A New Supply Chain Forged
Wal-Mart put intelligence in its inventory and recognized the value of sharing data.

News Story by Amy Helen Johnson

SEPTEMBER 30, 2002
(COMPUTERWORLD) - Being a supplier to Wal-Mart is a two-edged sword," says Joseph R. Eckroth Jr., CIO at Mattel Inc.
"They're a phenomenal channel but a tough customer. They demand excellence." It's a lesson that the El Segundo, Calif.-based toy manufacturer and thousands of other suppliers learned as the world's
largest retailer, Wal-Mart Stores Inc., built an inventory and supply chain management system that changed the face of business. By investing early and heavily in cutting-edge technology to identify and track sales on the individual item level, the Bentonville, Ark.-based retail giant made its IT infrastructure a key competitive advantage that has been studied and copied by companies around the world.

"We view Wal-Mart as the best supply chain operator of all time," says Pete Abell, retail research director at high-tech consultancy AMR Research Inc. in Boston.

Abell says he expects the company to remain in the vanguard. "Wal-Mart is evolving; they’re not standing still," he says. The company is still pushing the limits of supply chain management, he says, searching for and supporting better technology that promises to make its IT infrastructure more efficient. Radio frequency identification (RFID) microchips, for example, may replace bar codes and security tags with a combination technology that costs less money.

**Sam’s Vision**

Wal-Mart founder Sam Walton first explored the idea of using computers to handle inventory in each store in the mid-1960s. But databases made only the analysis part easier; counting stock, a manual chore, was still a headache.

That headache didn’t ease until the early 1980s, when retailers put into general use a way to electronically identify items. That was the genesis of the stock keeping unit, or SKU, and the standardized bar code.

The original idea for a machine-readable encoded identification symbol appeared in 1949, in a patent application submitted by Bernard Silver and Norman Woodland. In 1967, a rough system went into use at a supermarket in Cincinnati, using a circular symbol. In 1974, the first modern scanning system appeared - again, at a grocery store - reading the standardized, rectangular universal product code that’s ubiquitous today.

It took a while for the majority of packaged goods to be labeled with bar codes. At that point, in 1983, Wal-Mart invested in point-of-sale terminals, which
simultaneously rang up sales and tracked inventory deductions. Four years later, a massive satellite system linked all of the stores to company headquarters, giving Wal-Mart's centralized IT department real-time inventory data.

Early on, Wal-Mart saw the value of sharing that data with suppliers, and it eventually moved that information online on its Retail Link Web site. Opening its sales and inventory databases to suppliers is what made Wal-Mart the powerhouse it is today, says Rena Granofsky, a senior partner at J.C. Williams Group Ltd., a Toronto-based retail consulting firm.

While its competition guarded sales information, Wal-Mart approached its suppliers as if they were partners, not adversaries, says Granofsky. By implementing a collaborative planning, forecasting and replenishment (CPFR) program, Wal-Mart began a just-in-time inventory program that reduced carrying costs for both the retailer and its suppliers.

"There's a lot less excess inventory in the supply chain because of it," says Granofsky.

**Power Partners**

That efficiency is a key factor in maintaining Wal-Mart's low-price leadership among retailers, says Abell. "Their margins can be far lower than other retailers' because they have such an efficient supply chain," he says. The company's cost of goods is 5% to 10% less than that of most of its competitors, Abell estimates.

Wal-Mart's success with supply chain management has inspired other retail companies, which are now playing catch-up, says Abell.

"Others are now just starting. They've all had inventory systems, but sharing the data with their partners hasn't been easy," he says.

Wal-Mart's influence has extended beyond the retail sector. Mattel's Eckroth says that he studied Wal-Mart's supply chain best practices when he worked at a manufacturing division of General Electric Co. "They're a benchmark company," he says.

One reason Wal-Mart is studied so closely is that it gets buy-in from its suppliers to an incredible degree. That's because its programs and practices benefit not just the retailer, but its partners as well, says Eckroth. CPFR, he says, has "blurred the lines between supplier and customer. You're both working to the same end: To sell as much product as possible without either of us having too much inventory."

Mattel learned a lot from working with Wal-Mart and is bringing those lessons to
bear in its relationship with other channels, says Eckroth. "Getting the supply chain optimized inside of Mattel is only 50% of the equation," he says. "The other 50% is getting tightly linked with every one of our customers so that we're reacting as quickly as they're giving us data."

Tight links, Eckroth says, will enable Mattel to tackle the next big business problem: increasing manufacturing efficiency.

"My ability to get information about the sales pace of a toy and either ramping up or shutting down manufacturing depends on my having data," he says. Having sales data on a daily or hourly basis is necessary to figure out on a micro level what is selling best where and tailoring manufacturing accordingly. The greatest efficiencies will appear when the kind of trusting, mutually beneficial relationship Mattel has with Wal-Mart is duplicated with the rest of the manufacturer's retail outlets.

"Having that data on a global basis from every one of my customers allows me to optimize the sales of my products and the fill rates of my customers," Eckroth says. "The theme for the future is that at the end of the day, there can be a symbiotic relationship between companies."

**The 21st Century Inventory System**

At Wal-Mart, CIO Kevin Turner and his staff are evaluating ways to apply wireless technology in stores. The company is also testing emerging RFID smart-tag systems, which might replace bar codes with a more efficient product-tracking mechanism.

Retailers like Wal-Mart have gotten very good at keeping stores optimally stocked. The next step, says Abell, is improved inventory analysis software that tailors the mix of goods on store shelves based on their individual sales patterns and the total cost of goods, including often-hidden factors like transportation fees, package size and inventory carrying costs.

Such demand chain management systems are in use in Europe and Japan and are making their first inroads in the U.S., Abell says. Some of the vendors that provide this technology are SAF AG in Tagerwilen, Germany, DCM Solutions Inc. in Irving, Texas, and Industri-Matematik International Corp. in Stockholm.

But don't count out the current leaders that offer analytics software, says Granofsky, such as Retail Technologies International Inc. in Sacramento, Calif., and Retek Inc. in Minneapolis.

"These are the major players, and they'll continue to be so," she says.
Cathy Hotka, vice president of IT at the National Retail Federation in Washington, sees in-store kiosks returning to the consumer scene. Once little more than advertising vehicles, kiosks are evolving into something shoppers will likely find useful, says Hotka. With them, customers can check the inventory of an item to find out if it's available and at which locations, get an exact resupply date for out-of-stock merchandise, check product specifications before buying, or order products and have them shipped to their homes.

Based on Wal-Mart's profitable approach of creating supplier partnerships, cooperation between retailers and suppliers is likely to become the de facto business strategy in the future. That's because it works, says Eckroth.

"We've learned that if we listen to [Wal-Mart], take their initiatives seriously and align our strategies with making them successful, we both can succeed," he says.

Johnson is a Computerworld contributing writer in Seattle. Contact her at amyhelen@pobox.com.

Image credit: Larry Goode