







TECHNOLOGY CONQUERS LOGISTICS CHALLENGES




DECODING IMPROVEMENT POSSIBILITIES

By Jennifer Storelli



The most common logistics problems across all industries can be summarized by three Vs: visibility, variability, and velocity. Logistics managers want to know where their companies' products are, how to ensure they have the right amount of product to meet demand variations, and how to move fast enough to keep up with demand, explains St. Claire Gerald, CSCP, principal consultant at Harambee Logistics Solutions. Plus, as the market changes, such as with the growth of e-commerce and omnichannel retail, companies need to find new ways to meet these needs.

The answer, Gerald says, lies in technology. "If you're not embracing technology, you're not going to be in business very long," he explains. "It used to be ... that the big dominated the small. Nowadays ... it's the fast who are going to dominate the slow. So, you have to be quick, you have to be agile, you have to be flexible, [and] you have to be resilient, and you can't do all of those things without technology."



STAYING COOL

Jacksonville, Florida-based Beaver Street Fisheries relies on visibility technology to track the inbound movement of its seafood products from Asia. However, the frozen-seafood supplier is not just worried about where the products are, but also whether the integrity of its cold chain has been maintained, says Chief Information Officer Scott Lane.

After their 12-week journey from sea, to processing and freezing in an Asian facility, and then traveling by ship to Jacksonville, Florida,

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all products are checked at the port for temperature integrity. “If a container comes with 45,000 pounds of seafood, and it hit 45 degrees for more than 30–45 minutes [for example], it can cause all kinds of problems,” Lane explains. “And if we refuse that load, because of safety issues or just any other quality issue, it’s another 12 weeks for us to replace that load.” With such long lead times, it’s very important to Beaver Street Fisheries’ fulfillment strategy to ensure that safe, quality products are delivered when the ship arrives in the port.

As a risk management measure, the company would order more seafood during the summer months to compensate for any spoiled loads and reduce the lead time for replacement orders. However, this sometimes left the seafood supplier with surplus inventory that required storage at freezing temperatures, which is costly, Lane notes.

To better monitor its products in transit on both the inbound and outbound ends of its supply chain, Beaver Street Fisheries invested in cold-chain monitoring devices from Sensitech and Cargo Data. Both

refuse the product, and then we’re back in the same boat of needing to replace it,” he explains.

Other technology options have helped Beaver Street Fisheries boost its supply chain visibility and communication with suppliers. The company recently partnered with SafetyChain to streamline the paperwork and communication associated with shipping frozen seafood around the world. SafetyChain’s portal enables Beaver Street Fisheries and its vendors to send and receive purchase orders; the appropriate import and export paperwork; information about when the order was supposed to go to port, when it actually arrived at the port, and who delivered it to the port; and photos of the product at different steps of the journey.

Combined, these solutions help Beaver Street Fisheries boost its visibility and track and respond to variations in temperature, supply, and distribution timelines.

KEEPING UP WITH VARIABILITY

Outside of these variations, logistics managers are concerned about managing demand variability.

Companies need to be able to plan for seasonal demand

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companies offer a range of temperature-sensing and -recording devices that monitor and record a product’s temperature throughout the cold chain and can even set off alarms when the temperature is out of tolerance.

Some of the recorders are passive and require the user to download the temperature data after retrieving the device. Others offer real-time monitoring and satellite tracking and broadcast the information to the company. The latter type, though more expensive, can be worth the investment, Lane says. For example, when Beaver Street Fisheries sends its product by truck to retailers, employees can monitor the temperature throughout the journey. If the temperature of a product begins to rise, someone can contact the truck driver to check on the shipment. “[If instead] we let the product go all the way to the customer and reactively find out that there’s temperature abuse ... then [the customer] will have to

and adjust if demand predictions change, Gerald says. Point-of-sale systems can help companies collect data to plan for the demand, but flexible order-fulfillment technology is needed to actually supply to this demand. This is where tilt-tray sortation systems come in, according to Gerald.

“The big thing that’s happening right now is utilization of automated picking [and] sortation systems where you have goods-to-person rather than person-to-goods picking,” Gerald says. “Everything is about speed and efficiency, [and] a lot of companies now are ... using tilt-tray sortation systems ... so that saves a lot of time and effort.”

