

# INTEGRATED SAP ENVIRONMENT FOR INDUSTRY 4.0 AT KOEHLER PAPER GROUP



SAP ERP, SAP APO and MES CAT: Digital networking establishes the foundation for Industry 4.0 at Koehler Paper Group

With an integrated SAP environment comprising SAP ERP, SAP APO and T.CON's SAP-based MES CAT suite, the Koehler Paper Group now has the ideal setup for digitally networked, transparent processes – which means: better efficiency and productivity. At the same time, the specialized paper manufacturer has established a foundation for Industry 4.0 scenarios. The first pilot projects have been highly successful.

Price labels and register receipts at the supermarket, your gas station receipt, restaurant bill, drivers license, the entrance

ticket to a show, a parking lot ticket: Even in today's digital world, it's just not possible to imagine many areas of daily life without thermal paper ... and in the majority of cases, that paper comes from the Koehler Paper Group, based in Oberkirch in the German state of Baden-Württemberg. The company has established itself worldwide as the leading supplier in this dynamic market. However, thermal paper is not the only string to independent paper manufacturer Koehler's bow: The range of products offered by the company also includes office paper, carbon paper, and card for playing cards and beer mats.

Paper manufacturer Koehler can look back over 210 years of company history. Today, it is one of the few independent family-run German businesses in the industry. It has a turnover of more than 800 million euros. Around 1800 employees work at the headquarters in Oberkirch and the Kehl, Greiz and Weisenbach factories, where they use state-of-the-art technology to produce over 500,000 tons of specialized paper and cardboard for the global market every year. (Source: [www.koehlerpaper.com](http://www.koehlerpaper.com))



**Koehler**  
PAPER GROUP

## WHAT SEAMLESS INTEGRATION OF MES CAT INTO SAP ERP MEANS FOR KOEHLER:

Shop floor data and processes vertically integrated with commercial procedures

Real-time information exchange

Shorter lead times

Lower storage costs

Unified reporting

## INTEGRATED SAP ENVIRONMENT FOR INDUSTRY 4.0

Koehler distributes more than 500,000 tons of paper every year. In 2017, with around 1800 employees in four German factories (Oberkirch, Kehl, Greiz and Weisenbach) this generated a turnover of around 800 million euros for the internationally active paper manufacturer. In order to stake the company's claim as a market leader, and ensure continued growth, the management has been making all kinds of adjustments. A new business area for paper-based packaging solutions will open up the „flexible packaging“ market.



„In a dynamic market environment like ours, digitally networked and Industry-4.0 capable processes that improve our efficiency, flexibility and transparency represent a competitive factor and therefore form a cornerstone of our IT strategy“, explains Jörg Behnisch, head of the IT and Organization department at Koehler Paper Group. The paper specialists have built the foundations for their IT strategy, establishing an integrated, modern IT environment with SAP ERP at its core. Sales and stock planning, including automatic appointment scheduling at ordering time, are achieved through the SAP Advanced Planning & Optimization application (SAP APO).

## MES CAT PROVIDES A CLEAR VIEW OF PRODUCTION

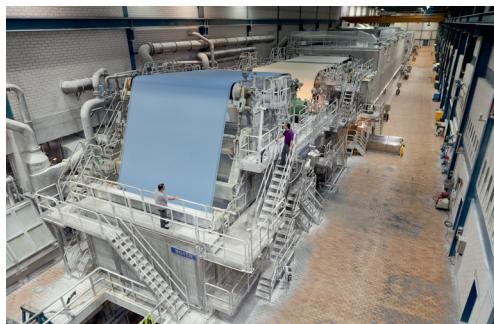
A clear view of what is currently happening in Production, including rapid confirmation of completed manufacturing orders, was another critical factor for paper manufacturer August Koehler. This view is provided by the Manufacturing Execution System from Plattling company T.CON: the MES CAT suite. The software is based entirely on SAP NetWeaver technology and can be integrated seamlessly into any version of the current SAP environment.

The choice for MES CAT was based on two factors: first, the numerous industry processes provided by the suite in the form of Best Practices, and second, the consulting and process competences in the paper industry that the T.CON consultants are able to offer. The suite has a simple interface and thus an easy learning curve. As a result, it has a high-level of end-user acceptance.

Yet another decisive factor for Jörg Behnisch was the fact that he had already had positive experiences both with the Manufacturing Execution System and with T.CON as an implementation partner. It was the same this time: The great partnership and strong commitment from all participants – internal IT, departments, T.CON consultants – enabled rapid implementation, and production start took place on the agreed date.

## SHOP FLOOR AND TOP FLOOR SEAMLESSLY LINKED

The advantages of a homogeneous SAP environment are already making themselves clear: The seamless integration of MES CAT in SAP ERP means that shop floor data and processes can be vertically integrated with commercial procedures, and real-time information exchange is possible. „This creates the necessary transparency for shortening lead times from order receipt to delivery to the customer, which reduces storage costs. At the same time, it makes it possible for us to create a uniform, timely reporting system“, explains Jörg Behnisch.



What's more, it is no longer necessary to retain redundant data – which means a whole range of disadvantages disappear at once, along with the expense of building and maintaining interfaces for information exchange. Put this together with the ability to adapt MES CAT to individual process requirements and use

internal SAP expertise to develop it further, and the positive effects on the IT costs are clear.

## MANAGING CUTTING SCHEDULES AND RE-TRIM IN SAP

The consolidated IT environment, comprising SAP ERP, SAP APO and MES CAT, forms a solid foundation for Koehler to standardize its operational procedures across all its sites and business partners, and for its continual improvement and development process – for example, in the thermal paper business area. Optimization and cost-reduction potentials at paper cutting time were also identified in the production program for the web presses. These related to shortfalls, setup time and inventory.

With the MES CAT suite, seamlessly integrated into the SAP APO component for production planning and detailed scheduling (PP/DS), these factors can now be more fully leveraged – for example, by changing the original cutting schedule during ongoing production. Via MES CAT, the worker can initialize creation of a new paper roll cutting program with the press of a button, directly within the manufacturing process. This is called a „re-trim“. It is called directly from MES CAT and the results are transferred straight to the worklist



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**Mr Jörg Behnisch**

Head of the IT and organisation department, Koehler Paper Group

for the winder. It automatically takes into account any requirements that are still open, and the inventory produced so far. The result: orders can now be processed considerably more efficiently than was previously the case.

## PREDICTIVE QUALITY MANAGEMENT

By unifying the IT environment at August Koehler, the paper factory has fulfilled the prerequisites for production optimization in the sense of Industry 4.0 – buzzwords Big Data, Smart Factory. Pilot projects have been carried out for predictive quality management, linking MES CAT with a SAP-HANA database and SAP functions for predictive analytics. These proved highly successful.

It is now possible to respond immediately when a problem arises, which has entirely positive effects on the paper quality, while reducing waste and the costs of expensive reworking – two priceless advantages. But

these are merely the beginning. Predictive models can also be used to forecast paper breakages during ongoing production, or predict the future quality of the paper currently being manufactured.

## CONSISTENT PROGRESS TOWARDS INDUSTRY 4.0

„With the integrated IT environment comprising SAP software and solutions from T.CON, we are not just forming the basis for better efficiency in our processes, but also creating a foundation for digital Industry 4.0 scenarios. We will continue steadily along this route“, states Jörg Behnisch. For example, the warehouse management software SAP EWM is to be introduced in the near future, and a transition to the new ERP suite SAP S/4 HANA has also been scheduled.

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