



# There's Power in POS Data— Not Just for Retailers, but for Suppliers Too

By Mohan Balachandran and Jim Morganstern

**T**he old techniques for meeting customer and market demand—forecasting from historical data and holding inventory—are no longer effective for consumer goods manufacturers dealing with increasingly high customer-service expectations. Traditional forecasting processes not only tie up capital but are riddled with errors when applied to short-term demand and supply issues like shelf replenishment.

And the increasing retailer/supplier need for timely visibility into store-level demand drives the development of new technologies—systems that employ point-of-sale (POS) data and intelligent, exception-based scenarios for tuning retail supply networks to market demand.

Visibility is the issue du jour in this era of rapidly moving products, and the ability to understand shelf-level events as they take place is critical to rapid response. Historically, POS demand information has not been visible to consumer products manufacturers in real time. The data aspects of category management were typically contracted to third-party market-research firms like ACNielsen and IRI. These firms submitted reports including data on brand performance and issues such as out-of-stocks—usually two to four weeks after the fact, or longer, depending on the amount of replenishment inventory on hand.

POS data have played a part in category management since the 1980s, when Wal-Mart first put its Retail Link® supplier network in place. “Generally, POS data were somewhat dirty at first, but are a lot better now because retailers are using the data for their own replenishment,” says Larry Lapide, director of the recently launched Demand Management Solutions Group at the MIT Center for Transportation and Logistics. “But even cleaned up, the data are still not very usable as-is for consumer products manufacturers who need to harmonize that data with their own language and systems.”

## Improving customer experience at the shelf

“Moving consumer product is becoming more like what happens in the fashion industry,” explains Lora Cecere, research director for AMR Research. “The newest reality for retailer marketing centers on improving consumers’ experience at the heart of the store, where the critical encounter with product takes place—at the shelf.” The declining consumer impact of traditional marketing media such as television, newspapers and magazines has refocused retailer attention to the store shelf and rack level, wooing customers by enhancing their in-store experience.”

In the interest of keeping shelves perpetually stocked, “retailers want to both sense and shape demand in real time,” Cecere says. “Although nearly all consumer products manufacturers have used POS data for monthly category management, the new shelf-centric reality requires seeing more granular data on a daily basis.

“For instance, account teams need to be able to look at the entire Wal-Mart map daily, see the out-of-stocks as well as anticipate them and immediately get down to work with their merchandisers on resolving the issues. For retailers determined to prevent out-of-stocks and to conduct promotions that intimately connect to demand fluctuations, lag times are no longer acceptable,” Cecere explains. “The ability to use POS data in real time is absolutely key to effective response.”

The execution of effective response, however, increasingly devolves to the consumer products manufacturer. Wal-Mart, for instance, has tasked its suppliers to work toward higher and higher shelf-rate levels while reducing excess inventory in the supply chain.

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## The downstream challenge

The benefits of demand-driven, POS-based business intelligence do not stop at the shelf. Analysis of downstream demand data also yields long-term demand-sensing and demand-shaping strategies. These strategies enable suppliers to use consumer demand signals to quickly take action as new opportunities arise, improving category management and increasing brand equity as well as profits.

Leading consumer brands continue to be plagued with issues like stock-outs in one location while suffering excess inventory in another. While consumer products manufacturers have employed a variety of approaches to more proactively manage fast-moving retail channels, they are still falling far short. All errors—whether due to stock-outs, inventory build-ups or other process breakdowns—are costly to retailers and suppliers alike.

Compounding consumer products manufacturers' production and extended supply chain pressures, retailers' new emphasis on inventory management at the shelf level adds a new level of customer service. Essentially, it is vendor-managed inventory (VMI)—though not at the distribution center, where the manufacturer's retailer teams traditionally are required to manage inventory and replenishment. Instead, it's at the store level.

Wal-Mart (among other retailers) monitors supplier performance on an ongoing basis through a weekly scorecard, grading suppliers on a wide range of metrics, from on-time delivery and in-stock levels to more recent initiatives, such as the environmental impact of the packaging used. Other big-box retailers, as well as grocery, consumer drug, home improvement and electronics centers, all contribute to increased velocity and complexity.

According to Lapide, "Using POS data to support VMI is another permutation of the retailer / consumer products manufacturer, co-managed inventories relationship at Wal-Mart and elsewhere. Historically, retailers and consumer products (CP) manufacturers have been peering into a black hole regarding day-to-day shelf performance. During the months-long lag times, any demand fluctuations—by day, location, context [weather anomalies, etc.]—are obscured by the bleeding down and building up of inventories, making it impossible to track potential shelf trends.

"Also, you tend to get a bullwhip affect in the distribution channel," Lapide continues. "Small changes at the shelf level are exaggerated as they move upstream, so you have to look at your own shipments much longer to see through the noise."

The pitfalls of shelf blindness are legion. "We just researched this problem with an apparel manufacturer of seasonal products," Lapide adds. "They knew what they shipped—by size, color, style—to a West Coast distribution center, but they had not collected data on what sold and

why at the store shelf. It turned out there was an issue with SKU sizes that weren't appropriate for Asian women, and consequently the larger-size products only sold by markdowns. This is exactly the sort of disconnect that would be solved by POS data."

