

# Technology and Processes in Direct-To-Customer Operations

by **Brian Kelly**

Omnichannel retailers are facing some common business challenges, leading them to invest in supply chain and distribution center software and hardware. The *Wall Street Journal* recently reported that 68% of retailers are facing skyrocketing fulfillment costs. EKN Research estimates that providing customers with a range of fulfillment choices costs 18% of gross sales revenue.

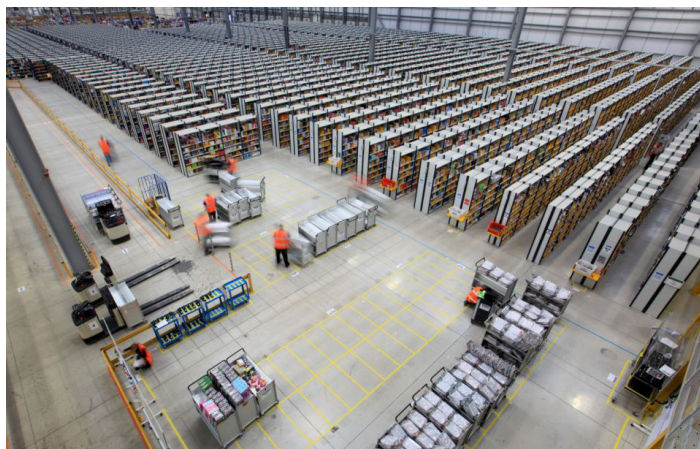
"Retailers know that shipping customer orders is the number one fulfillment expense and is larger than all other fulfillment expenses combined including management, direct and indirect labor, facilities and occupancy costs, and packing materials," explains Curt Barry, Founder and President of F. Curtis Barry & Company.

Yet, there seems to be a bit of confusion as to how and why to allocate fulfillment spending, as 77% of retailers rank inventory planning and visibility as top priorities, according to EKN Research, while 75% of them report inaccurate store levels, according to Retail Systems Research.

It appears that older, legacy systems are restraining

fulfillment performance in an omnichannel environment, due to limitations in automation, supply chain visibility and the inability to handle peak performance requirement fluctuations. Staffing up for peak season also remains a problem.

Take heart; as more retailers move toward a strategy that involves multiple selling touchpoints for consumers to interact with, solutions are available that can leverage existing hardware and software and improve overall fulfillment systems performance.



## Software Solutions

"People are kidding themselves if they think they can flow volume with old systems," says Art Eldred, Client Executive, Systems Engineering, Var-

go. "Traditional technologies have served us well, but there's a big difference between filling a trailer with 2,000 cartons and filling a trailer with 7,500 pieces that go to different places. That's why we're investing heavily into warehouse execution solutions (WES) for direct to consumer (DTC) fulfillment, and seeing what auto-

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mation our customers use. We're doing lean processing that looks a lot like a manufacturing process."

He continues, "Amazon is completely a pull-based WES functionality. The architecture is simple and Jeff Bezos is brilliant. But, it's expensive for manufacturers to use Amazon, and your marketing gets washed out. If you want to be in control of your destiny, it's not good to completely outsource fulfillment."

Steve Osburn, Managing Director, Accenture, agrees. "Because ecommerce got so big, it's much harder to outsource fulfillment. And because ecommerce and omnichannel are now their whole business, companies are taking fulfillment back now. As a result, the entire supply chain is becoming much more visible."

The problem, Barry explains, is that many companies have conservatively under-invested in warehouse technology. "We're beginning to see more implementation of data repositories and business intelligence software tools," Barry said. "There's lots of software out there, different platform modules that can help retailers get to a single version of the truth (one accurate view of sales, demand, inventory, etc.) rather than different views from disparate systems."

Although using business intelligence software and integrating disparate fulfillment systems to improve efficiency and inventory visibility is one way to go, Barry cautions that ERP and OMS software do not have the strongest warehouse functionality (picking options, labor management, kitting, supply chain, managing inventory in DC, etc.). Yet you can keep the ERP and OMS front ends and still make the warehouse more efficient with a WMS or WES solution.

"WMS used to be just for the large companies, but

cloud and subscription pricing has changed all that," Barry said. "There are now WMS providers that have literally hundreds to thousands of small to moderate-sized companies. They track the four walls inventory in a DC from dock to customer order or kitting. Its function is to know where all the pieces are, and large WMS providers have acquired competitors and are now offering lower pricing for companies."

"From my perspective, the number one fulfillment technology is on-demand continuous flow software," said Mike Khodl, Vice President of Solution Development at Dematic. "We are seeking to move people, manage flow and optimize orders by reducing cycle time in the distribution center. We want to give the operators the ability to expedite next day air or hot orders. This is the overarching ideology: continuous flow – no waves - continuous flow."

## Leveraging Existing Solutions Through Further Investment

Nikki Baird, Managing Partner at Retail Systems Research, an industry market intelligence firm, sees the DTC fulfillment space at a crossroads. "It's undergoing a lot of disruption, and some of it is coming from visibility issues. Retailers are trying to figure this out and it's like the Wild West."

