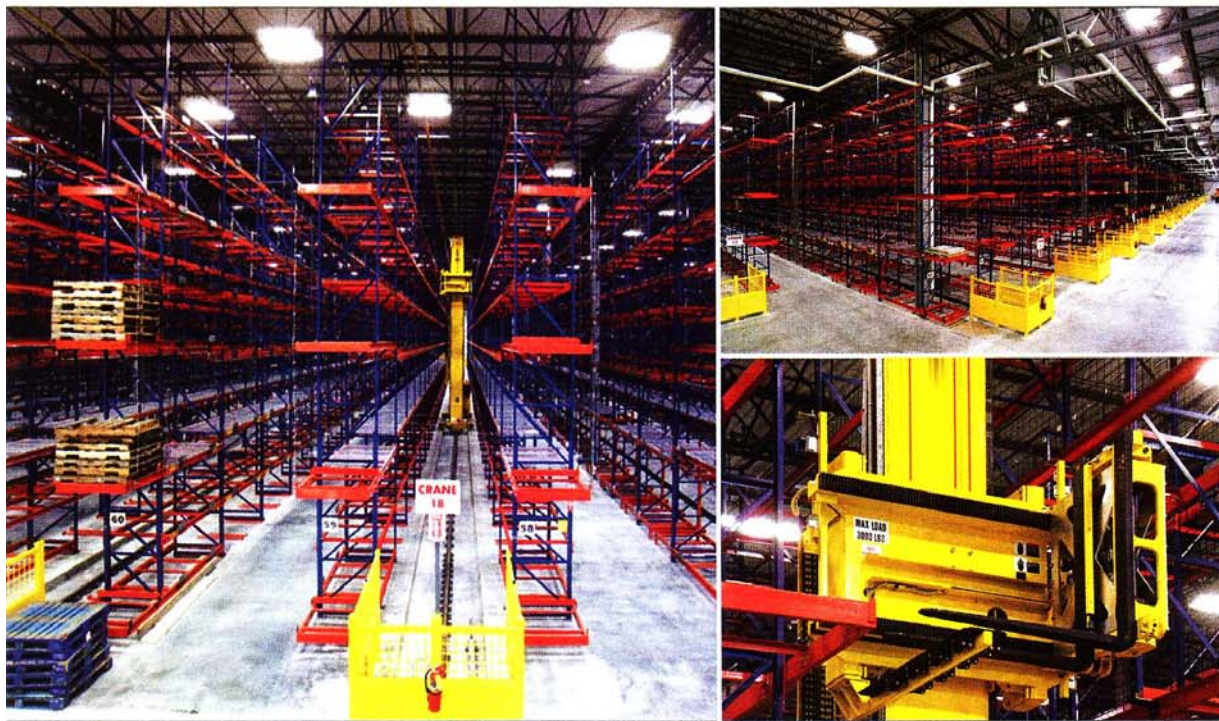


TECHNOLOGY & LOGISTICS



Views of automation at Stop & Shop's new DC in Freetown, Mass.

GEMCON

Stop & Shop Cart Device Lifts Sales

By JULIE GALLAGHER

NAPLES, Fla. — Stop & Shop has seen an increase in store revenue over the past 12 months in a three-store pilot of a wireless, browser-based shopping cart device that provides shoppers with a wide range of applications during the shopping trip.

The device, a thin-client touchscreen tablet that Stop & Shop has dubbed "The Shopping Buddy," includes a scanner that shoppers can use to scan items as they shop. The pilot also led to a reduction in deli and check-out labor while leaving shrink rates unchanged.

These results were reported by Bob Anderson, director of customer relationship marketing, Stop & Shop, Quincy, Mass., at the Global Electronic Marketing Conference (GEMCON), held here at LaPlaya Beach & Golf Resort Oct. 18 to 20. The conference was sponsored by Retail Systems Consulting here.

Anderson attributed 75% of the return on investment to revenue gains and the rest to labor savings, though he did not provide specific numbers for either.

During the year-long pilot, Stop & Shop tested 40 Shopping Buddy devices in each of its three pilot stores, in Quincy, Braintree and Kingston, Mass. It plans to install the system in 20 additional stores in the first quarter of 2005. Stop & Shop is the first user of the system.

