MULTICHANNEL MERCHANT

OPERATIONS SPECIAL REPORT

Moving from a DC to an FC World: Making E-Fulfillment More Efficient

By **Mike O'Brien,** Multichannel Merchant

Ecommerce continues to boom, outpacing overall retail growth, drawing successful new entrants and remaking traditional players. Yet e-fulfillment strategies – and the supply chain infrastructures that support them – are not advancing quick enough to keep pace with this growth. That's because online orders present inherent challenges that can quickly drive up fulfillment costs, exacerbated by the increasing need for speed demanded by consumers.

The rapid growth of ecommerce and direct-to-customer (DTC) fulfillment, as well as the trend toward more frequent store replenishment, is creating a greater need for "each" or individual item picking vs. cases or pallets, the standard units for retail or wholesale operations. Tighter service-level agreements (SLAs) and demand cycles means replenishment has to happen not over a span of days but more often, in a day or two. As a result, merchants are required to send smaller and more frequent product shipments to stores as well as to consumers.

"Fulfillment strategies are not evolving at the pace of the retail revolution from stores alone to DTC and stores," said Art Eldred, client executive for systems engineering at Vargo, a provider of warehouse execution software. "After a decade of strong ecommerce growth our supply chain infrastructure is failing to keep up and lagging even further each day. Warehouse management systems (WMS) are taxed with the need to synchronize

and sequence work tasks in the fulfillment center to keep up with today's need for expediency. WMS systems have been built for efficiency, but expediency is needed as well."

Separate vs. Hybrid Fulfillment Operations

To meet these challenges, merchants are rethinking everything from supply chains to the design of their fulfillment network and their order processing approach. Another major consideration: When does it make sense to have a dedicated, standalone facility for online orders vs. a hybrid operation handling both DTC and store ful-

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fillment in the same building?

Kraig Foreman, vice president of operations at DHL Supply Chain, said retailers adopting a hybrid facility approach have to re-architect to handle both types of fulfillment effectively and efficiently. However, they can often find themselves shooting at a moving target.

"They're finding because of the blistering rate at which change happens, when they think they've got their infrastructure adjustment underway and are close to being balanced, the expectations of consumers change again," he said. "For this reason, they're forced to continually reinvent themselves. The struggle is, what is the end game?"

Brian Barry, president of fulfillment operations consultancy F. Curtis Barry & Co., said he is seeing many mid-market clients opt for hybrid facilities for a number of reasons. This includes the difficulty of sourcing sufficient labor, and the challenges of inventory management across multiple facilities. But the hybrid approach comes with its own set of challenges, including finding locations that strike the right logistical balance between wholesale and retail, and ecommerce.

"With unemployment so low, (warehouse) labor right now is a huge issue," Barry said. "I was visiting a client in Knoxville, TN that fulfills 2,000 to 3,000 orders per day, not huge but a solid business. They have to bring in 10 people to find one good associate at the point, and need to hire another 27 over the next three weeks. That means they'll cycle through 270 applicants to find that 27."

As for siting, Barry said, you can locate a hybrid facility nearest to where retail and wholesale orders need to go, but that might not be the best place from an ecommerce perspective. "You still need to make sure that ecommerce distribution can reach the highest percentage of the U.S. by two-day ground, which is the expectation today, and that may not be the same as where wholesale should be," he said. "Everyone wants free shipping, so in ecommerce fulfillment it's critical to be where you can support the most customers by ground – that's where everyone wants to be. Otherwise you get eaten alive in freight."

At the other end of the scale, enterprise retailers can more easily afford separate, dedicated ecommerce fulfillment centers. Jason Seemann, senior manager of omnichannel and order management for Abercrombie & Fitch, said the company has consistently created separate facilities.

"In experimenting in the past with a single distribution center, the output was too large during peak season, which led to lots of challenges," Seemann said. "So domestically our DCs are separate. Internationally due to volume, we do share retail and ecommerce space."

Eldred said one major benefit of having a hybrid ecommerce/retail fulfillment center – or adjoining facilities on the same campus – is the labor benefit that can accrue as companies gear up for the demands of peak season in the fall.

"In an omnichannel FC with commingled inventory, there are different peaks close together," Eldred said. "Shipments have to get to retail stores before Thanksgiving, but ecommerce doesn't hit high volume until just before the holiday. If they ramp up labor from September through Thanksgiving, they can leverage them for retail fulfillment, then move some of them to ecommerce. That's easier than trying to ramp up a new labor force, get them trained quickly and have them migrate out in a short period of time."

With a standalone ecommerce operation, Eldred said, companies bring in temporary associates before Thanksgiving, train them quickly and then lay most of them off after the season ends. "It's hard to get the labor you need for short peaks that way," he said. But in a hybrid ecommerce/retail facility, there's more workforce continuity and preparation.

