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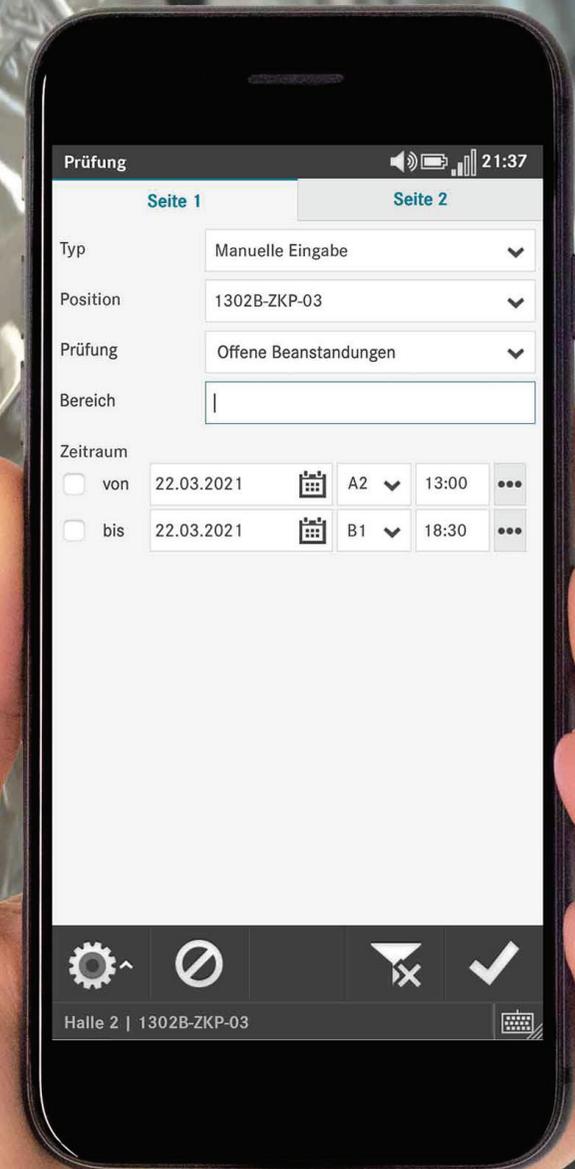
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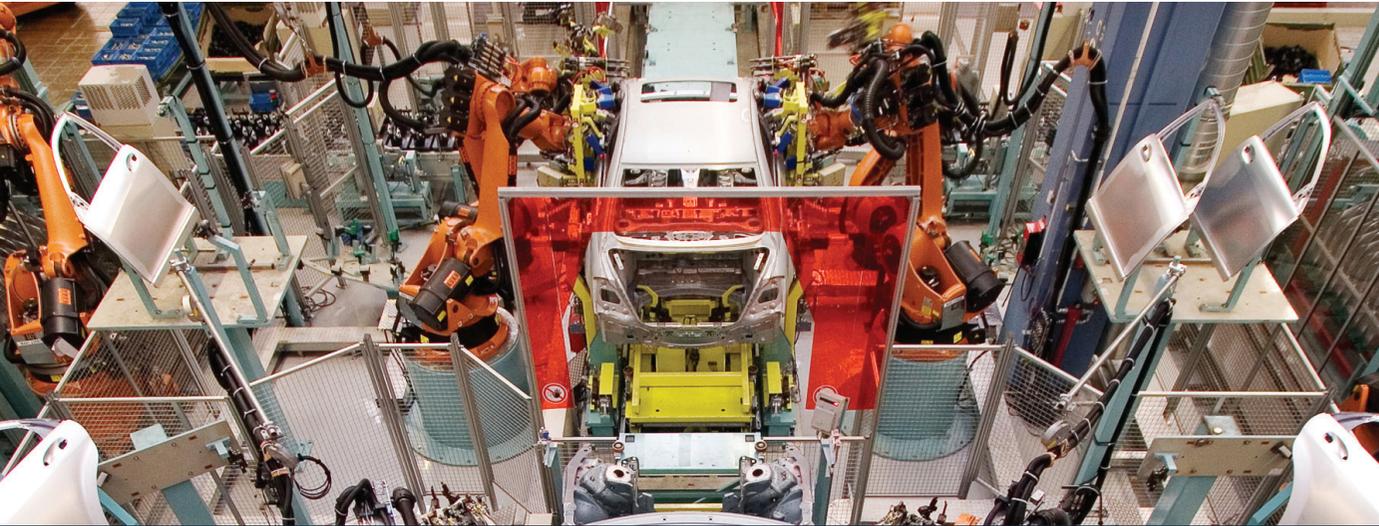
Rethink manufacturing.

