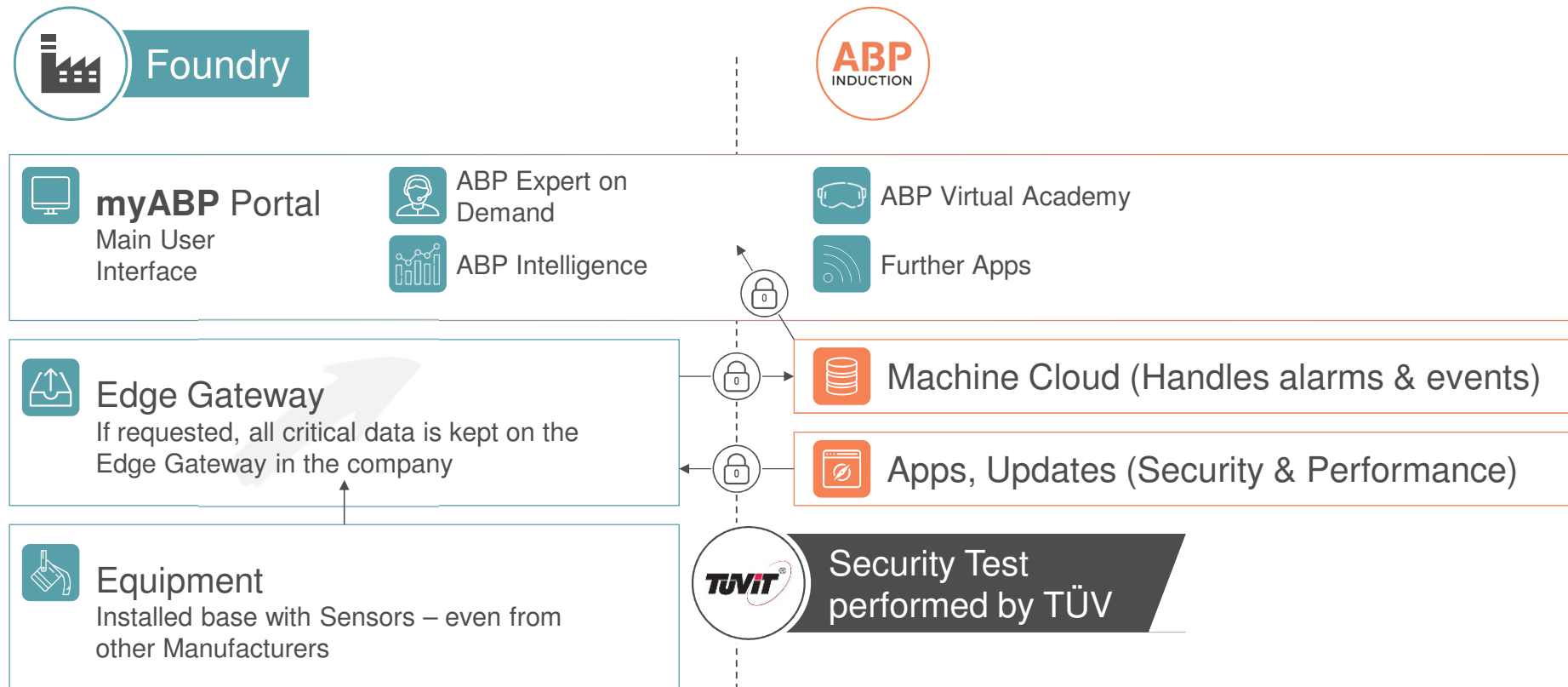
ABP tackles problems with hybrid IoT service products