Technology and Automation Approaches, Large and Small

For DHL, the two-pronged, complementary approach to tackling e-fulfillment challenges involves the use of

technology – including adoption of automated systems – and making processes as simple as possible for FC associates. The technology focus is on decreasing cycle times and increasing efficiency, while designing work processes for associates that support those objectives.

"I'm a strong believer in continuous order fulfillment or the waveless concept, where the system creates an algorithm to deliver the complex service levels an FC needs today," Foreman said. "Waveless processing allows a continuous flow of goods in the right prioritization. That level of sophistication, I believe, will be a requirement as we move forward in this industry to meet the increasing demands."

The key benefit of a waveless order release system, Foreman said, is control in DHL's high order turn environment, where batching became "a sub-optimal process." The principal difference is orders are "pulled" through vs. being "pushed" in a batch approach, providing greater control while still allowing the order velocity and throughput required.

Barry said while advances like continuous order flow are fantastic and have significant benefits, operations teams in midmarket firms often accept working within the confines of their business and existing systems "and don't come up for air to do anything else."

"They're often reluctant to change, and people and processes are so temperamental," Barry said. "If they're shipping out 30,000 or 40,000 orders per day during peak, they may be very hesitant to push something different because their job is on the line. The thinking is, 'This system works, we're getting the work out, do I really want to jeopardize my position?' There's a lot to that. But it can be a detriment, making them blind to new ideas."

Conrad Schlesinger, manager of distribution for apparel retailer Woolrich Inc., said ecommerce has been an evolutionary process in terms of systems and technology since the company first launched it in 2000.

"We crawled before we ran," Schlesinger said. "We modeled a lot of our processes on our legacy system. We knew we'd need to make modifications to it, especially doing ecommerce orders of one or two items vs. wholesale orders for department stores. We started out with a straight-line conveyor with three dumb terminals, the same as wholesale, but printed on different pick tickets with the shipping and return labels."

Over time, Woolrich added more terminals and packing stations as its ecommerce business grew, eventually investing in its first two-level pick module with four pick zones in 2005. DTC inventory is tracked virtually to keep it separate from wholesale, as it can't always be kept in a dedicated area of the warehouse.

"In 2007 we added another three-level pick module, then Lighting Pick for pick to light, with an interface to the legacy system and all the conveyors tying it all together," Schlesinger said. "Last we added Cubiscan to sort orders for shipment. We had heard rumblings about expansion of dimensional weight pricing to ground shipments at NCOF (predecessor to Multichannel Merchant's Ecommerce Operations Summit), so we put in Cubiscan and it's worked well."

Rise of the Robots

The increasing interest in, and adoption of robotics for e-fulfillment is another way companies are looking to tackle the challenges of speed, scale, productivity and throughput. A number of robotic startups in recent years have fueled a mini-boom as well as tens of millions in investment, and companies like Hudson's Bay Co. are starting to report success stories at their fulfillment centers.

In addition to waveless or continuous flow processing, DHL Supply Chain has been implementing robots from Locus Robotics to assist associates in the picking process, as well as augmented reality glasses with visual displays from Vusix and Google Glass that replaces RF scanner guns, both of which have increased picking accuracy and productivity.

DHL Supply Chain is in the midst of a pilot program using warehouse robots from Locus at a Memphis facility servicing a medical device customer, with plans to eventually expand into ecommerce fulfillment.

"The robots will navigate pick paths and replace carts," said Adrian Kumar, vice president of solutions for DHL Supply Chain. "They don't have to follow a picker around. They act as extensions of our WMS and follow its commands from location to location. The pickers see orders on an iPad screen on the robot, displaying the items and quantity they want the operator to pick into a tote attached to the robot."

Kumar said one big advantage of using Locus is saving steps for pickers who can stay in one zone, reducing travel time and increasing productivity. The robot moves to them, and they pick an order when they see its lights flashing.

Barry said while he was initially skeptical about the potential value of robotics for e-fulfillment, he now sees the value after recent investigation, especially in light of labor issues in the industry. The available labor pool at 3% unemployment in terms of skillset looks very different than it did at 6% or higher, he reasoned.

"I was wondering, is this a fad?" Barry said. "But when I started investigating 3PLs testing robots from different vendors, I started to realize this is something that can happen. A lot of people are concerned about automation in general killing jobs, especially unskilled ones. But it's more about using them to make the best people more efficient."

For instance, Barry said, one scenario could be using

robots to transport orders picked by workers to the packing area. They've also been proven adept at picking certain orders themselves. In both cases workers can be redeployed or work in concert with the robots.

"There are a whole lot of strengths," he said. "Another consideration is, conveyors can create barriers in a facility, and you can't just move them. When robots can pick away from where people are, they're not creating barriers on the floor that disrupt the flow, which is a huge advantage. And they've become priced to the point where, even if you don't own the equipment, the monthly cost of robotics can be less than what you're paying for labor. I was a borderline skeptic but I'm seeing the lightbulb come on. As companies face labor issues, and we're marching toward a $15 or $20 minimum wage, more companies are going to be moving in that direction."