

# MODERN MATERIALS HANDLING®

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March 2015

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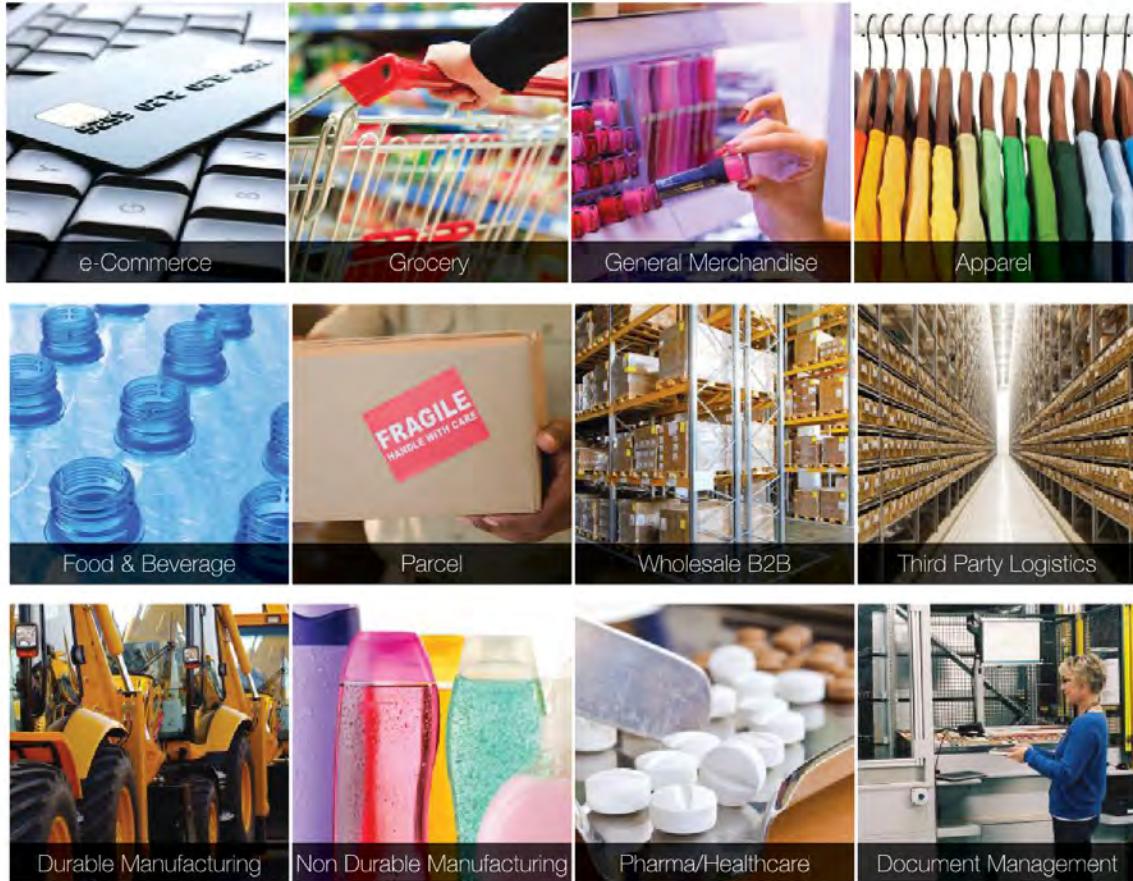
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## Linde and Balyo finalize agreement

LINDE MATERIAL HANDLING (LMH) and robotics specialist Balyo have agreed to enter into a strategic partnership.

With this cooperation, LMH seeks to intensify its activities in the field of robotic industrial trucks, while Balyo aims to achieve market penetration for its innovative technological solutions. The two companies are planning to collaborate in development, manufacture and sales under the umbrella of "Linde robotics."

"Our aim is to extend our range of automation solutions to offer our customers solutions having different levels of complexity," said Christophe Lautreay,

chief sales officer at LMH. "With Balyo, we were able to persuade the technology leader in robotics for materials handling equipment to cooperate exclusively with us so that we can now combine the best of both worlds."

Based on standard Linde trucks, robots driven by Balyo technology use an embedded autonomous laser-assisted technology which relies on structural features such as walls, racks or columns.



