



BOSCH
Invented for life

Production Performance Manager

The Industry 4.0 software solution for systematic improvements to production.



The path to success in Industry 4.0 – continuous improvement



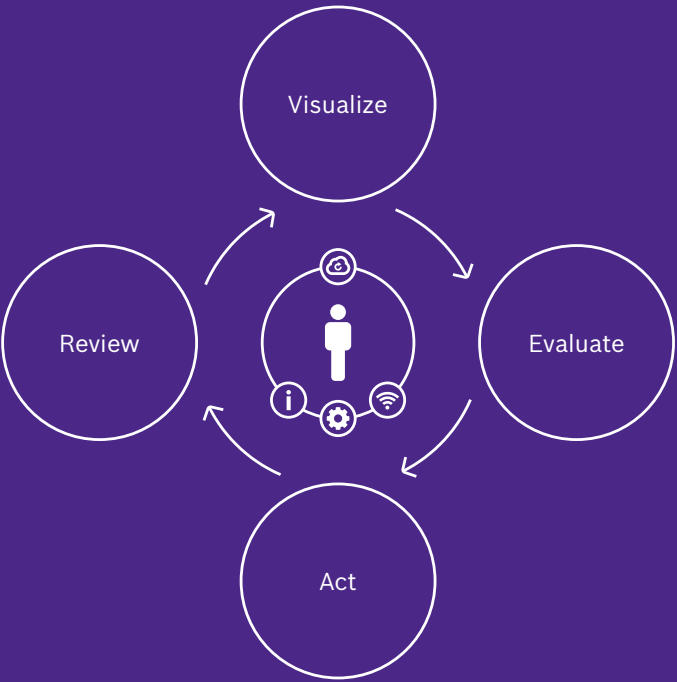
“We should all strive to improve on the status quo: none of us should ever be satisfied with what they have achieved, but should always endeavor to get better.”

Robert Bosch

Digital process for continuous improvement

Continuous improvement of production operations allows you to boost quality, cut costs, and increase output. All three aspects require needs-based action that doesn’t waste resources. They also call for an Industry 4.0 solution that perfectly fosters these principles.

The Production Performance Manager is based on a digitalized process of continuous improvement. This covers everything from visualization and evaluation of data to identification of necessary actions and review of historical data. We put users at the core of this process; our software solution is customized to their needs and precludes media disruption. Every process step corresponds to a software function.



Graphic: Production Performance Manager – digitalized process of continuous improvement

Intelligent use of production data

The Production Performance Manager is a production information and evaluation system that improves your production systematically. This ideal Industry 4.0 all-purpose tool provides a standardized IT basis for customized Industry 4.0 projects.

What’s more, the Production Performance Manager makes it possible to harmonize data from different sources across a production environment. It can then extract a custom information set and automatically apply manufacturing expertise. It provides this processed data to users immediately and in a targeted manner. Response times are faster, errors are avoided, tasks are assigned clearly, and long-term data retrieval is ensured.

The benefits at a glance:



Less machine downtime

You can reduce the downtime of your machines thanks to live evaluation of data in a central system and implementation of faster service processes.



Users are in control

People can use as many mobile devices as they want – regardless of location – and receive the data they need.



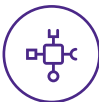
Flexible configuration

Users are free to configure the system to meet their individual daily needs.



