



Taking Stock of Inventory Automation

Properly integrated, the right warehouse and inventory management systems can help drive down out-of-stocks.

By Pan Demetrakakes

The average supermarket has tens of thousands of SKUs. But shoppers are most likely to remember the ones that aren't there.

Out-of-stocks are among the most frustrating—and alienating—experiences a grocery customer can have. They're surprisingly prevalent, averaging 8%, according to a recent study by the Food Marketing Institute. Not finding the product they want, in the size they want, is something that can sour a shopping trip—and, in the extreme, drive shoppers to another store.

Ensuring that items are on the shelf when shoppers want them, while keeping inventory manageable, is one of the most daunting challenges in grocery. It requires keeping track not only of what's in the store but also what's available up the supply chain. Proper forecasting requires accurate data about sales trends measured against a host of factors, including price, promotions, seasonality and much more.

"Supply chain managers are responsible for customer satisfaction and value, which includes both quantity and price, so they need to track sales, inventory and, ulti-

mately, cost to serve," says Patty McDonald, global solution marketing director for the retail software division of Dallas-based Symphony RetailAI.

Software applications in both stores and the facilities that supply them can help optimize product flow. The central apps are warehouse management systems (WMS) for warehouses and distribution centers and inventory management systems (IMS) for stores.

These systems often are parts, or modules, of more comprehensive ones. Many enterprise resource planning systems have WMS modules, especially for warehouses owned by food processing companies. On the store level, inventory management often is a part of point-of-sale (POS) systems, allowing inventory to be tracked in near real time.

When it comes to warehouses and distribution centers that are owned by grocery chains—as opposed to food processors, wholesalers or third parties—they're more likely to use an in-house WMS, says Phil Schaafsma, owner of Wyoming, Mich.-based D.L. Neu & Associates, an integration firm for warehouse automation.

"A lot of grocers' WMS are homegrown software that they're going to continue to use and update as needed to add automation," Schaafsma says.

But whether in-house or purchased, stand-alone or module, WMS and IMS apps need connectivity. To optimize efficiency, warehouse and inventory management systems have to be able to communicate up and down the supply chain, with operations software, transportation software, ordering systems and more.

The ideal would be to have orders generated and fulfilled with as little human intervention as possible. That's why connectivity between the WMS and the IMS is important.

"The easiest would be [for the WMS] to work with the POS system, which would delete inventory," says Tom Becker, CEO of St. Paul, Minn.-based NorthStar Automation, a provider of WMS software mostly for distributors and third-party logistics companies. "And then from there, the system would know when to actually provide transfer or fulfillment scenario to say, 'Hey, the next time you're going to deliver product to this location, you're getting near fulfillment levels based on what's coming off the registers.'"

The more automated this process becomes, the easier it will be for grocers to keep their stores properly stocked on an ongoing basis.

"We strive to enable real-time data and better forecasts from the edge, where the sales transactions occur," says Bill Kimler, inventory management and forecasting product manager for NCR Corp., Atlanta. "These in turn have a ripple effect upstream to optimize inventory and production levels for storage and manufacturing concerns."

To Infinity and Beyond?

But there's a danger in putting too much trust in auto-

8%

Average out-of-stocks in grocery

Source: FMI

mated ordering, says Randy Fields, CEO of Salt Lake City-based Park City Group, which includes the Reposi-Trak inventory management system. If it's not done properly, with the right data and the right means of evaluating it, automating the inventory/ordering process can distort sales data and actually make out-of-stocks snowball.

The problem develops, Fields says, when an out-of-stock comes across as a loss of sales for a particular item, with no context. If a store should run out of, say, half-gallons of 2% milk, the only thing that many IMS or POS systems will register is a drop in sales for that item. When it comes time to reorder half-gallons of 2%, the lower sales will lead to a lower demand forecast and a lower order—even though there may have been demand that just wasn't being met.

Fields says this problem can become worse with automated replenishment. "What's the algorithm for doing the replenishment? Should it be, 'Sell one, buy one'?" he says. "What if you're out of stock? Well, I can tell you what happens: You tend to keep driving your inventories to lower and lower levels, increasing your levels of out-of-stocks." He once took another company's algorithms for automatic replenishment and ran them to infinity, which found "almost all of those auto-replenishment systems ordered zero," he says.

Of course, when it comes to the supply chain and inventory, groceries have other complications that don't exist for clothing, electronics or other dry goods.

"A priority for grocers is to efficiently move fresh produce that needs to be rapidly allocated and handled to get it on the truck for delivery through warehouses," says Eric Lamphier, senior director of product management for Atlanta-based Manhattan Associates, a vendor of WMS and related software. "Systems that offer better connectivity and visibility into incoming goods from the suppliers to the distribution center play a direct role in ensuring a long shelf life, preserving freshness and color, and establishing appealing product presentation in-store."