Shopping Buddy is based on hardware and store integration software from IBM, Armonk, N.Y., and application software from Cuesol, Quincy, Mass. It runs off an

PRODUCTIVITY CONVENTION

AUTOMATING THE HEAVY LIFTING

New DCs built by Stop & Shop and CVS are employing automated storage and retrieval systems, rather than forklifts, to stock and replenish products

By MICHAEL GARRY

In 2004, food distributors still rely mainly on human beings — using forklifts, pallet jacks and good, old muscle power — to move product around warehouses. That may be starting to change, however.

Take, for example, the 1.3-million-square-foot distribution center opened this year in Freetown, Mass., by Stop & Shop, Quincy, Mass. It is being described as one of the largest automated materials-handling DCs in the world, and a radical departure from both traditional and automated food distribution facilities.

The Stop & Shop depot features an Automated Storage and Retrieval System (AS/RS) that uses 77 rotating-fork cranes to perform the putaway and replenishment functions for the facility's 64,000 pallets, in lieu of traditional forklifts, according to HK Systems, Milwaukee, supplier of the system. (Stop & Shop declined to comment for this article.)

Though this type of automation has existed since the 1950s and is employed at many food manufacturing and third-party logistics facilities, Stop & Shop's DC represents a minority position in the world of U.S. supermarket warehouses, said observers. Rising wage rates for warehouse workers, however,

may be forcing food retailers and wholesalers to take another look at warehouse automation for storage and retrieval. Already, chains like Publix, Wegmans and Safeway are using AS/RS systems similar to Stop & Shop's, while H.E. Butt Grocery, Kroger and Wal-Mart are deploying other AS/RS systems.

One factor allowing distributors to consider DC automation is that the price point of the AS/RS systems has dropped from around \$750,000 down to as low as \$200,000, according to Marc Wulfraat, senior partner, Kom International, Montreal, a supply chain consultancy that worked with Stop & Shop on the selection of the automation for the Freetown facility.

The systems are capable of moving about 35 to 40 pallets per hour, much more than was possible a decade ago, added Wulfraat, who spoke at a session on DC automation at the Productivity Convention & Exposition, held Oct. 17 to 19 at the Wyndham Anatole Hotel in Dallas.

For a major DC encompassing all product lines, Stop & Shop's may be the most ambitious recent example of automation. The DC, which delivers to all of Stop & Shop's 350 stores in the Northeast, consists of a 500,000-square-foot perishables building and a

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802.11b wireless store network and uses infrared sensors to track a shopper's location.

Shopping Buddies are made available to loyalty card shoppers, who snap them onto the front of a shopping cart. Among the available applications, the touchscreen allows shoppers to place a deli order, then alerts them when the order is ready to be picked up.

The screen also displays shoppers' favorite items, or a list created at home and e-mailed to the store. It informs them of favorite or targeted items on sale as they approach the items in an aisle.

Other capabilities in-



Shopping Buddy cart system

clude a product locator, price checker, and running tally of purchases and savings. "Customers love more than anything else to see that running total [on the cart]," said Anderson.

Shoppers who scan their products during the trip can complete checkout at self-checkout lanes at the front end. Many other applications are possible, such as meal planning.

The sales boost resulting from Shopping Buddy is attributed to more spending per trip by higher-spending/primary shoppers, and more frequent shopping trips by lower-spending/secondary shoppers, reported Anderson.

Primary shoppers "were already making more than one shopping trip per week and may now be consolidating more of their weekly spending at Stop & Shop," said Anderson.

Secondary shoppers "were making less than one shopping trip to Stop & Shop per week prior to using Shopping Buddy and have increased their Stop & Shop shopping fre-

quency since [Shopping Buddy's] introduction," he said. "I know that retailers are challenged to add extra items to a shopper's basket, but when you can add the extra trip, that is a huge win."

Labor savings are another

benefit of Shopping Buddy, according to Anderson, who attributed them to its ability to execute deli orders and tally up scanned groceries. "The labor savings with the deli feature are huge," he said.

The chain has created a new concierge service aimed at assisting Shopping Buddy customers. Anderson did not comment on whether this represented additional or just converted labor.

"We have people in the

store that wear red shirts to designate them as part of our concierge service," said Anderson. "They can help you scan items and enter a PLU for produce items. They've provided a tremendous customer support experience."