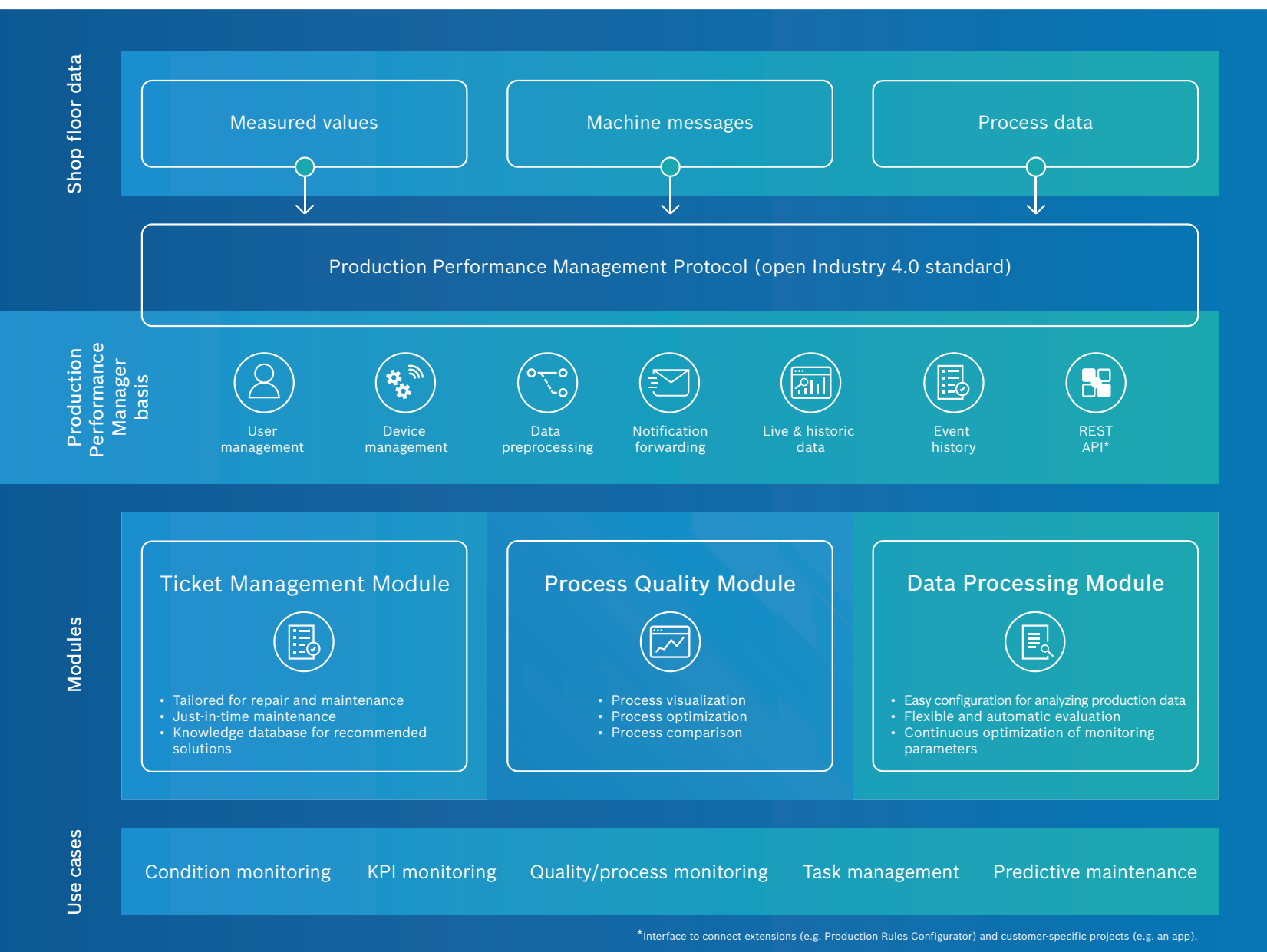
Virtual real-time model

All devices and machines as well as their data are portrayed as a virtual model in near real-time.



Provision of open standards

Open standards and interfaces such as the Production Performance Management Protocol make it possible to integrate machines and data sources more quickly than ever before.



1 Graphic: Production Performance Manager functionalities and use cases

An overview of the software solution

The Production Performance Manager consists of a modular and scalable system.

Selectable modules and add-ons supplement the software solution with specialized functionalities that are perfectly suited to your unique use cases and requirements.

The basis: administration and visualization of production data

Every improvement process is based on a sound data foundation. The first step is to make the data visible. Taking machine data from various sources across a production environment, the Production Performance Manager visualizes it at one central point. The measured values are depicted live in a time series and as machine feedback, and can be viewed anywhere in the factory on the employee's device (PC, tablet, smart-phone, etc.). In addition, the Production Performance Manager features all necessary functionalities for solution administration – from user and device management to the messaging service.