The Apparel Logistics Group (TALG) transitioned from a pick-to-light system to a tilt-tray system about seven years ago. Since then, the system’s flexibility has helped the Lewisville, Texas-based company keep up with the changing demands of the e-commerce industry.





“When we built the building, we built it in light of the retail environment,” recalls Joe Bongiovanni, senior vice president of distribution operations. “At that time, retailers were ordering more inventory ... in excess of 15 units per order. And what we’ve seen over the last couple of years is that number has dwindled greatly because of the onset of e-commerce orders, which are ... on average 1.2 units per order.”

Tilt-tray systems are fast, adaptable order-fulfillment solutions that can manage product inventory and help prepare items for distribution. Essentially, the system obtains needed products—either automatically or from a human operator—and routes them to individual sorter trays, which have bar codes to identify and track the products. These trays travel on a conveyor and then tilt to deliver the products to the appropriate chutes, which deliver the products for packing and shipping, explains Satyen Pathak, senior product manager at Intelligrated, which offers an array of sortation systems. These systems are common in retail, e-commerce, and omnichannel operations, especially those that process more than 18,000 units an hour for both single-unit and multiple-unit orders, he says.

TALG uses a Crisplant tilt-tray system with 408 chutes, which can be assigned to individual customer orders or specific store orders and reassigned dynamically as needed, Bongiovanni says, adding that the system has helped the company boost its output from 150–200 units per operator per hour to 300–400 units per operator per hour. It also helped the company better balance its workload, deploy its labor more efficiently, and boost its inventory accuracy to 99.2 percent.

Most importantly, the tilt-tray system helps TALG keep up with its customers’ demands. “The industry is very dynamic right now,” says Ken Bloomberg, manager of business development. “We have existing customers who are challenging us to develop expertise in new areas of the business, because people who started with us who were in that classic retail distribution model obviously are now looking for more assistance with e-commerce or omnichannel, in other words, for them to meet whatever their customer’s expectation is. ... The tilt-tray, in a way, it’s a dynamic processing method that we can use for a very dynamic business, and I think that’s one of the advantages that we have with it.” The combination of automation and flexibility the tilt-tray system provides should help the company keep up with changing marketplace needs.

ADVICE FROM THE EXPERTS

The task of evaluating and selecting the right technology for your business can be daunting. How do you know if you are approaching the mission properly, doing your due diligence, and considering the right aspects of the problem and available solutions?

When preparing to implement new technology, St. Claire Gerald, CSCP, principal consultant at Harambee Logistics Solutions, suggests that companies start by mapping out their processes. Look at your current state, chart what your future state is going to be, and figure out how you are going to get there, he advises. On a macro level, you should also consider your company’s environment—how your industry is changing, what your competitors are doing, and how the domestic and global economies are changing—and how that will influence your processes.

During product evaluation, you need to consider the return on investment (ROI) of your purchase. Some types of technology could take years to deliver any returns, depending on your company’s economy of scale, so it’s important to make sure the ROI is reasonable for your purposes, Gerald says.

It’s also important to ensure that any technology you’re considering speaks the same language as the other solutions your company uses, advises Ken Bloomberg, manager of business development at The Apparel Logistics Group. “There may be a piece of technology that’s very attractive just based on its performance, but you have to be sure that you can integrate it into all of your other systems,” he says. “If every time you’re using that technology you have to write routines or you have to add operations to what you’re doing, then maybe you’re really not accomplishing the gain that you expect to get out of the investment.”

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VOICE AND VISION

Some of the more futuristic innovations on the market—including some that sound like something right out of a spy or science-fiction movie—are helping to boost velocity, the third V in the logistics trifecta.

For example, voice-picking systems are primarily controlled by audio prompts and feedback. These types of systems speed up manual picking and deliver a heads-up picking experience, as the user does not have to refer to a piece of paper for directions or to take notes.

Lucas Systems couples its voice-directed platform with work-optimization software and real-time management tools through its Lucas Mobile Work Execution solutions. Engage, the work-optimization software, uses order and inventory information from a company's warehouse management system (WMS) or enterprise resources planning system to plan and optimize each picker's work and reduce the amount of walking, explains Ron Kubera, executive vice president and chief marketing officer.