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"Our new facility will be about half the size of a conventional DC built to service a comparable amount of volume. Other cost savings include lower labor cost, improved picking accuracy, store friendly picking, and damage reduction."

Kevin Smith
Senior Vice President Supply Chain and Logistics
CVS/Pharmacy

"In order to offer our customers a wide assortment of goods at our outlets, our logistics operation needed to cope with an increasing and changing range of articles. The DPS offered us optimum costs per pick, maximum flexibility and space utilization. Apart from economic picking, we also wanted to be able to implement 'store friendly' sequencing of delivery units. Both we implemented perfectly with DPS."

Dr. Dieter Dornauer
Director Central Logistics/Organization
SPAR Österreichische Warenhandels-AG, Austria

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Automating the Heavy Lifting

Continued From Page 60
620,000-square-foot dry-goods warehouse.

Stop & Shop's AS/RS incorporates HK's Equipment Management System (EMS) and works in concert with the DC's Warehouse Management System (WMS), said HK Systems. Once a pallet is brought to the AS/RS' machinery at each storage lane, the WMS alerts the EMS of the pallet, which is moved into a storage location. The system also replenishes floor-level pick slots, removes empty pallets, and retrieves full pallets for delivery to stores.

In a departure from the norm, Stop & Shop's new DC employs its AS/RS system in a "single-deep" selection environment, meaning the pick slots are just one pallet wide, said Wulfraat. These systems have typically been used at a minimum in "double-deep" environments with pick

slots that are two pallets wide.

A single-deep picking configuration makes sense for food retailers, contended Wulfraat, because many products sold in supermarkets don't move fast enough to justify being warehoused in double-deep slots. Moreover, he said, a single-deep arrangement prepares a retailer for the development of order-selection robotics — under way in Europe — which could materialize in five to seven years. "When we hit that, we won't need people for order selection," observed Wulfraat. "Then [single-deep configuration] will make sense."

However, the single-deep scenario raises safety issues for order pickers, who still manually pick items off pallets in pick slots onto pallet jacks, albeit guided by voice technology. Reaching for items in the back of the pallet puts their hands near

AS/RS machines moving along the adjoining aisle. "Man and machine work very close together," noted Wulfraat.

To protect workers, AS/RS machines are equipped with multiple movement sensors that stop the machines on a dime in the presence of any obstruction. In addition, the automation can reduce the number of injuries associated with forklift operations.

Still, employees have had to make many adjustments in working at the new DC, said George Bishop, senior vice president, LxLi, Toronto, which collaborated with Stop & Shop on developing new engineered labor standards for the facility.

Bishop noted that the system in the Freetown DC waits until all products have been picked before removing an empty pallet and replenishing the slot; conventional warehouses bring a new pallet before an existing pallet is depleted. "This is a radical departure from what they're used to," Bishop said. "It shouldn't be taken lightly."

Show Me the ROI

According to Wulfraat, the major justification for deploying AS/RS automation in a DC is the reduction of labor costs. "A CEO looking for a business case wants to understand the labor story," he said. Stop & Shop, facing high wage rates in a unionized operation, is no exception, he added.

Based on a study he conducted for an unmade food retailer doing \$4 billion in annual sales and operating about 220 stores, Wulfraat concluded that AS/RS automation is most suited for distributors located in markets where forklift labor costs approach \$30 per hour (including benefits), which he described as a "conservative figure." For a double-deep layout, the wage rate

Better Picking for Smokes

For Associated Wholesalers Inc., Robeson, Pa., one of the more cumbersome tasks in the distribution operation was selecting and packing cigarettes, and stamping packs with state taxation marks.

So a few years ago, the company decided that a mechanized cigarette selection and stamping system could do a better job. It has, cutting inventory costs by a "couple of million dollars a week," said Robert A. Rippley, executive vice president, logistics, AWI.

The system, Smoke Pick, from Power Pick International, Lincoln, Neb., was installed at AWI's 225,000-square-foot GM/HBC distribution center in York, Pa. All products selected at York are sent to AWI's main DC in Robeson, 50 miles to the northeast, and cross docked with grocery and perishable goods for shipment to the cooperative's 1,000 stores, including supermarkets and convenience stores.

Smoke Pick is "a batch-pick selection system," said Rippley, who has brought new supply chain applications like Smoke Pick to the cooperative since arriving five years ago. (See "For AWI, Time Is Money," SN, Oct. 18, 2004.) "If you have orders for 40 stores, it picks [batches of each brand] for all 40 stores at one time, by size. It works well."