## Yaskawa Motoman announces partnerships with university teams for Amazon Picking Challenge

YASKAWA MOTOMAN has selected Rutgers University's PRACSYS Lab, The University of Texas Nuclear Robotics Group (NRG) and Worcester Polytechnic Institute's Autonomous Robotic Collaboration Lab (ARC) to each receive a Motoman dual-arm robot that will be deployed for the Amazon Picking Challenge (APC).

This open competition aims to further the development of robot capabilities required for e-commerce and other materials handling. According to Erik Nieves, technology director for

Yaskawa Motoman, "The PRACSYS lab is at the forefront of research in motion planning—a crucial element for success in semi-structured environments."

As one of the premier robotics engineering programs in the country, WPI is a great partner, Nieves said. Dmitry Berenson, director of ARC Laboratory at WPI, added, "The APC gives our students

the opportunity to work on an important real-world problem."

These three teams were chosen after a rigorous selection process. For more information on the APC, visit [amazonpickingchallenge.org](http://amazonpickingchallenge.org).



## MHEM orders grew 8.1% in 2014

MATERIALS HANDLING EQUIPMENT new orders grew 8.1% in 2014 and are forecasted to grow 9% for 2015 and 7% in 2016, according to the latest Material Handling Equipment Manufacturing Forecast (MHEM) released by MHI.

"We expect economic fundamentals to favorably support material handling equipment manufacturing expansion through 2015 and 2016," said Hal Vandiver, MHI executive consultant.

In addition, materials handling equipment shipments grew 4.5% in 2014 and are forecasted to grow 11% in 2015 and 11% in 2016 as backlogs are reduced. Domestic demand (shipments plus imports less exports) grew 5.4% in 2014 and forecasted to grow 10% to 11% in 2015 and 9% in 2016.

The MHEM forecast of materials handling equipment manufacturing is released each quarter by MHI and looks 12 to 18 months forward to anticipate changes in the materials handling and logistics marketplace.



## RPA announces Reusable Packaging Forum

THE REUSABLE PACKAGING ASSOCIATION is hosting an interactive forum for supply chain professionals who use reusables. The Reusable Packaging Forum will be held April 28 to 29, 2015, in Chicago.

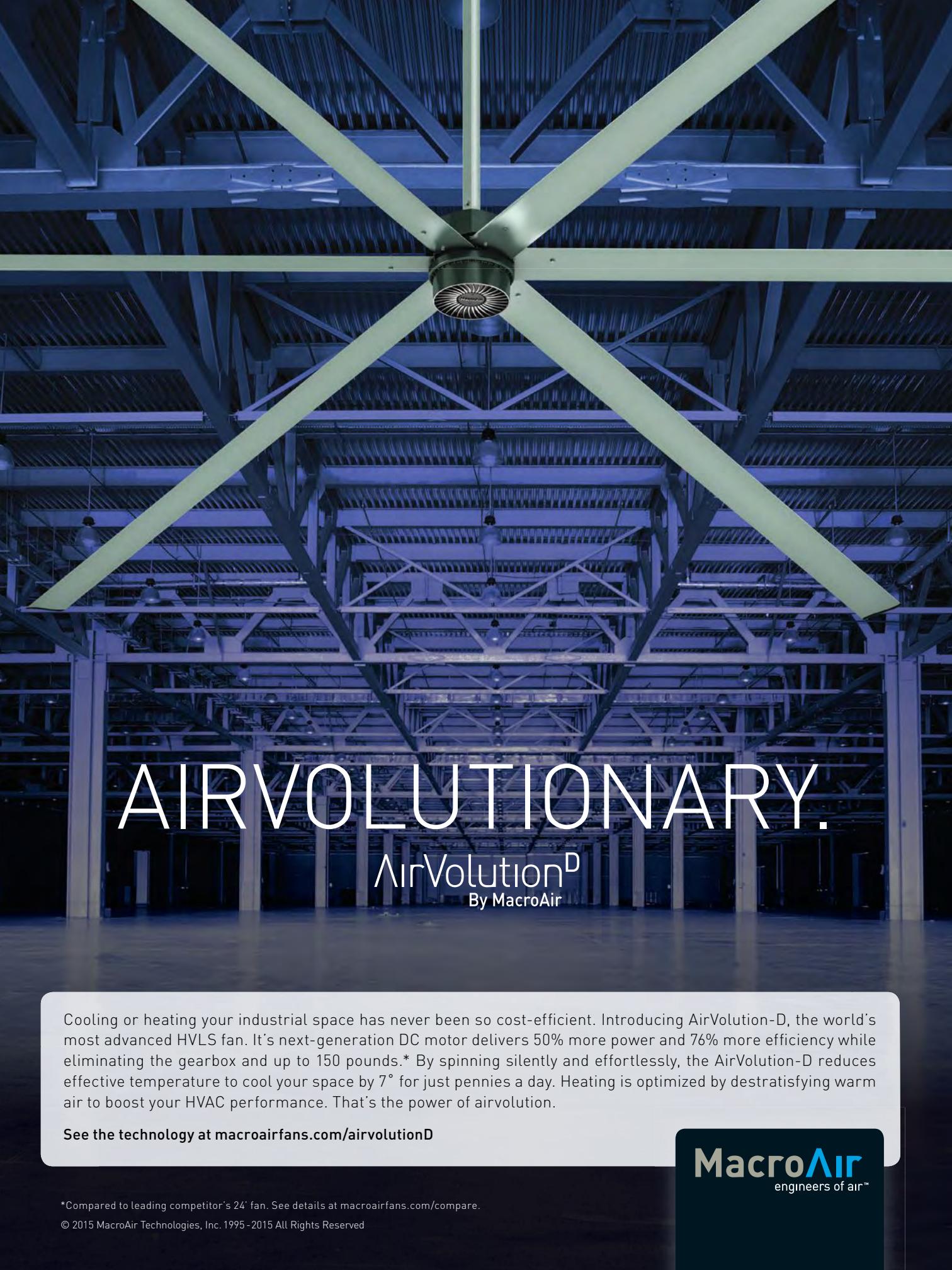
"Reusables deliver many benefits, but implementing them can be challenging because they impact the entire supply chain," said Hillary Femal, RPA chairman and vice president of global marketing for IFCO Systems. "The forum is a first-of-its-kind event that will give supply chain professionals a rare chance to share their experiences, benchmarks, and best practices in moderated learning sessions that will help identify ways