PRODUCTbroschure

PLUS

The Smart Manufacturing Execution System
for Complex Automotive Production





The Key Benefits of PLUS

-  High availability solution to increase efficiency
-  Cost reduction by consolidating the manufacturing processes to one system
-  Fast time-to-market through easy integration of new product variants
-  Possibility of system expansion with individual cloud services
-  Reduction of maintenance and servicing costs through parameterization
-  Demand and event driven production control through real time processing
-  Continuous control of systems and visual worker guidance
-  Simplification of cross-company and global manufacturing scenarios
-  Near zero unplanned downtime with the powerful HPE NonStop

Status Quo in the Manufacturing Industry

The challenges in discrete manufacturing, especially in automotive production, are constantly increasing. The focus is on improving products with shorter innovation cycles at lower costs and higher quality. In order to meet these requirements, the potential for process and quality improvement, cost reduction and production exibility must be realized by effective production control. A high number of variants is usually accompanied by extensive growth in the existing system landscape, which leads to a rapid increase in the scope of costs. To meet the challenges of the market, manufacturers in the automotive industry are confronted with integrating a constantly growing number of different system solutions.

PLUS – a Powerful Solution for Production Control

With our Manufacturing Execution System (MES) PLUS, we offer you a product for the universal control of your manufacturing processes and support you in realizing this potential, while reducing your manufacturing complexity. Instead of operating and maintaining countless systems within your production, PLUS allows you to consolidate your global manufacturing landscape across production plants to just one system. Our MES optimizes order control and thus forms the core of the customer order process.

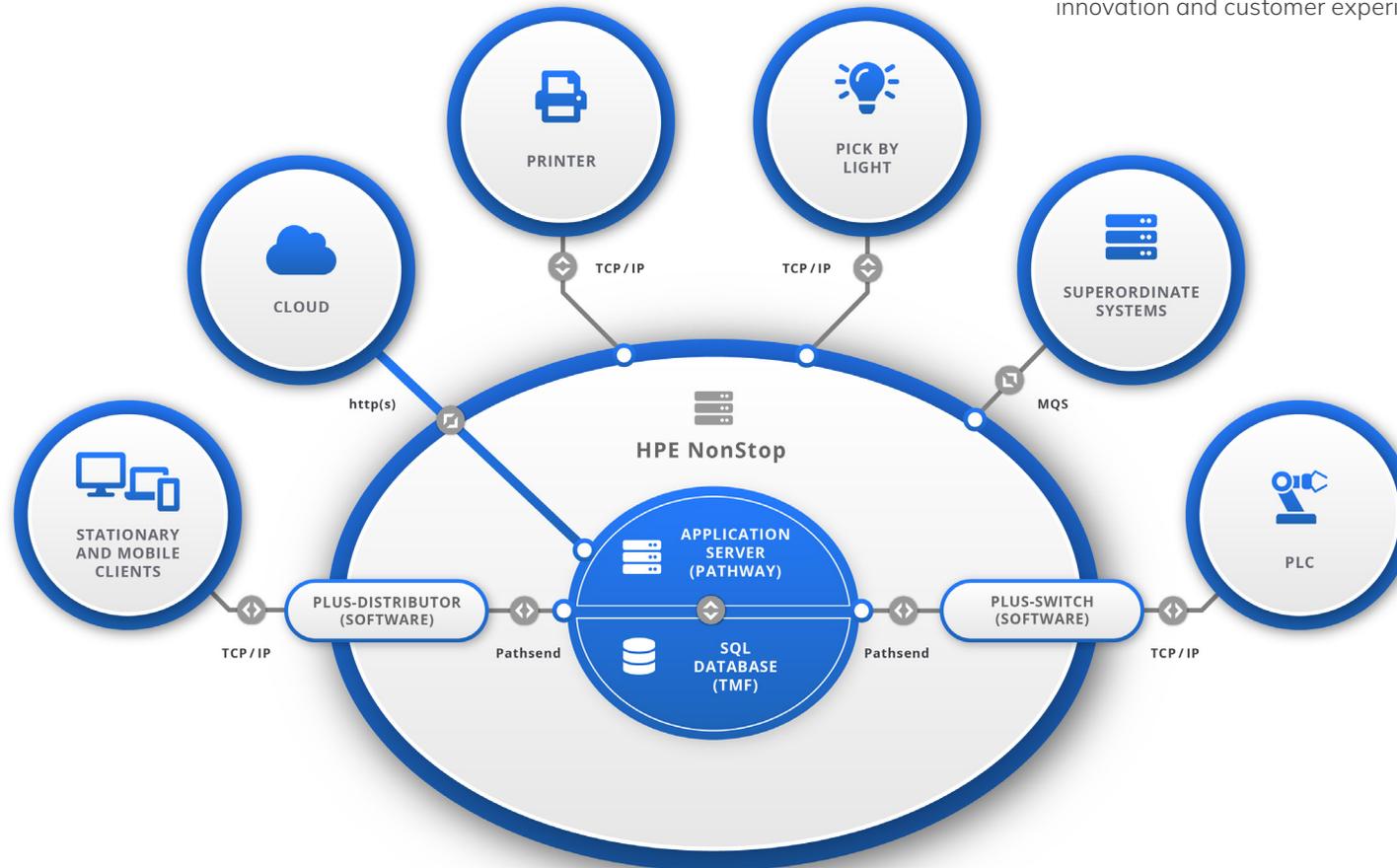
The modular design of our system enables a flexible usage of PLUS, as it can be adapted to different production scenarios. Both the modules themselves and PLUS as a whole are based on a service-oriented architecture (SOA), which enables the mapping of interrelated business processes from numerous individual services.