After the cigarettes are batch-picked, individual packs run through a stamping machine. They then move to a packing station where a "pack to light" system tells workers "what's coming and how many to put in each box," said Rippley. Once boxes are full, they go to a checker who puts a label on the box that tells what's in it, and identifies the store and route. Boxes are then shrink-wrapped, combined with totes containing other products, and sent to Robeson. AWI uses a sortation system that sorts all products by store and shipment.

Rippley is especially pleased about the feature that stamps the inside wrapping of cigarette packs. In the past, only packs of cigarettes sold in Pennsylvania, about 65% of the total, were pre-stamped. Packs sold in AWI's other market areas — the six states contiguous to Pennsylvania — had to be separately stamped after selection, a cumbersome procedure. "Now we use one inventory for all states," he said. "All are selected first and stamped later."

required goes up to about \$35 per hour.

The retailer in the study did not meet the wage threshold, causing it to build a new DC in the traditional, non-automated style, Wulfraat said. Wage rates for Stop & Shop in Massachusetts are thought to exceed \$30 per hour, according to sources.

The business case improves with greater shipping volumes, and it is more appropriate for DCs with chronic labor shortages, high land or building costs, or "extreme" working conditions like a freezer facility, said Wulfraat. Labor and land conditions in Europe favor its utilization there, he noted.

In addition, Wulfraat said, AS/RS offers such advantages as inventory and damage control, accuracy and constant operation.

On the other hand, there are such risks as machine downtime and less flexibility. The systems also have a low tolerance for discrepancies such as faulty pallets or product overhang, in addition to the significant initial investment.

Handling Slow Movers

Another AS/RS, used principally for slow-moving items stored in totes, is being implemented this year in the United States by Kroger, Cincinnati, in a facility in the Southeast and by CVS, Woonsocket, R.I., in Ennis, Texas. CVS plans to also install it in a DC in Vero Beach, Fla.

This AS/RS, called the Dynamic Picking System, from Witron, Arlington Heights, Ill., has been used widely in Europe by such retailers as Delhaize (SN, May 17, 2004), Sainsbury's and Migros, among others. Delhaize's DPS facility for slow movers handles such items as nonfoods, health and beauty care, cigarettes, spices and perfumes.

The essence of the DPS is that, rather than all slow-moving items being treated equally, very

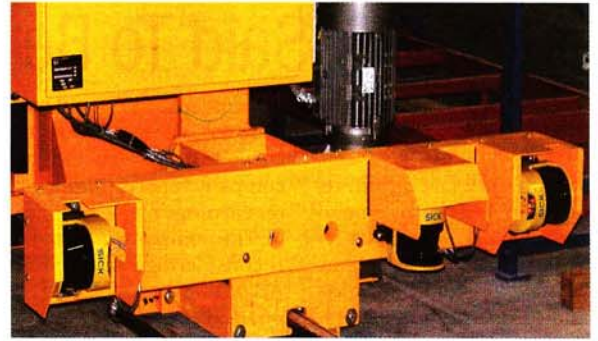
slow-moving items are stored above the picking area and brought down into picking stations by cranes only as needed in what is called dynamic picking. More commonly picked items are already available at pick slots (static picking). This saves space, and reduces the time and walking required of selectors, said Witron.

Kevin Smith, CVS' senior vice president, supply chain and logistics, has noted that the automated facilities require less space and offer lower labor cost, improved picking accuracy,

and damage reduction.

Kroger completed the first phase in the deployment of a DPS for piece-pick operations in September, retrofitting an existing DC in the Southeast. The installation thus far encompasses 16 stacker cranes, 70 picking workstations, and 175,000 tote locations, according to Witron.

Kroger has declined to identify the exact location of the DC, but SN has learned it is Peyton's Southeast, a Kroger-owned facility in Cleveland, Tenn., which handles slow-turn-



Movement sensors (in black) stop the machinery upon detecting any obstruction.

ing pharmaceuticals, health and beauty care, and other merchandise.

Some of the benefits expected from the Kroger installation include a reduc-

tion in footprint and direct-labor requirements, up to a 75% reduction in pick path, and more store-friendly shipping, according to Witron.

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