The system commonly is used in distribution centers with 50 or more material-handling workers, he notes. Each picker is connected to Jennifer, the voice of the system, via an Android smartphone, radio-frequency (RF) device, or mobile computer with a connected headset. "We use Jennifer as the personification of the system because we don't want people using it to perceive it as merely technology or a system," Kubera says. Jennifer is a recorded human voice that users talk to in order to receive directions, confirm their work, and ask questions. The company specifically used a human voice, instead of a computer-synthesized voice, to make the user experience more comfortable.

The comfortable voice commands increase ease of use and reduce the time to train new employees. After installing the Lucas Mobile Work Execution System, Resnick Distributors was able to cut its training for new pickers to less than a day, according to a case study. Within a year of implementation, the Brunswick, New Jersey-based consumer products distributor also reported it reduced its overtime by 80 percent, its labor costs by 30 percent, and its picking errors by 60 percent.

In testing vision-picking systems, DHL also discovered a 25 percent jump in picker productivity and improved speed and picking accuracy, says George

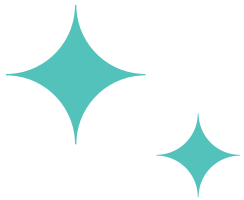
Bowser, senior director of solutions design and global automation practice lead for DHL Supply Chain North America.

In late 2014, the company tested Google Glass and VuzixM100 head-mounted displays coupled with an Ubimax vision-picking solution in a facility it manages for Ricoh in the Netherlands. Ten order pickers were given the vision systems as an alternative to RF devices for their picking and sorting tasks. The wearable devices have built-in cameras that function as hands-free scanners to confirm accurate picks, Bowser explains. The Ubimax application, in turn, connects the devices to a WMS to send the picker visual information about where to go in the warehouse, what product to pick, and where to put the picked item and automatically updates product inventory as items are picked.

The Ubimax interface enables the user to sign in by holding his or her identification card in front of the glasses and scanning it with the built-in scanner. Next, the user scans a picking cart to activate a visual display of task information, such as task progress, the aisle number and location of the product to be picked next, the product quantity to be picked, and where on the cart to place the picked item.

During its three-week trial, DHL's 10-person picker team picked more than 20,000 items and fulfilled 9,000 orders much faster than usual and without errors. "We believe this is going to be a game changer to how we run our operations," Bowser says. "[Vision-picking technology has] all the advantages of an RF device and a voice-picking device, plus it's got some additional advantages around being able to display information. And that's just for the basic functions. There are other capabilities these kinds of devices can do especially around kitting ... and maintenance that are beyond anything else that's out there."

The DHL team started expanding its test into a global pilot, including tests in North America, the United Kingdom, and mainland Europe, in the second quarter of 2016. "There are a couple of things we want to prove," Bowser says. "[For example,] we want to compare it to a good base process and get a solid curve on what it does for productivity so that we can really build a business case based on that." The business also is testing system integration with RedPrairie and Manhattan WMS





Voice-picking technology, like that of Lucas Systems, provides a heads-up picking experience with audio prompts and feedback via a headset and connected mobile device.

packages. If the assessment yields productivity and quality improvements, Adrian Kumar, DHL's vice president of solutions design North America, says the decision to implement will be a "no brainer."

Although smart glasses are fairly new to the workplace, a 2016 report by Lux Research identified at least 70 enterprise deployments for the technology. Most of the deployments are still in pilot phases, like at DHL, but companies are using the augmented reality devices for accessing information, real-time communication, and documentation, the report states.

THE ROAD AHEAD

Even when the most cutting-edge technology is implemented, the logistics challenges of visibility, variability, and velocity are not solved for good.

"It's kind of like the Japanese term *kaizen* or continuous improvement," Lane says. "Once you put technology in, it's almost out of date, so you're always having to reevaluate either what's changed in the marketplace, what tools work together well, which ones don't, who are the industry leaders, [etc.] ..." As opposed to investing in a massive system overhaul every three years, Lane suggests making small, incremental changes that are easier to manage.

Although it requires a substantial financial investment, planning for continuous technological improvement offers a competitive advantage, Gerald says. "You can't rest on your laurels ... because there's always someone out there looking to be the next big

thing," he says. Companies must stay ahead of the technology curve and enthusiastically explore the latest innovations.

Jennifer Storelli is associate editor for *APICS* magazine. She may be contacted at editorial@apics.org.

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