



"MES meets ERP" - production and monitoring with SAP ERP and MES CAT

T.CON's MES (Manufacturing Execution System) CAT is a modern manufacturing operations management program, which is both easy to understand for employees, and optimized to their daily work and responsibilities.

Each step of the value-added process is recorded with the corresponding production data in MES. This makes sure that produced items can be clearly identified. The configuration of the data acquisition dialog windows and user guidance are adapted to the special requirements of the production environment.

The user is supported by specific and precise information, automated data acquisition and plausibility checks. Completion confirmations such as quantity and time can be checked at each workstation. Reporting and analysis is done faster and more precise.

Together with data of finished products and the corresponding quality control records transparent processes and traceability are built. The quality of produced items can be checked and evaluated immediately; production supervisor is informed in real-time and can take actions.

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KEY BENEFITS

- Fast order processing
- Less setup time and downtime
- Higher capacity and output
- Fewer delivery delays
- No deliveries of defective goods
- Complete and proper product documentation

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SAP® Certified
Powered by SAP NetWeaver®

The MES CAT makes your production processes more transparent and easier to handle. It provides you with a number of functions of controlling with the main focus on relevant data and KPIs for detailed analysis.

THE MODULAR ARCHITECTURE OF MES CAT PROVIDES FLEXIBILITY

EXECUTION

MES CAT is the main IT application for production. Guided by SAP ERP it is an IT map of the information flow in the business processes of manufacturing. The data collected indicates the progress of production orders and is the base for managerial and economic assessment of production processes. For employees working in production, MES replaces out-dated manual keeping of shift and machine logs. MES CAT makes production processes transparent and provides a focused view on all data relevant for production. The integration into Supply Chain Management (SCM) and Enterprise Resource Planning systems (ERP) is one of the most important tasks and simplifies this. With the Cross Application Tool (CAT) users get a consistent and complete MES solution that crosses the aspects of material, workcenters, personnel, quality and maintenance. Any production step is recorded with all necessary data: creating, finishing and coating surfaces, laminating, longitudinal and cross cutting, punching, perforating, milling, winding, wrapping, stacking, moving, packaging, weighing and many more. All data is available from the very beginning to the finished product. The program is very suitable for products with many variants. MES CAT is based on SAP NetWeaver, developed in Service Oriented Architecture (SOA), and therefore can be integrated without any problems into a SAP IT environment.

WAREHOUSE

Every finished item is registered with a code and then temporarily stocked in the bin already planned during production process. A suitable transport order for the warehouse management system is created. For new orders, material reservation and staging and the corresponding transport orders are prepared. MES CAT is the source of transport orders and initiates these in the background whenever an employee enters a posting. The separate step of "creating transport order" manually is not necessary and saves time. Information in MES and warehouse management visualizes to the users immediately, if the current material stock situation allows production of orders. Employees decide if machines can be started or not, if the unit needs to be interrupted due to a lack of material or if the order will be delayed with a new schedule generally. The integration in your existing SAP WM or EWM (Extended Warehouse Management) is possible at any time trouble-free.

QUALITY

A test batch can go along with the "normal" production order in your SAP ERP system. This test batch includes specifications to be followed during this run. The actual values of information on quality are recorded in MES CAT or are available from other external systems (e.g. laboratory systems). If the required and specified quality criteria failed, MES CAT can automatically stop and suspend the production run or single items.

MAINTENANCE

If production and quality data are connected with maintenance measures, information on machine and tool service life and planned non-operation of machines can be gathered and analysed. The run-time intervals of wearing parts such as felts can be controlled and monitored so that downtimes for replacement can be scheduled. Maintenance can prevent unplanned downtimes and corresponding costs of production downtimes can be reduced. The maintenance staff's working hours are recorded. Additionally, it is possible to log materials taken for an order. The inventory management of replacement parts, which can be booked on maintenance orders, offers additional benefits in terms of cost savings. Transparent processes and detailed information on available replacement parts can reduce the working capital.

With mobile maintenance, MES CAT helps saving precious time. Inspections and maintenance orders are recorded directly at the point of inspection/maintenance. The identification of these points is supported by RFID technology. Log entries are made automatically in the SAP system.