to strengthen the benefits that reusables can deliver."

In addition to moderated learning sessions and informal networking opportunities, panelists of end users will present and discuss these key reusables issues that are shared across all business-to-business supply chains.

Keynote speakers will round out the agenda, sharing global insights and experiences with reusables. To review the complete agenda and register for the conference, visit [reusables.org](http://reusables.org).



A large industrial fan with six blades is suspended from the ceiling of a warehouse. The fan is the central focus, with its blades extending outwards. The background shows the complex steel truss structure of the warehouse roof and floor joists, creating a sense of depth and scale. The lighting is dramatic, with the fan blades appearing to glow slightly against the darker background of the industrial space.

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Brian Gibson

## COVER STORY

### 20 ProMat 2015 show preview

ProMat 2015 will feature more than 800 exhibits and include a comprehensive educational conference. The event will offer an array of products to increase productivity in your operations.

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High-fashion, e-commerce company automated fulfillment to meet the next-day shipping challenge.

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Beginning upstream with DC network design, implementing fulfillment rules at the order management and WMS levels, and streamlining processes in the DC all pave the way for an efficient last mile.

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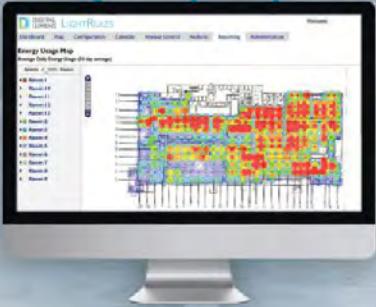
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MICHAEL LEVANS  
GROUP EDITORIAL  
DIRECTOR



# ProMat 2015: We've got it covered

Considering that MHI is expecting more than 35,000 warehouse, distribution and logistics professionals at ProMat 2015 in Chicago this month, there's a good chance that you're reading this column while taking a break from walking the show floor—which just so happens to be the largest in the trade show's 30-year history.

In fact, we'd be remiss if we didn't congratulate the team at MHI, the material handling industry's trade group and sponsor of ProMat, on booking more than 800 exhibitors that are being showcased throughout the 325,000-square-foot show floor.

According to MHI, this marks an increase from the 300,000 square feet of exhibits booked at ProMat 2013, further validating the heightened role materials handling equipment, automation and software are playing in keeping the U.S. economic engine purring.

