

MANN+HUMMEL uses IBM solution for forecasting and inventory planning

Overview

Challenge

Reduce inventory while improving customer service levels and production batches

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

- Reduced inventory levels and handling effort
- Increased customer service level performance
- Improved demand forecasting

A classic supply chain dilemma

In reviewing its operations, MANN+HUMMEL's management team noticed that its central distribution center for MANN FILTER products in Niederaichbach, Germany, was "out of balance." The center was carrying excess inventory, but it was missing its targeted customer service levels.

"Our forecasting and planning were insufficient," explains Thomas Mangold, head of logistics aftermarket at MANN+HUMMEL. "What we needed was a solution that could consider our specific planning requirements and calculate optimal inventory quantities for each of our products." Complicating matters for the company were strong lot size restrictions imposed by production, along with extreme demand peaks.

With 41 worldwide locations and over 9,000 employees, the MANN+HUMMEL Group is a leader in the automotive components industry. Its original equipment (OE) division develops, produces and markets MANN+HUMMEL filter and air intake systems and other components; its aftermarket products are distributed under the MANN-FILTER brand name.

The company also develops and produces industrial filters and filtration systems for the engineering industry, as well as material handling products for the plastics industry.

"Managing our inventory effectively is key to remaining a preferred partner to both our suppliers and customers," Mangold adds.

Inventory opportunity analysis

In 2004, MANN+HUMMEL asked IBM to analyze its inventory at its Niederaichbach facility and prepare a set of recommendations on how it might more effectively manage each of its inventory items. The goal given to IBM was extremely challenging: identify upwards of 15 percent to 30 percent in inventory reductions — freeing up valuable working capital — while keeping order line service levels, as defined by MANN+HUMMEL, at 97 percent or above for all products. In addition, IBM was asked to study the effect that other factors might have on the facility's inventory, such as shorter production lead-times, stock buildups that occur before production holidays and expected increases in market share.

IBM consultants quickly went to work using the Dynamic Inventory Optimization Solution. The solution makes use of highly sophisticated mathematical techniques that are designed to help companies with single- or multi-echelon networks manage their inventory to optimal levels while preserving or improving customer service levels. Proper inventory management also provides companies with the potential to reduce overall logistics costs, as well as increase asset utilization, inventory turns and customer satisfaction. As input to the study, MANN+HUMMEL provided IBM with one year of historical sales data and all relevant inventory data from its SAP R/3 database.

A number of inventory simulations were run. However, when IBM consultants tested the safety stock levels calculated by the solution against typical demand patterns over time, they noticed an unacceptable drop in service levels. Their finding: extreme demand peaks were adversely influencing the solution's built-in safety stock calculations. Undaunted, they developed a new methodology to calculate safety stock, integrated the calculation into the solution as a new option, and presented their recommendations to MANN+HUMMEL management — all within a period of three months.

"Not only can the Dynamic Inventory Optimization Solution help solve a company's inventory problems with speed and accuracy, but it is also highly flexible," says Dr. Peter Korevaar, an IBM consultant who worked on the MANN+HUMMEL engagement. Dr. Korevaar points out that the solution is replete with reports and graphs that allow users

to immediately evaluate the impact that changes in service levels, cost constraints, lead times, lot sizes and other factors can have on inventory stock and carrying costs.

Did the solution meet MANN+HUMMEL's goals? "Absolutely," says Mangold. "IBM was able to show us how we could lower our current stock by 30 percent while keeping our customer service levels at 97 percent and reducing our order lines for production per year by 18 percent."

Today, MANN+HUMMEL regularly uses the Dynamic Inventory Optimization Solution to forecast demand and to calculate replenishment parameters (i.e., reorder points and order quantities) for each inventory item at its Niederaichbach warehouse based on SAP transaction and product master data. The company plans to expand the solution's use to other warehouses.

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 business' and government's most difficult challenges.

To learn more about IBM Global Business Services, contact your IBM sales representative, or visit:

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To learn more about the IBM Dynamic Inventory Optimization Solution and the IBM Center for Business Optimization, contact your IBM representative or visit:

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Route 100
Somers, NY 10589
U.S.A.

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12-06
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"We are very pleased with the Dynamic Inventory Optimization Solution and use it regularly to help manage our inventory."

— Thomas Mangold, head of logistics aftermarket, MANN+HUMMEL