"Do-it-yourself" retailer uses IBM solution to automate replenishment and help ensure high shelf availability

Overview

Challenge
Meet customer demand for any of 40,000 products in over 80 outlets with low replenishment and storage costs

Why become an On Demand business
To help drive up sales per square meter of existing floor space, Max Bahr needed an approach that would provide the highest product availability levels for customers, while optimizing inventory and storage costs

Solution
IBM Dynamic Inventory Optimization Solution, a comprehensive offering that helps companies determine optimal inventory levels based on cost constraints, forecasts, demand patterns and service level requirements

Key Benefits
- Customer service levels of 99 percent or higher
- Over 90 percent of replenishment proposals turn into orders without any review
- Improved demand forecasting, fewer planners and lower replenishment costs

A change in business focus

Max Bahr Holzhandlung GmbH, a pioneer since 1879 in Germany's highly competitive do-it-yourself (DIY) market, was at a crossroads. After going through a busy period of opening up new stores during the 1990s, the DIY retailer wanted to refocus its energy on driving up sales per square meter of existing floor space. That meant ensuring high shelf availability for every item Max Bahr carries. DIY stores typically carry few substitutable products, and customers have a high propensity to buy when they are in the store.

With revenues of 816 million euros in 2005, Max Bahr operates more than 80 home and garden centers around the Federal Republic of Germany, as well as an e-commerce Web site. Its inventory of some 40,000 items, some of which carry the Max Bahr brand, are sourced globally and cover everything the "do-it-yourselfer" needs for the home and garden, including wallpaper, carpets, wood, electrical equipment, tools, DIY manuals, garden furniture and a huge assortment of plants and flowers. A central warehouse replenishes 30 percent of the products

in the stores; 70 percent arrive directly from suppliers. A second warehouse is scheduled to begin operations this year.

Max Bahr employs approximately 4,500 employees, all of whom are dedicated to one objective: providing superior on-floor consultation and service to every customer, whether layperson or professional. The company strives to offer premium goods and services at the lowest possible prices.

To help implement its revised business plan, Max Bahr needed an automated, centralized replenishment system that could provide the highest customer service levels, while optimizing inventory and storage costs. "We were making replenishment decisions locally at each store," says Anja Schöning, project manager at Max Bahr. "Planners would look at the store's point-of-sale (POS) data and manually place replenishment orders." Each store has a POS system that runs on an IBM eServer™ iSeries™ server. However, not all stores had very good and experienced planners — often resulting in poor availability and high opportunity costs. Moreover, it was expensive employing so many planners.

ON DEMAND BUSINESS™

Answering the challenge

In 2003, after considering a number of alternatives, Max Bahr turned to IBM, which proposed the IBM Dynamic Inventory Optimization Solution. After a one-month requirements study, the IBM team began incorporating the business rules needed by the solution to forecast demand, calculate safety stock, batch sizes and reorder points, and compute replenishment order proposals for the entire inventory.

"We wanted IBM to build in as much business logic as possible, so that replenishment orders could be sent to the warehouse and to suppliers without ever being reviewed by a planner," explains Schöning. That required writing client-specific modules that considered variables such as maximum shelf or bin space for an item, upcoming promotions, supplier lead times, free shipping on orders above a certain amount, product assortments and odd lots.

"The [solution] has become one of the most important business tools we have for positively impacting sales and keeping us competitive."

— Anja Schöning, project manager, Max Bahr

"The capabilities and flexibility of the Dynamic Inventory Optimization Solution allowed us to respond quickly and effectively to Max Bahr," says Richard Boedi, an IBM researcher on the team. "Within months of starting the project, we were managing inventory at four outlets and with one major supplier."

Nightly replenishment runs

Today, the Dynamic Inventory Optimization Solution performs eighty to ninety percent of Max Bahr's inventory replenishment. There is no ERP system involved.

Shortly after midnight, the stores transfer POS data — approximately 15–20 million transactions — to a central database and add them to a rolling repository that contains a two-year history of every product in every store. Using this transaction dataset, the Dynamic Inventory Optimization Solution performs a two-echelon analysis, looking first at the outlets and then at the central warehouse to generate forecasts and order proposals. Each of the approximate 85 runs of the solution takes around one minute, constituting up to four million replenishment decisions. The entire process is completed by seven o'clock in the morning, before the planners arrive at work. Any replenishment issues found by the solution go on an exception report to be manually resolved.

The results from the Max Bahr-IBM collaboration are impressive. Customer service levels at the stores have reached an average of 99 percent or more. What's more, over 90 percent of the order proposals are automatically turned into actual orders to suppliers without any review by, what is now, only a handful of planners in the company.

"The Dynamic Inventory Optimization Solution has become one of the most important business tools we have for positively impacting sales and keeping us competitive," concludes Schöning.

For more information

The IBM Dynamic Inventory Optimization Solution is part of the IBM Center for Business Optimization's solution portfolio, which includes solutions in the areas of risk management, marketing investment, pricing and supply chain management. The center brings together IBM's industry and process expertise, hardware and business performance software, and the company's deep computing and advanced analytics capabilities to tackle the most difficult challenges facing business and government.

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