Learned Patterns

To make things more complex, grocers are subject to internal



What's the algorithm for doing the [automated] replenishment? Should it be 'Sell one, buy one'?

—Randy Fields, Park City Group

and external factors that affect sales and demand, including seasonal factors, promotions and even the availability of programs such as food stamps. Software vendors say the ability of programs to learn from sales patterns over the long term is critical to successful supply.

"Our software is able to consume contextual data, which improves forecasting intelligence," says McDonald of Symphony RetailAI. "For example, consuming external data, such as weather, allows retailers to better prepare for temperature-related sales for hot or cold foods. Internal data, such as food stamps or promotions, can help retailers identify increases in grocery sales, which helps retailers understand how these factors impact suppliers and product availability."

In addition, inventory management has become more challenging due to the changing nature of food shopping: more stores and more specialization.

"For grocers, it's about the ability to scale efficiently. The shifting of consumer behaviors to more frequent, local shopping trips has led to an increased number of smaller stores, which are still expected to stock a broad assortment of goods," says Matthew Butler, industry strategies director for JDA Software Group., Scottsdale, Ariz. "This has led to increased levels of intraday shipments, with more each-level picks than case [picks]. Different order processing approaches and speed have become critical to doing so, and as demand profiles continue to evolve, an agile WMS capable of responding to various forms of scale is critical to success."

Another factor that can complicate matters is direct store delivery (DSD), which is increasingly in demand as consumers press for fresher, more local products.

Fields of Park City Group says scan-based trading—which his company played a pioneering role in developing in the 1990s—is the best way to handle DSD. Scan-based trading basically has the supplier retaining ownership of an item until it is scanned at the point-of-sale. The practice increases transparency and fosters a closer relationship between suppliers and trade customers, which is especially important with smaller regional suppliers who may not yet have a firm foothold in the grocery trade.

Weis Markets, a 206-store chain based in Sunbury, Pa., recently invested in ReposiTrak software to manage its inventory to expedite scan-based trading.

But the practice presents certain challenges regarding inventory. "There's an interesting problem: How do you maintain those inventories versus sales of product that come from your own warehouse or from your wholesaler?" Fields says. The retailer must depend on the vendor's reports of what it has shipped to the store to maintain an accurate inventory on the store end.

The key to dealing with all these concerns is to balance connectivity among applications across the supply chain

with the proper algorithms and other software coding. Ideally, the software should be able to learn from long-term sales patterns—but learn the right lessons, without confusing out-of-stocks with a drop in demand.

Inside the Automated Warehouse

Another issue with WMS has to do with connectivity with other systems within the warehouse or distribution center. This becomes more of an issue the more automated the warehouse becomes.

One example is voice picking, which allows workers to receive instructions on which items to pick for an order, and acknowledge when the task is done, while keeping their hands free. This is more often done for dry-goods shipments to individual consumers, but it's also taking hold in warehouses that service grocers, who are increasingly calling for mixed pallet loads.

Many grocery warehouse managers are trying to move workers out of the process altogether. Automation is increasingly taking hold, says Schaafsma of D.L. Neu.

“They’re moving to be highly automated—very



highly automated,” he says. “Everybody’s investigating it. They’ve moved to it, and others will move to it and have [more than] 90% of their items never touched by a human.”

That involves equipment such as palletizers, robotic order-pickers and automatic guided vehicles. Sophisticated equipment like that would be managed by a warehouse execution system, which would interface with the WMS.

Manhattan Associates also recently introduced a warehouse execution system as part of its WMS platform “that enables real-time continual communication with automation system elements in the facility,” says Lamphier. “This capability is critical to ensuring WMS efficiency, allowing grocers to better understand the availability of the processing assets, especially expensive robotics and automation equipment, and helping to guarantee a high level of their utilization.”

Of course, automation is a major investment that takes money grocers might opt to use elsewhere. Sometimes this happens even when automation is likely to have a significant ROI, Schaafsma says.

Fields says that no matter how they do it, stores have to eliminate out-of-stocks as much as possible. Considering today’s competition, it’s more important now than ever. **G**



Your produce never looked so fresh with our **Dunnage Rack** solutions!

MasonWays™ Dunnage Racks, Bases and tables feature **NSF** approved polyethylene construction for lasting durability. Bases are designed to keep products off the floor and help organize while reducing clutter. Pallet-jack and forkliftable. Additional casters provide ease in mobility. Your economical solution for coolers, refrigerators, freezers, back room storage, and display use.

Get Your
Products
Off The Floor!



MASONWAYS™
INDESTRUCTIBLE PLASTICS LLC

www.masonways.com | 800-837-2881