Overview of all events that occur on one machine (e.g. incidents and further information).

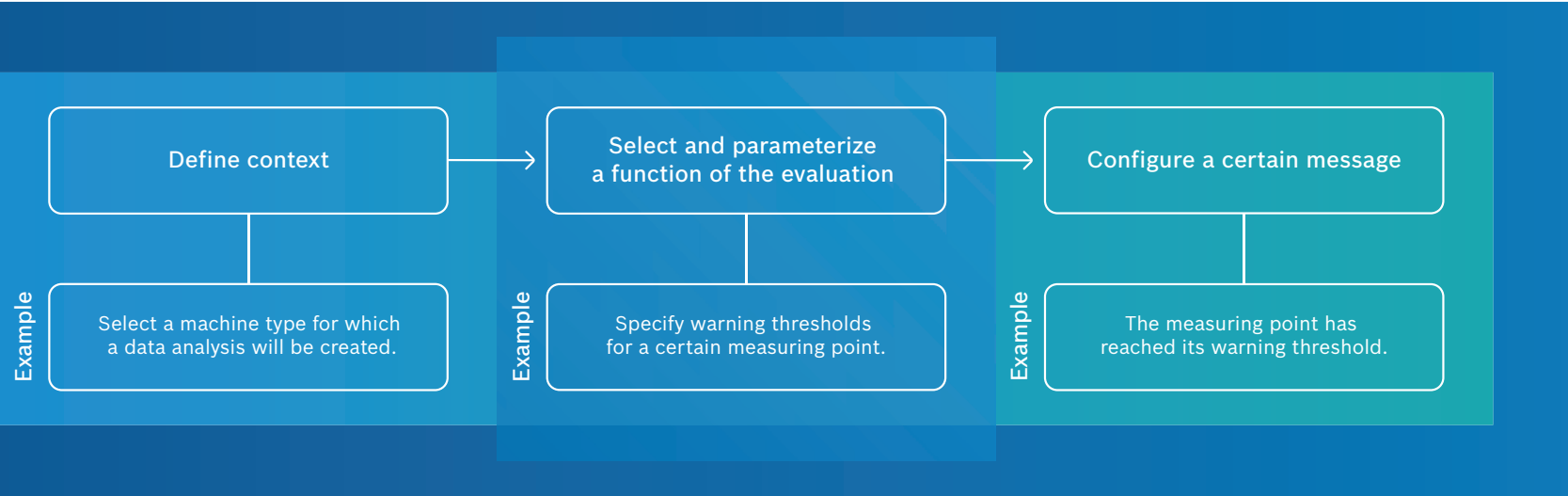
Overview of the status of all connected machines (operating conditions, number of incidents, number of tickets).

Work can be viewed in full-screen mode in order to keep precise track of certain values live.

Measured values from various sources can be visualized in one view.



Overview of basic functionalities in the Production Performance Manager.



1

Customized evaluation of production data with the Data Processing Module

The Data Processing Module is an easy-to-operate tool for customized evaluation of measured values and machine feedback. This software also monitors compliance with the parameters specified for production processes.

This module boasts a suite of implemented rules and functions, such as warning thresholds and trend analysis – allowing you to quickly and easily set and modify parameters. This then generates messages that can be configured. These messages can be visually evaluated and then forwarded immediately to the appropriate people. One such message would warn users that an electric motor in a machine will soon overheat.

Evaluate the right data

Technological progress in Industry 4.0 settings means that considerable amounts of data are being generated. It is therefore important that you can evaluate the truly important data. Your production workforce possesses

the requisite expertise. Our Data Processing Module allows you to pre-filter data while giving you an opportunity to very easily translate the expertise of your employees into rules and functions. This module also offers wide-ranging expansion possibilities regarding rule and function components so that you can tailor evaluation of your production data.



2

- 1 Graphic: Flexible monitoring of production data in just three steps
- 2 Flexible configuration of rules and functions in the Data Processing Module [Picture: Bosch]

Benefits of the Data Processing Module at a glance

- Fast and easy configuration for monitoring production parameters
- Automatic analysis of complex correlations
- Continuous optimization of monitoring parameters
- Customized creation of machine events without using the machine control system

Demand-oriented maintenance using the Ticket Management Module

Our Ticket Management Module optimizes your service processes regarding maintenance, allowing you to respond in a targeted and speedy manner to incidents such as a machine malfunction.