Digital solutions make ABP service even better



Integration of Hybrid IoT service solutions



Customer portal myABP opens the doors to the digital services

1 Detailed ticket for the service manager is created automatically

2 Service manager can first investigate old incidents for trouble-shooting purposes

3 In addition, the service manager can contact ABP and arrange a prompt appointment with an Expert on Demand

Expert on Demand: Maintenance support



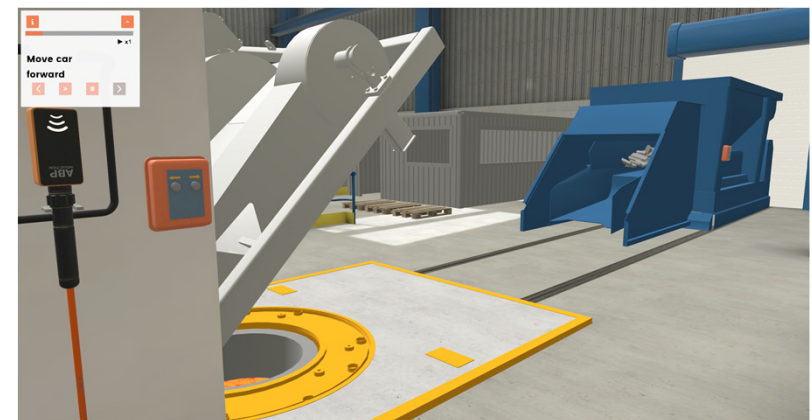
- ABP experts see what technicians on-site see
- Guiding the maintenance team
- Using data glasses, smartphones or tablets
- Full access by teleservice
- Rapid failure identification
- New options for documentation



ABP Virtual Academy



- Furnace systems and associated peripherals are simulated in a realistic environment as in a flight simulator
- Virtual training in process and safety procedures
- Operators and ABP's trainers can meet in virtual class rooms



ABP Intelligence



- Predictive maintenance concepts are the future for service and maintenance of machines
- Based on the analysis of real-time data proactive service and maintenance is possible and will prevent unexpected machine breakdowns
- The data analysis by artificial intelligence technologies is an interesting field of research and is part of the developments at ABP

Benefits of ABP hybrid IoT solutions

Increase of availability

Shortened downtimes

Increase of the First Time Fix Rate through documentation and access to past incidents

Better allocation of resources

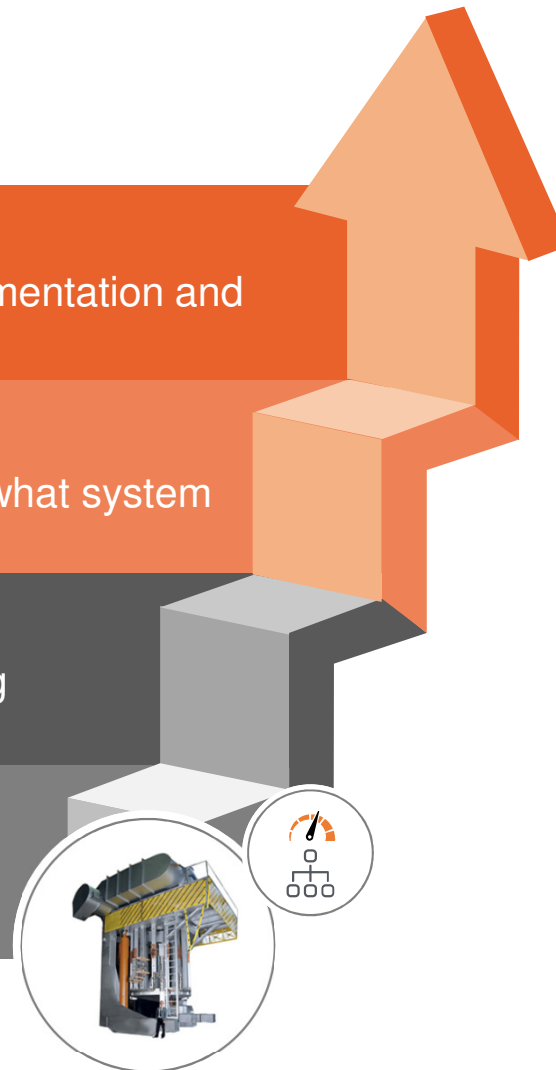
The maintenance team will have an overview of what system needs their attention

Reduce maintenance costs

Avoid breakdown of parts e.g. thyristor preventing avoidable replacements

Reduce Downtimes

The system advise you when to perform maintenance



ABP

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Thank you very much!

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