Osburn of Accenture sees this happening as well. "From the software side, visibility is key," he said. "We used to have supply chains that focused on getting really big orders from a DC to a store, with plenty of time, and visibility wasn't a big thing. Now customers really want to know what's happening with their order. Companies need to let them know what's going on, and when there's an issue. Having visibility into the supply chain is now table stakes. Three or four years ago, nobody was doing that, and now that some companies are doing it very well, consumers expect that from everyone."

Baird foresees more technology in the store itself. "When retailers were first looking at ship from store, they were trying to adapt their WMS to use it. The problem was inventory was much too fluid, not controlled like it is in a warehouse. And for employees who pulled the items, picking wasn't their only job – they could be interrupted by customers. So, retailers found they





couldn't use WMS."

There are now in-store picking solutions that work in a more fluid environment. The expectation in a warehouse is that the inventory will be there, but in a store so many different issues arise, and they can all contribute to failure. From a systemic standpoint, you need more options to solve various order and inventory issues. Can you kick the order to another store? What if it's a multi-line order?

## Low, Medium and High-Tech Approaches

Leading warehouse solution providers today can offer merchants a three-tiered approach to leveraging existing technology combined with new solutions: Low tech, medium tech and high tech.

A low-tech approach can include a mixture of voice, RF and pick-to-light components. Existing technology can be leveraged with these functions layered on top, optimizing performance and creating a shorter cycle with the existing infrastructure.

A "racetrack" approach can be used to optimize picking, driven by WES software that eliminates all "dead-heading" and increases productivity. An order can be injected in and interrupt the flow, and orders are managed in real time.

In a medium-tech solution, an existing three-level zone route pick model and a sorter merger conveyor system can be converted to a racetrack process, increasing the throughput by up to 30%, depending on

the existing systems.

On the high tech side, warehouse systems are purpose-built in modular fashion, making them flexible and scalable by design. This allows for things like reconfiguration of conveyors so new diverters can be added without ripping out existing pieces. An in-or-out transfer of shuttles sorts between the aisles without leaving the shortage queue, lowering the cost and optimizing the flow. The shuttle now becomes a storage bumper, a sequencer engine and a vertical and horizontal sorting engine, all in queue.

In a high-tech approach, robotics can be added to do item-level piece picking in several different ways, including robot-to-goods using an autonomous vehicle with a robot on board, and goods-to-robot by bringing bin picking to a robot. Picking rates in this scenario can be as high as 1,200 units per hour, double that of a human worker.

Old warehouses are being converted into new-style DTC fulfillment centers, as ecommerce orders are much different than store fulfillment. Mini-shuttles can pull out individual items so an employee can take a single item out of a tote. More nimble pieces of equipment can handle smaller orders.

"The struggle is you have to essentially do both: Ship from a distribution center to stores and ship direct to consumers," Khodl said. "We're seeing new fulfillment centers getting implemented. A lot of our clients have split up the distribution center in the last few years. There's a lot of money saved when we help them can figure out how to enhance their facilities rather than having to start from scratch. There are no one-size fits-





all solutions because everyone comes into it with something in place. And what we've seen is that it is much less about the specifics of the equipment, but finding the right business model that leads to success."

Christine Miller, Director of Operations for American Eagle Outfitters, found that implementing the correct software for the business drove great gains in productivity.

"We have the latest and greatest technology, the latest and greatest in conveyor systems," Miller said. "We haven't really used robots, but are using unit sorters and cross belt sorters, and that takes a lot of the human element out of the processors. We're looking at automatic baggers, expanding our inventory systems, and looking at different shuttle systems and cranes."

Miller said Vargo's COFE WES has brought a lot of efficiency to American Eagle's operations. "We're using COFE to help us process direct-to-customer, and we use it in an omnichannel role," she said. "We're shipping 60% more year-over-year, understanding operationally what works best, and it allowed us to process 2.5 million units in eight days. Our speed to customer is very, very good."

While the system is efficient, American Eagle will need to find great efficiencies as volume continues to

grow. "The good news is we've worked with Vargo for quite some time, and will continue to work together to keep on improving the process," Miller said. "They pull our data, and I have a point person that I work with, and we have a DC point person here. We meet on a regular basis to continue to improve our processes."

## Solutions for Ongoing Labor Issues

For retailers, the problem with staffing up for peak holiday performance in distribution centers is not going to go away anytime soon. But there are solutions available to help.

"The workforce is transient, there's no other labor available, and the labor pool is not getting bigger," El-dred said. "The solution is to decouple processes as much as you can. There are lots of things involved in a packing process, and you need to have each person do one step of the process. We need to look at how to do this in an automation process. There's automated storage and retrieval systems (ASRS) that can reduce the labor need, such as a pouch sorter called Mona Lisa. It keeps batch sizes very large, and eliminates all the labor between induction and packing."

Khodl agrees that automation is the way to go.

"Customers are struggling," he said. "They just can't keep the workforce, and they have a high turnover rate because there's a price war for labor in the warehouse. In the peak months, where do you find good workers? The robot is the peak labor replacement."

Osburn points out that the labor shortages have pushed innovation, leading to higher levels of automation. "If you can't find the people, you have to augment the equipment and process," he said. "Companies are also spending more money on training. The ones who are able to make temp workers productive right away are having better results."

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