



IT at Work

DATA MINING POWERS WAL-MART

Integrating IT ... In Marketing
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With more than 35 terabytes of data (in 2000) on two NCR (National Cash Register) systems, Wal-Mart manages one of the world's largest data warehouses. Besides the two NCR Teradata databases, which handle most decision-support applications, Wal-Mart has another 6 terabytes of transaction processing data on IBM and Hitachi mainframes.

Wal-Mart's formula for success—getting the right product on the appropriate shelf at the lowest price—owes much to the company's multimillion-dollar investment in data warehousing. "Wal-Mart can be more detailed than most of its competitors on what's going on by product, by store, by day—and act on it," says Richard Winter, a database consultant in Boston. "That's a tremendously powerful thing."

The systems house data on point of sale, inventory, products in transit, market statistics, customer demographics, finance, product returns, and supplier performance. The data are used for three broad areas of decision support: analyzing trends, managing inventory, and understanding customers. What emerges are "personality traits" for each of Wal-Mart's 3,000 or so outlets, which Wal-Mart managers can use to determine product mix and inventory levels for each store.

Wal-Mart is using a data mining demand-forecasting application based on neural networking software and a 4,000-processor parallel computer. The application looks at individual items for individual stores to decide the seasonal sales profile of each item. The system keeps a year's worth of data on the sales of 100,000 products and predicts which items will be needed in each store and when.

Wal-Mart is expanding its use of market-basket analysis. Data are collected on items that comprise a shopper's total purchase so that the company can analyze relationships and patterns in customer purchases. The data warehouse is available over an extranet to store managers and suppliers. In 2001, 5,000 users made over 35,000 database queries *each day*.

"What Wal-Mart is doing is letting an army of people use the database to make tactical decisions," says consultant Winter. "The cumulative impact is immense."

For Further Exploration: Since small retailers cannot afford data warehouses and data mining, will they be able to compete?

Sources: This information is courtesy of NCR Corp., 2000, and walmart.com.