In the event of a malfunction, aggregated messages from machines are used to automatically issue tickets. All tickets are grouped in a summary and organized by status (open, in progress, resolved). Users can also filter tickets.

These tickets are then assigned to those employees who have the right qualifications and responsibility to deal with the affected machines. Every ticket not only delegates automatically, but also features escalation mechanisms.

Recommended solutions in the site's local language can be stored in the interest of ongoing expansion and updating of the knowledge database for maintenance and repair technicians. A log of service processes thus serves as a basis for continuous optimization, while long-term successes can be identified at a glance thanks to standardized reports.

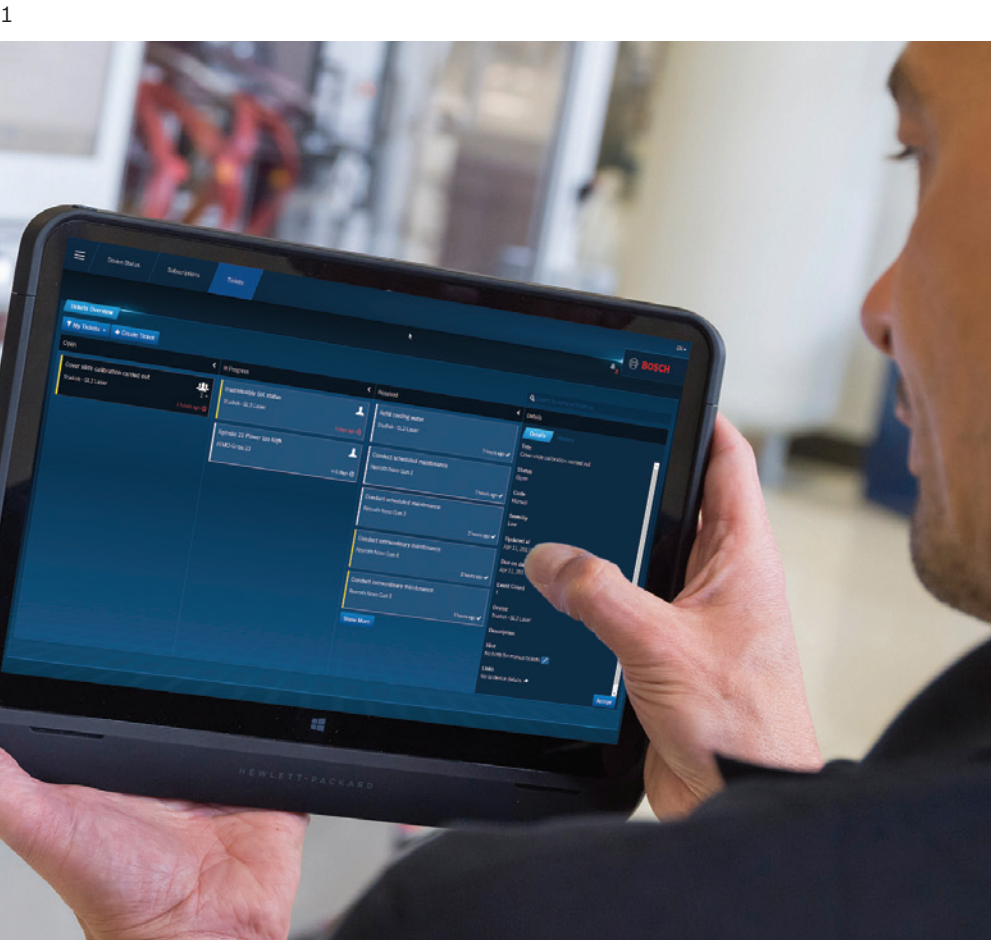
The benefits of the Ticket Management Module at a glance:

Tailored for repair and maintenance services

Demand-oriented maintenance thanks to the integrated delegation process

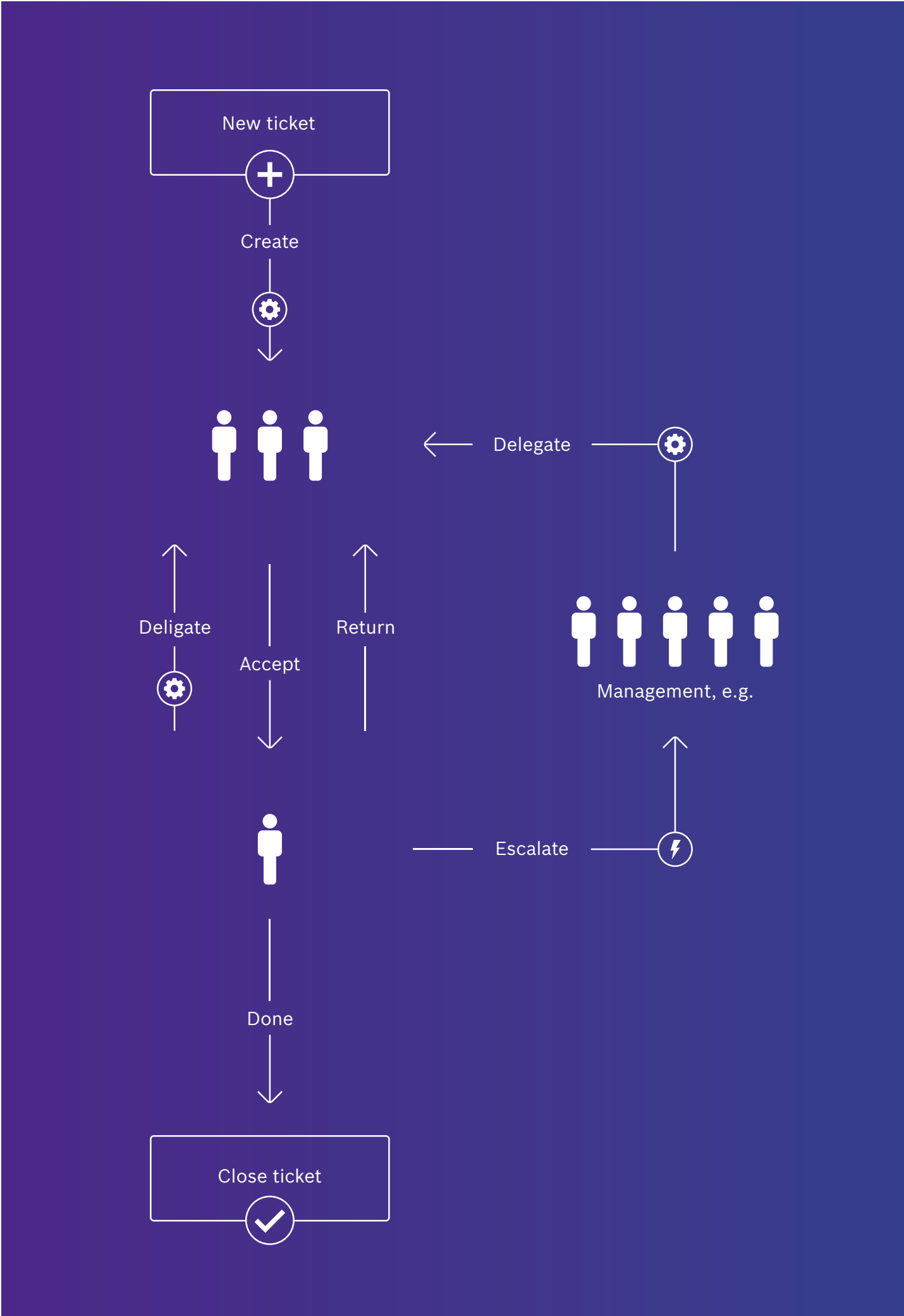
Knowledge database for repair and maintenance services

Recommended solutions in the site's local language can be stored



1 Demand-oriented maintenance using the Ticket Management Module [Picture: Bosch]

2 Graphic: Ticket Management Module – Ticket processing



Manage process data intelligently with the Process Quality Module

The Process Quality Module lets you monitor and document process data in real time, rendering production more transparent. Timely provision of process data helps you assure excellent quality to make production more profitable.