If you are taking a break from the floor, I would suggest turning to page 20 where the *Modern* editorial team has collected more than 110 of the most innovative products being exhibited this year. This special Show Preview section is designed to help cut through the volume of offerings and help highlight those solutions best suited to improve productivity in your operations.

And if you're looking for even deeper coverage of what's happening at the event, make sure to pick up your copy of the official "ProMat 2015 Show Daily" that's produced in print and online by *Modern's* editorial staff on site. This year we have seven editors covering more than 50 vendor booth presentations and press conferences as well as all the keynotes in an effort to give readers the latest on new product introductions as well as the general industry buzz.

While much of the discussion on the floor this year will be centered around the strategy and automation necessary for meeting today's omni-channel fulfillment challenges, the topic of maintenance, repair and overhaul (MRO) is moving center stage as more companies are basing their operational foundations on these automated solutions.

In fact, MRO is emerging as a critical new best practice, one that's becoming every bit as important as the technology chosen for a system. "MRO is also becoming an area of competitive differentiation among leading automation providers, who are now touting the depth of their technical bench, their ability to monitor a system 24/7, and their expertise at service parts management," says executive editor Bob Trebilcock.

Realizing the increased importance of uptime and the need for the skilled technicians to make that possible, *Modern* has developed a special supplemental issue titled "Materials Handling MRO and the Future of the Technical Workforce" that's being launched at this year's ProMat.

This special 28-page edition, which you'll see in the publication bins at the show, neatly defines the role MRO best practices are now playing, shares how users and vendors are working in cooperation to develop the technical workforce, and reveals new research from Peerless Research Group (PRG) that shows where *Modern* readers stand in terms of implementing MRO practices.

Not only do we have every square foot of ProMat 2015 covered, but our special MRO edition has the leading emerging issue of the next few years well defined for you. As we have done for the past 70 years, *Modern* is keeping readers one step ahead.

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# NEWS & TRENDS

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## PACKAGING

# World bulk packaging demand to exceed \$59 billion in 2018

**GROWTH EXPECTED TO OUTPERFORM THE 2008-2013 PERIOD ACROSS THE GLOBE; CHINA DECELERATES AS NORTH AMERICA FOLLOWS RISING FOOD, BEVERAGE, CHEMICAL AND PHARMACEUTICAL PRODUCTION.**

BY JOSH BOND, ASSOCIATE EDITOR

WORLD DEMAND for bulk packaging is projected to increase 5% annually to \$59.2 billion in 2018.

This increase will be an improvement over the 2008-2013 period, when growth in demand was particularly sluggish in the world's most developed markets, especially Japan and Western Europe. Accelerating growth in global manufacturing activity will be the primary driver for demand gains. These and other trends are presented in "World Bulk Packaging," a new study from The Freedonia Group, a Cleveland-based industry market research firm.

According to analyst Mike Richardson, gains in the United States will be driven by increased demand in food and chemical applications, as growth in food and beverage processing as well as chemical and pharmaceutical production are expected to accelerate.

The report anticipates flexible bulk packaging will register slightly faster growth than rigid packaging. Gains in flexible bulk packaging will be led by film wrap and flexible intermediate bulk containers (FIBCs). "Film

wrap has gained market share from strapping in some applications like securing pallets and other packaging formats during shipment," Richardson said. "Also, multi-packs and other formats seen in warehouse-style stores have encouraged its use."

FIBCs will register strong advances due to the advantages they offer in terms of efficiency advantages, loading and unloading products, and their ability to handle greater quantities of product per container. In rigid bulk

packaging, RIBCs and materials handling containers are projected to register faster growth than the somewhat more established drums and pails. Drums will remain the largest rigid bulk packaging product type, even as they surrender market share to FIBCs and competitive rigid formats, the report said.

"The waning popularity of drums is mainly attributable to the waning popularity of fiber drums," Richardson said. "Plastic and steel are expected to register fairly decent growth, in part due to their durability and reusability. Fiber drums, which are reusable in some instances—especially with liners—are more widely used in single-trip uses."



**According to a report from The Freedonia Group, gains in flexible bulk packaging will be led by film wrap and flexible intermediate bulk containers (FIBCs).**

## MANUFACTURING

# Manufacturing Day 2014 smashes all participation goals

MANUFACTURING DAY 2014 exceeded all expectations, with events extending far beyond October 3 to

officially wrap up on Dec. 12, 2014.