CONNECT

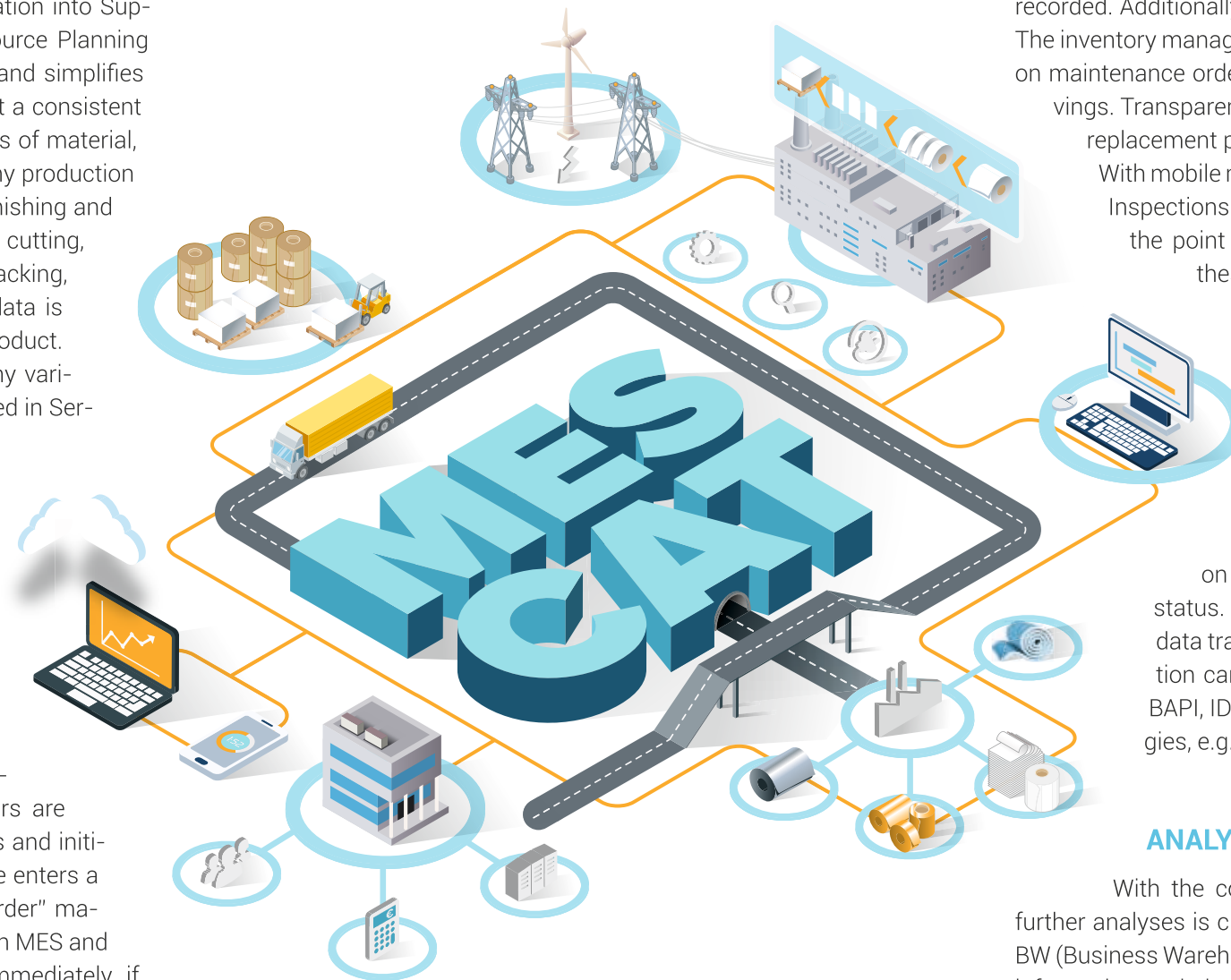
Machine control systems, measuring and regulating systems provide communication modules. They immediately deliver information on the current production situation or the machine status. Process-controlled workflows help integrate these data transfer into production data recording. The connection can be made via OPC, OPC-DA, XI, MI, RFC, AutoID, BAPI, IDOC or SAP PCo and more protocols and technologies, e.g. via web services.