Even with a 98 percent fill rate, the fine print can reveal costly fluctuations. Wal-Mart shelf fill rates are measured each Friday, revealing a weekly average across all store locations. Consequently, demand variability by day or by store is invisible. Most consumers shop on weekends, and if stock levels fall below 98.5 percent on Saturdays or Sundays, proportionally more sales are lost.

An analysis i2 performed shows that even with a 98 percent in-stock average over the weekend, 277 stores owned by one retailer would be out of stock of a particular SKU on Sunday. To take effective action, companies need daily analysis by SKU and by store, and also need to evaluate how important each store is in terms of SKU sales. To obtain the data manually, they would have to look at every SKU, at every store, every day.

## Taming the data deluge

"The biggest stumbling block with POS data is that there's lots of it," notes Lapide. "As every shopper knows, product proliferation is epidemic on retail shelves. And, as every CP manufacturer knows, this SKU proliferation creates data-tracking headaches of the first order. A typical CP manufacturer might sell 500 SKUs through 4,000 Wal-Mart and Sam's Club stores, tracking such functions as POS, must-arrive-by dates, fill rate, etc. The aggregation of all the data can amount to 90 million pieces of data per day.

Sales-reporting tools traditionally used in operational planning are built to analyze trends and changes in large amounts of data by storing the data in a repository and providing pre-defined reports, drill-down capabilities, and ad hoc tools for searching and mining the data. The tools are designed this way because the user does not know, at the outset, the relevant data to analyze.

As a result, replenishment teams still find themselves drowning in data, spending far too much time trying to identify replenishment issues from retroactive information that isn't operational. Analyzing demand-driven POS data, on the other hand (specifically by identifying and determining the root causes of exceptions), provides a new level of immediacy and accuracy formerly unavailable to short- and longer-term planning.

"From a forecasting perspective, POS data give advance warning to enable response to change sooner," says Lapide. "The data have been used on an ad hoc basis in operational planning, but that's beginning to change. i2 has been one of the companies more involved in this area over the last four or five years."

## The ultimate benefit

The beauty of new tools for handling POS data is that manufacturers now have the means to preemptively sense demand at the shelf level—shifting the whole fulfillment paradigm from what has happened to what is happening. “In redefining processes to better serve shoppers at the shelf, manufacturers must focus on demand sensing by key account,” according to Cecere, in her recent AMR Research Report “Shouldn’t You Be Minding the Store?” (May 2007).

Cecere cites recent manufacturer pilots that illustrate the sort of benefits achieved using downstream POS data and focused account teams. A major distributor changed pre-determined routes and fixed delivery frequencies to dynamic routing based on daily POS data. The three-month pilot resulted in an 8.2 percent increase in sales. In another pilot, a consumer electronics company took over shelf replenishment for a major electronics retailer, reducing 18 weeks of inventory by more than half and improving in-stock positions by 4.3 percent, with a reduction in mark-downs due to overstocks.

Daily demand sensing is most critical to the success of new-product introductions and promotions. Cecere notes that 50 percent of new-product introductions fail because of poor execution. “Out-of-stocks double or sometimes even quadruple in heavily promoted categories at peak shopping,” she says. “The synchronization of getting product to shelves is absolutely critical.”

For Lapide, a big issue is early indicators. “When you first put the product out in the channel, it typically doesn’t sell immediately at the shelf. You need real-time information from the retailer to know the point at which it takes off in order to keep product in the pipeline. POS data become the leading real-time indicator for introductions as well as promotions, allowing retailers and others in the supply chain to react to changes daily.”

Finally, well-planned and coordinated shelf-level execution based on real-time downstream demand data is only the beginning in realizing the full potential of customer-centered merchandizing. POS data represent one stream of a number of possible cross-channel interactions with assortment, allocation, space, pricing and promotional data that, when integrated together, can bring unprecedented granularity, timeliness and responsiveness to category-management decision making.

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## i2 SOLUTIONS

### The Demand-Sensing Advantage

The Platonic ideal for shelf replenishment would involve a POS-linked supply network that automatically analyzes all store SKU activity from a point-of-purchase prompt in real time. If retailers and consumer products manufacturers aren’t there yet, a new breed of technology, operating to preempt supply chain and replenishment issues behind the scenes, has brought them significantly closer.

i2 POS Demand Sensing is designed to enable consumer goods companies to reduce stock-outs, excess inventory, forecast variances and related problems at the store-shelf level to increase sales and improve customer service. The solution applies business rules to analyze retailer-provided, point-of-sale data to proactively identify and resolve revenue-impacting business exceptions—exceptions that today are causing an untold number of disruptions, including order fill-rate errors, insufficient or erroneous supply to stores, late receipts or misaligned Retail Link® (in the case of Wal-Mart) parameters.

Until recently, the large volume of daily POS data made it extremely difficult to identify and “sense” individual SKU performance, or “see” the store-shelf level with any precision. Following retailer and supplier rules, the software first determines whether an issue has an internal supply chain cause, such as a missed must-arrive-by date or low fill rate. If no internal cause is found, the software will then look for store-related demand causes, such as incorrect replenishment settings, forecast variances or on-hand adjustments.

Root-cause analysis is key to accurate demand sensing and rapid exception resolution. i2 POS Demand Sensing drills down into the relevant data surrounding exceptions by SKU, store and related warehouse, and provides response options and resolution guidance—whatever is necessary for the decision-maker to understand and resolve the issue before it impacts the customer.