A total of 1,679 events were held across North America, in all 50 states,



**More than 260,000 people attended live Manufacturing Day events.**

three Canadian provinces and Puerto Rico. For the first time this year, more than a dozen virtual events were held, allowing participants to join in from anywhere. Discovery Education and Alcoa hosted the largest virtual event—with more than 100,000 students participating. Based on data collected from host company evaluations, more than 260,000 people participated in live events. This brings the total number of individuals involved with Manufacturing Day activities to nearly 400,000.

President Barack Obama attended his first Manufacturing Day event, an open house at Millennium Steel Service in Princeton, Ind. Official proclamations were issued across the country celebrating Manufacturing Day, Manufacturing Week and Manufacturing Month. When declaring Oct. 3, 2014, as Manufacturing Day in the United States, Obama said, "With ingenuity and a determined spirit, hardworking Americans are creating products and unlocking new technologies that will shape our nation and grow our economy."

"Our goal, when we created Manufacturing Day three years ago, was to bring manufacturing into the mainstream," said Ed Youdell, president and CEO of the Fabricators & Manufacturers Association (FMA), one of the co-producing organizations. "We wanted to make it possible for people who were not acquainted with the many contributions of this sector to learn about it and for young people to be introduced to the career

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Manufacturing Day is an annual national event, executed at the local level by more than a thousand manufacturers across North America that host students, teachers, parents, job seekers and other local community

members at open houses designed to showcase modern manufacturing technology and careers. The national media partners for the event are the Science Channel and Edge Factor, and the national movie partner is American Made Movie.

## SUPPLY CHAIN

### Wynright partners with Olive-Harvey College to offer ‘living laboratory’ to supply chain students

IN FEBRUARY, WYNRIGHT CORP. convened its first class for students of Olive-Harvey College’s transportation, distribution and logistics (TDL) program at Wynright’s Oak Lawn, Ill., technology center.

Olive-Harvey College, based on Chicago’s far South Side, offers a number of programs in transportation, distribution and logistics. The logistics management curriculum’s focus on procurement, inventory, customer service, international logistics, warehousing and distribution, and transportation will help to prepare students for the 110,000 TDL jobs anticipated in the Chicagoland region over the next decade.

At Olive-Harvey, a \$45-million, 103,000-square-foot TDL facility is currently under construction and scheduled for completion in 2015. Currently, Olive-Harvey offers certificates and degrees in logistics management, commercial truck driving, public chauffeur training, and forklift certification.



A \$45-million, 103,000-square-foot TDL facility is currently under construction and scheduled for completion in 2015.

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The new TDL facility will also serve as City Colleges of Chicago's Central Distribution Center for all seven City Colleges. Students enrolled in the logistics management program are required to take three courses dedicated to warehousing and distribu-

tion theory and hands-on training.

"Giving our students the hands-on experience to enable future business success is a key part of our mission at Olive-Harvey College," said Ruben Howard II, dean of the TDL Program. "Wynright enabled our students to

experience a logistics environment firsthand, an important step toward building the skills critical to their roles as the next generation of logistics professionals."

## ROBOTICS

### North American robotics market reports strongest year ever in 2014

ROBOT ORDERS AND SHIPMENTS in North America set new records in 2014, according to Robotic Industries Association (RIA), the industry's trade group.

A total of 27,685 robots valued at \$1.6 billion were ordered from North American companies during 2014, an increase of 28% in units and 19% in dollars over 2013. Robot shipments also set new records, with 25,425 robots valued at \$1.5 billion being shipped to North American customers in 2014. Shipments grew 13% in units and 6% in dollars over the previous records set in 2013.

The automotive industry was the primary driver of growth in 2014, with robot orders increasing 45% year over year. Non-automotive industries also performed well throughout the year, growing 7% in total over 2013. The standout non-automotive industries in 2014 in terms of order growth were plastics and rubber (25%), semiconductor and electronics (21%) and metals (16%).