Using a cockpit, the Process Quality Module visualizes various measuring parameters and tolerances. This allows you to detect and resolve problems more quickly. Thanks to patented analysis functions, you can detect systematic errors and trends early on, and isolate the causes so that measures can be taken before a defective product is even made.

The Process Quality Module is especially well suited to quickly providing transparency of coating processes or joining processes, such as screw tightening, pressing, welding, riveting, and stamping.

Simple connectivity of processes through open interface

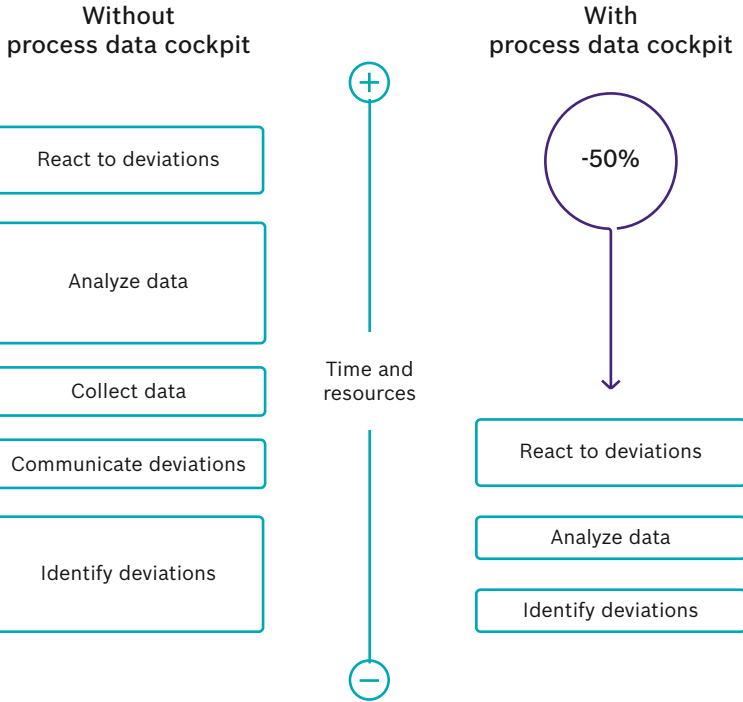
Products and software from different manufacturers can be connected in a single environment quickly and easily only if you rely on open interfaces. Use our Production Performance Management Protocol (PPMP) to quickly integrate systems, machines, and components. Process data that follows this protocol can be used directly in the Process Quality Module. This means you are not bound by manufacturer-specific interfaces and programs. On the contrary, you can use the software on different devices.

Realizing savings by using the Process Quality Module

Use of the Process Quality Module helps your specialists identify deviations more quickly and start analysis without delay.

You don't have to worry about reporting defects or gathering required data – the software will do it for you.

This results in a considerable reduction in response times throughout the entire process, from identifying a deviation to resolving it. Ideally, these faster response times should enable you to avoid defects altogether. With the Process Quality Module, you can continuously increase productivity, decrease your rework costs, and perhaps even accelerate production ramp-ups.



[Graphic] Realizing savings by using the Process Quality Module

Quickly recognize process changes early on

It is easy to compare processes per criteria such as parts, batches, stages, or certain intervals by means of several stacked process curves. Once you have identified the relevant process parameters, they can be monitored by rule components of the Production Performance Manager.

The benefits of the Process Quality Module at a glance

- Early detection of process risks
- More rapid response to process errors
- Continuous process transparency
- Process transparency across multiple devices



[Screenshot] You can select processes of different devices and overlay their respective process curves

Get in Touch



Seize the opportunities offered by Industry 4.0 and begin benefiting today from our software solution for systematically improving your production



Use our **Production Performance Starter Kit** to get your Industry 4.0 project off to a quick start



Contact us – we will gladly guide you on your journey towards implementation of Industry 4.0 projects and software

bosch-si.com/production-performance-manager



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