This architecture ensures maximum flexibility and rapid implementation. The services can be addressed either directly in the backend or as microservices in the cloud. It is possible to use pre-existing modules in the system for business processes that are to be newly

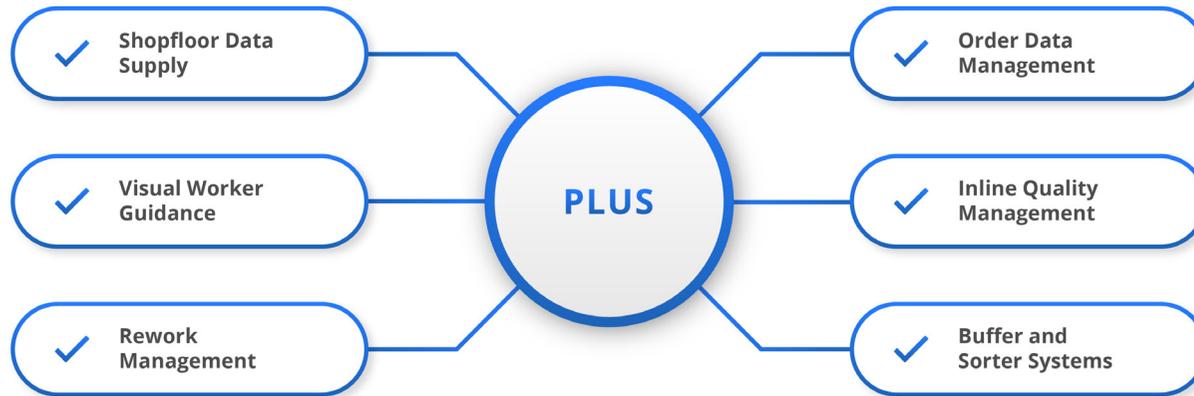
implemented or optimized. This guarantees simple and fast process adaptation - even across production sites. The possibility of simple system parameterization and our standardization also allows you to significantly reduce the costs of maintaining and servicing our system compared to costly in-house development. Thus, with our smart MES PLUS you can react quickly and cost-effectively to changes in your manufacturing processes, implement them in production without downtime, and achieve a decisive competitive advantage.

High Availability & Fail-Safe Manufacturing System with the HPE NonStop

To meet the high demands for fail-safe and high availability in production-critical areas, the HPE NonStop forms a powerful basis for our software solution in the automotive sector. NonStop is always adapting, such as hardware-independent Virtualized NonStop in a VMware environment, and offers rich tools for DevOps, standardized development environments and modern, open tools support for easy programming and integration. PLUS on HPE NonStop helps keeping your manufacturing environment at the forefront of innovation and customer experience.