According to Alex Shikany, director of market analysis for RIA, the fastest-growing applications for robot orders in North America in 2014 were arc welding (+58%), spot welding (+57%), assembly (+16%), and materials handling (+11%). RIA estimates that some 230,000 robots are now at use in U.S. factories, placing the United States second only to Japan in robot use. □

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## Ergonomics in the details

*Equipment manufacturers turn to operators for insight into everything from clipboards to chassis design.*

By **Josh Bond**, Associate Editor

**W**e've all seen a lift truck dash fitted with a makeshift cup holder or a duct tape and cardboard pen organizer as lift truck operators find creative ways to improve their comfort and productivity. What might surprise those operators is that equipment manufacturers take those modifications very seriously, often by taking them to the drawing board during the design of new models. According to Scott Carlin, electric product planning and product support manager for Toyota Material Handling USA, the old focus on a lift truck's mechanical design has been replaced by ergonomic considerations.

Creature comforts are not merely afterthoughts meant to put a veneer of convenience on a piece of industrial equipment, Carlin says. Instead, the design of virtually every component of a lift truck is rooted in a concern for the operator's well-being.

"There are lots of little opportunities, but not one of them is small," he says. "Combined, they can make a huge impact on the operator's productivity. When I'm comfortable doing daily functions, I become more efficient, I do better work, and I will come back to work tomorrow."

When ergonomic considerations first began creeping into lift truck design, manufacturers would often partner with local colleges and ergonomic specialists. That helps, Carlin says, but now it's more about talking directly with operators, visiting their sites and learning as much as possible about their day-to-day concerns.

"It was not often a focal point when designing a piece of equipment, but we began to hear a lot from our customers about step height," Carlin recalls. "If an operator is hopping on and off all day, as much as a hundred times per shift, and you shave 2 inches off the step height, it's a big deal by the end of the day."

But changing the step height is not as simple as welding on a lower rung. When engineers lower the platform, they're lowering the operator, which impacts the platform, the uprights, cylinder placement and more. A straightforward complaint can therefore inform a complete redesign of a lift truck. Even a product's engine and power supply



are developed with ergonomic ramifications in mind. A breakdown is not just bad for productivity, it's bad for morale. Similarly, an efficient lift truck that requires fewer battery changes means the operator doesn't have to handle a battery as much.

"It all comes back to ergonomics and not asking as much from the operator," he says. "It's not just about product quality, it's whether it makes the operator happy."

After collecting and integrating a variety of requests, the ergonomic options for a lift truck are now plentiful: floating floors on standup products, swivel seats, full suspension seats, rear assist grips, adjustable and telescoping steering wheels, power steering, foot-operated parking brakes, air conditioning or heated cabs, seats and control handles, automatic fork levelers, fork lasers for accurate positioning, swiveling computer mounts, integrated or magnetized clipboards, USB plug-ins and more.

"These are all onesie-twosie things that operators say they definitely feel at the end of a shift," Carlin says. "Tie them all together, and it can really change their day."

---

*Josh Bond is Modern's associate editor and can be reached at [jbond@peerlessmedia.com](mailto:jbond@peerlessmedia.com)*

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## Keep your existing palletizers in service

*Safety and control retrofits simplify conventional palletizer operation and extend machine longevity.*

By Sara Pearson Specter, Editor at Large

With more than 50 years of manufacturing automatic high- and low-level conventional palletizers, vonGAL, a product line of Premier Tech Chronos, has 3,500 machines in operation today on packaging lines throughout North America.

To help facilities keep existing palletizers in service for as long as possible, vonGAL offers a variety of safety and control retrofits. "Companies see that our newest machines offer standard safety and control features that were options and upgrades just three years ago—and they want them," explains Phillip Edwards, operations director.

Among those enhancements are light curtains, safety relays, Category 3 electrical interlocks on doors and gates, and other guarding devices that ensure operator safety.

"We have a dedicated sales, engineering and installation team to manage these retrofit services," he adds.

"We've also developed a much simpler way to reset the machine after a light curtain is triggered," he says. "In the past, resets were a multi-step procedure that customers found confusing. Today, it's done with a simple key switch that only takes a few seconds."

Further retrofits include highly intuitive, human-machine interface (HMI) touchscreen controls that display a variety of three-dimensional graphics. Among the screens, a map of the full machine highlights the area where a safety device was tripped for faster location and reset. Other HMI functions display diagnostics and troubleshooting support for operation and maintenance issues.