ANALYTICS

With the confirmations in MES CAT, an ideal database for further analyses is created. The central tool in the SAP system is SAP BW (Business Warehouse). Navigable shift logs and other management information cockpits, production performance monitoring, statistics on waste and its causes and visualized. Bottlenecks during the production processes get transparent and a clear view on the current situation is presented. Energy consumption and other process parameters can be included and make reporting and controlling more detailed and precise. The web-based interface makes it easy and comfortable for users to work with MES CAT. MS Excel is integrated and provides quick and individual analysis.

FEATURES

- Especially for companies producing items with many variants
- Available on all work centers in the production process
- Integrates warehouse management
- Indicates problems with input material
- Suspends goods or WIP based on quality status
- Associates errors and waste to the place of origin
- Customers' material descriptions can be included and listed
- Transparent incoming goods functions for SAP ERP
- All logs from incoming goods to production order are made adjusted
- Collects and identifies incoming external material for further processing
- Simplifies incoming goods processing by using mobile terminals
- Inventory is automatically updated online (incoming goods & consumption)



This process enables an immediate response; the quantity needed can be achieved by producing more items or reworking the existing goods. Additional production steps such as re-reeling are recorded separately for the individual cost unit. Defective items are of course also recorded on a cost unit so that it can be analyzed for all production orders. Product costing identifies costs that result from keeping quality compliance rules but with additional rework of every item. Quality data is mandatory in order to make up trends. Problems can be detected very early and material shortage in production can be avoided.

KEY BENEFITS

- Transparent stock situation
- Automated data entry by data connections to machines
- Quality in focus, keep on specification
- Better availability by preventive maintenance
- Analytical viewpoint based on KPIs
- Comfortable UI

PLANNING

The production control center in MES CAT completes production planning in your ERP system with all control functions. It enables sequential planning of each resource and provides potential for optimization. Detailed planning is possible with the actual availability of resources. Normal production processes but also interruptions or malfunctions can be handled more efficiently, more flexible and quicker. Resources and their actual allocation are indicated in the form of system groups, machines and workstations and are structured as the real production place is physically. Available capacity is classified; the demand for capacity is set into relation with it. The sequences of orders, efficiency and use of machines and compliance with deadlines can be planned, traced and tracked on a time line. Changes can be made quickly in terms of capacity and incoming orders.

REAL-TIME SERVICES

T.CON's modular MES solution highly meets the requirements of a modern production places. REALTIME SERVICES with MES CAT CONNECT and MES CAT ANALYTICS can be implemented if needed; you will immediately benefit from the perfect combination of all IT levels. Energy management in MES CAT is applied precisely where decisions need to be made in terms of profitability. SAP HANA can be applied for handling mass data for monitoring, alerts and real-time visualization for process data.

MOBILE

Warehouse management, maintenance and data analysis can be checked whenever and wherever you are: in pro-

duction hall, during meetings, on business trips etc.

Apps for tablet PCs and smartphones bring together data acquisition and MES functions for planning, assessment and information purposes and make them available for mobile access. The components of MES CAT MOBILE are integrated into T.CON's MES Suite. All information of production and information related to production are available for all departments involved in production processes. All functions from MES CAT MOBILE are available as mobile apps for Android and IOS as well as browser-based web application.

TREND

There is a clear trend for MES (Manufacturing Execution System). The integration into an ERP (Enterprise Resource Planning) is getting more and more important. It seems that ERP and MES increasingly merge; to separate and distinguish these two systems is getting more and more difficult. Many functions used in a MES solution (e.g. inventory management or quality management) are already available in several ERP systems.

MES CAT was developed based on this fact and the opportunity provided by the SOA (Service Oriented Architecture). Many functions offered by SAP as additional service, are available in MES CAT in form of user-friendly input masks. Therefore, MES CAT is a complete MES based on SAP NetWeaver using reliable and approved functions from the SAP ERP together with functions required by every single industry. What the customer gets is an MES fully integrated in the SAP ERP system with a front end especially focused on the users' requirements.

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