



BMW MOTOREN GMBH

STANDARD SAP® SOFTWARE ENABLES CONTROL OF AUTOMATED HIGH-RACK STORAGE

QUICK FACTS

“We’ve replaced our old range of systems for warehouse and material flow control with a single solution based on SAP software. We’ve noticeably reduced maintenance and investment costs and can easily integrate warehouse control in the existing SAP software.”

Helmut Fischer, Project Manager, BMW AG Plant in Dingolfing, Germany

Company

- Name: BMW Motoren GmbH
- Location: Steyr, Austria
- Industry: Automotive – suppliers
- Products and services: Diesel and gasoline engines and diesel-related R & D for the entire BMW group
- Revenue: €3 billion (2007)
- Employees: 2,700 (2007)
- Web site: www.bmw-plant-steyr.com
- Implementation partner: LogiPlus Consulting GmbH

Challenges and Opportunities

- Modernize IT infrastructure for future security
- Reduce cost of warehouse and material flow operations

Objectives

- Control a fully automated high-rack storage area using SAP® software in combination with programmable logic controllers (PLCs) to control the conveyor technique and flow rack operations without additional middleware
- Better integrate storage control in the overall IT infrastructure

SAP Solutions and Services

- SAP Supply Chain Management application
- SAP functionality for task and resource management

Implementation Highlights

- Short project duration
- Cross-location expertise pooled in project team
- Reduction in number of interfaces as a result of a direct connection to the PLC-controlled conveyor technique and flow rack operations
- Mapping of all logistics processes in the standard version of the SAP solution

Why SAP

- Company-wide strategic commitment to SAP software
- Advantages of integrated software

Benefits

- Increased cost-effectiveness via standardization
- Need for fewer forklift trucks
- Stabilization of operations
- Additional subsystems no longer required in the platform
- Reduced maintenance costs for software and hardware
- More efficient use of resources as a result of automation

Existing Environment

Entire IT support based on SAP solutions as a strategic application platform at BMW



In an ongoing effort to reduce costs in its warehouse and material flow operations, BMW Motoren GmbH set out to achieve improved cost-effectiveness by modernizing its IT infrastructure with software and hardware that would offer future security. The company looked to its long-standing IT solutions partner SAP for support. BMW's plant in Steyr, Austria, now uses SAP® software to control a fully automated high-rack storage area in conjunction with programmable logic controllers (PLCs). The PLCs regulate the conveyor technique and flow rack operations.

Completely Automated High-Rack Storage

Thanks to the state-of-the-art technology that controls the new high-rack storage area in the variable-size items warehouse, this is now a completely automated process. All the components delivered to the goods receipt area in the warehouse are transferred to conveyors using the sophisticated conveyor technique. The automatic conveyors quickly and methodically select the correct high racks and transport the palettes to the required location. Similarly, everything is released from stock automatically and on an on-demand basis. The conveyor technique delivers the components that have been requested by production to three issuing stations.

Pilot Project for the BMW Group

With a few exceptions, the fully automated warehouse and material flow control system requires little, if any, interaction by employees. Management can now deploy personnel who previously worked in the warehouse in areas where

robots and machines cannot compete with the human mind. This redeployment helps reduce costs, which was the ultimate objective of the pilot project launched in spring 2006.

A Diverse Implementation Team

"This project was mainly about improving cost-effectiveness," explains Peter Havelka, SAP process expert at BMW Motoren in Steyr and a member of the cross-location team set up by the automotive giant. The team's job was to assess whether a system based on SAP software could be implemented to control the high-rack storage area for the new production hall in Steyr and then to test its viability for other BMW plants.

Project manager Helmut Fischer from the BMW AG plant in Dingolfing, Germany, believes BMW's reasons for considering this option were twofold. First, standard software offers greater security for the future. Second, the group wanted to modernize its hardware and software components that had reached the end of maintenance.

Running Like Clockwork

Could the SAP standard software meet these requirements? SAP was an inevitable contender since BMW has already based almost all of its IT application landscape on the German company's software. "Even though some people were skeptical about the suitability of the SAP solution for this specialized area, it worked," says Havelka. Since the solution went live in February 2007, the numerous control processes in the fully automated high-rack storage area are working well. "The control of our new high-rack storage area using SAP software and PLC technology is operated in three shifts and is very stable – it is as regular and reliable as clockwork," Havelka explains. This success is based on a concept that BMW developed and implemented together with external partner LogiPlus Consulting GmbH.

SAP and PLC Technology in Unison

The solution implemented was based around the SAP solutions to support all goods and stock movements (the SAP Supply Chain Management application) and control material flow and resources (SAP functionality for task and resource management). These applications were linked to PLCs – with the conveyor technique and automatic conveyor vehicles – using the local standard software to communicate between the supply chain on the one hand and task and resource management on the other.



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BMW Motoren GmbH in Steyr, Austria

The LogiPlus team supplied the additional add-ons – for example, standards for technically connecting the SAP and PLC technologies and supporting communications between them. Furthermore, the project team implemented special stock placement and from-bin strategies for the conveyors. By defining the parameters of the main functions, the team met the prerequisites for rolling out the solution at other automated warehouses.

One-Stop Shop for a Fully Automated High-Rack Storage Area

The result is a solution – entirely based on SAP software – that provides the administration, management, and control functions for operating an automated high-rack storage area. Consequently, the warehouse solution now runs on the same platform as the vast majority of the other IT applications at BMW, in line with its strategy to achieve an integrated, standardized IT infrastructure. This has led to reduced maintenance

In addition to appreciating the new cost-effectiveness, Havelka at the Steyr plant is also very pleased with the flexibility the new solution offers: “Using SAP software to manage the warehouse has opened up a whole range of warehousing strategies to us.” These include the implementation of the standard SAP stock placement strategy and the option to design optimized BMW-specific strategies. One of these strategies is the equal distribution of variants to the available aisles so that if one aisle is unavailable, the material can still be released from another aisle. Another strategy is placing rolling stock to improve the utilization of the automatic conveyors and the conveyor technique.

Taking Full Advantage of the Integration Opportunities

BMW is fully exploiting the opportunities presented by the full integration of the SAP software. For example, business processes in upstream SAP applications can now trigger relevant follow-on func-

the PLCs can generate material release orders. The warehouse can communicate with the SAP back-end system using intermediate documents (IDocs). Automated transport orders can be created in the SAP back-end system. The task and resource management functionality can pick containers by controlling the automated conveyors and belts. Automated inventory can be posted in the SAP back-end system.

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and operating costs. “This enables us to achieve synergies by pooling together our expertise,” explains Helmut Fischer, project manager at the BMW AG plant in Dingolfing, Germany.

tions for the warehouse; downstream systems can receive confirmations. There are a number of activities that the integration makes possible. For example,



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