Our Key Features at a Glance



Out-of-the-box Shopfloor Data Supply

PLUS provides its own communication model for direct connection with your shopfloor. This ensures communication with the connected systems and routing within the application. The flexible order and process database for all production relevant data, as well as the extensive functions for controlling all production processes by means of an integrated body and material flow control system, enable production to be organized more efficiently. PLUS was designed to completely take over the whole plant control directly in high frequency and quantity. Together with the control of sorters within and between the trades, it thus offers comprehensive possibilities for optimizing the sequence and stabilizing production.

Full Visual Work Instructions

PLUS enables the user to generate modern, workstation- and product-specific visualizations through a variety of widgets for industrial touchscreens and handhelds. This allows product related instructions to be made accessible at the work step level at every single point of the production process. In addition, our visual worker guidance provides a comprehensive data overview of individual orders and vehicles for both stationary and mobile devices. This supports your employees in planning their upcoming work steps and enables them to react flexibly to changes within the work flow during production. Our system helps you to increase process stability and create a modern working environment for users.

Rework Management

PLUS offers a fully integrated way to manage rework vehicles. This includes an overview of the vehicles with corresponding rework reasons as well as an automated configurable prioritization. This ensures that the most important vehicle is reworked without the need for manual lists or arrangements. The configuration can be flexibly parameterized based on different conditions such as upcoming delivery dates. If the automated rules cannot cover every case, manual prioritization is also possible.

The role-specific views are optimized for desktop or mobile devices, depending on the use case. There are, for example, dashboard views as well as assembly line views to better plan upcoming vehicle destinations. PLUS is always aware of the status of all vehicles by means of a confirmation, which can be carried out by scanning barcodes.

With an existing integration to a logistics and warehousing system, PLUS can use part-availability information to sequence rework vehicles and optimize the use of rework areas. This guarantees efficient rework management without wasting valuable work and storage space.

Order Data Management

PLUS seamlessly manages all order and process data and uses this as a basis for controlling suppliers, the body and material flow as well as buffering. Therefore, PLUS will help you to control the entire

order logistics from production to shipping. Our central order management enables the sales department to make precise statements about the delivery date of a vehicle at any time, thus ensuring transparent traceability. Similar to parcel tracking at a shipping service provider, you are able to tell at any time where the vehicle is within the manufacturing process.

Inline Quality Management

Our inline quality management system records all defects on a sustained basis and controls their reprocessing. This helps to document all safety-relevant scopes and enables further analyses. Thanks to PLUS, the actual state in production can be recorded at any time in order to react both promptly and in a targeted manner. Based on the recorded data, you can easily create error statistics that support your quality management in recognizing common sources of error and derive suitable measures.

Control of Sorter and Buffer Systems

PLUS offers its own module for controlling sorter and buffer systems, taking over core tasks such as storage, scheduling and retrieval. Various configuration options are available which can be selected to suit the different conditions at the production sites.



Foto: ©Daimler AG

Let's Walk the Path of Digitization Together!

Get to know our solution for discrete variant production for the automotive sector now and arrange a non-binding consultation with us. Either send an email to contact@abatplus.de or contact us per phone under +49 6894 388 08 -00.

Our experts will be happy to conduct a digitization check and to identify starting points for the further digital transformation of your production. Contact us now!



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ABOUT US

abat

The abat Group, founded in 1998, is an SAP service provider, innovative software developer and provider of complete solutions for software-supported

process optimization - primarily for the core industries of automotive and discrete manufacturing as well as in logistics processes and production control.

At its Bremen site, the company provides consulting services in all phases of IT service management - starting with the alignment of IT with business processes and in-house developments through to the implementation and maintenance of standard solutions. abat in St. Ingbert, Saarland, is an expert in digital high availability solutions for production control in the complex manufacturing industry. In addition, the abat Group's portfolio includes app development, cloud services, information security, artificial intelligence, sustainability, PLM, and xReality.

More than 800 employees in Bremen, Munich, Oldenburg, St. Ingbert, Walldorf, Wolfsburg as well as in Minsk (Belarus), Vilnius (Lithuania), Puebla (Mexico), Atlanta, GA (USA) and Beijing (China) generated sales of approximately 80 million euros in 2021. The abat Group's customers include Audi, BMW, Boehringer Ingelheim, Bosch, Brose, DHL, Ineos, MAN, Mercedes-Benz, nobilia, Porsche, Tchibo, thyssenkrupp, and Volkswagen.

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