"The graphics on the newest touchscreen controls also make it much easier for on-the-fly programming of new load building patterns," Edwards says. "When a customer receives their new machine, all the patterns they currently



use are pre-programmed. But today, with the variety of products handled, different stacking patterns are introduced all the time. This function allows a user to install a new pattern—or modify an existing one—directly from the HMI."

Older machine controls included push buttons or very basic touch functions, requiring a laptop and programming skills to make significant changes. Now, modifications can be done quickly and simply with a touchscreen.

"The new control packages also offer multiple levels of authorization—allowing password access for operations, supervisors and engineers—for optimized machine performance and better accountability," Edwards added.

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Sara Pearson Specter is an editor at large with Modern and can be reached at [sara@saraspecter.com](mailto:sara@saraspecter.com).

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# SHOW PREVIEW



## SHOW HOURS

Monday, March 23	10:00 a.m. - 5:00 p.m.
Tuesday, March 24	10:00 a.m. - 5:00 p.m.
Wednesday, March 25	10:00 a.m. - 5:00 p.m.
Thursday, March 26	10:00 a.m. - 3:00 p.m.



# ProMat 2015: Pearl of productivity

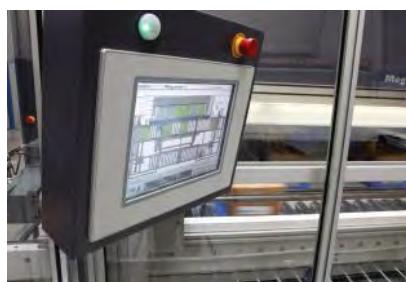
ProMat 2015, slated to be held March 23-26, will feature more than 800 exhibits and include a comprehensive educational conference. The event, held at the McCormick Place South, will offer an array of products to increase productivity in your operations. Here's a guide to many of them.



## Software optimizes the functionality of automated systems

Order fulfillment solutions powered by iQ performance optimizing software run more efficiently and productively. The software directs and optimizes operational processes—from planning to order fulfillment and shipping—within a single flexible, scalable and modular platform. It offers visibility and insight into system performance with a focus on labor and mechanized automation such as conveyors, sorters, automated storage

and retrieval systems, and automatic guided vehicles. Intuitive dashboards are accessible from desktop computers, laptops and mobile devices, while a built-in data layer sets the foundation for analytics. Dematic iQ can be configured to control all the intra-logistics processes from receiving to shipping; or it can be configured to control a specific function such as piece picking with voice-directed technology. The supplier will also demonstrate new process improvements for piece/case picking and pallet handling automation. Dematic, 877-725-7500, [www.dematic.us](http://www.dematic.us). Booth 1203.



## Machine groups order lines for buffering, small parts picking

Using sort2ship for compact, high-speed case and tote buffering and sequencing, order

lines from various storage systems—including storage lifts, vertical carousels, and static shelving—are grouped together. Conveying technology, in combination with an automatic load-handling device, automatically transports containers to the supplier's Megamat RS vertical carousel for buffer storage. On demand, the containers can then be sequenced according to customer-specific shipping options (such as delivery time) and automatically retrieved for packaging or sent directly to shipping. The machine enables distribution centers and e-commerce suppliers with several thousand order lines per day to increase picking productivity; it can also be used for small parts goods-to-person order picking. Kardex Remstar, 800-639-5805, [www.kardexremstar.com](http://www.kardexremstar.com). Booth 2031.



## Flexible, scalable AS/RS delivers quadruple-deep storage with shuttle

Ideal for high-volume distribution operations and short order cycle times, the OLS one-level shuttle system is a flexible, scalable and efficient automated storage and retrieval system. Applications include goods-to-person order fulfillment, just-in-time inventory management, and product sequencing and buffering. The shuttle stores and retrieves items from single-deep up to quadruple-deep storage, and can be outfitted with a range of load handlers to accommodate a variety of product types and sizes. Shuttle vehicles can be shared between levels or dedicated to a single level to provide quick access to cartons, totes and trays in a reduced footprint. **Intelligrated**, 866-936-7300, [www.intelligrated.com](http://www.intelligrated.com). Booth 2903.



## Flexible, scalable, automatic guided cart system is customizable

Scalable and customizable, the Model 100TT SmartCart automatic guided cart (AGC) system is a cost-effective way to flexibly optimize material movement around manufacturing facilities and warehouses.

Guided by magnetic tape, the guideway can be installed or modified in just a few hours. The durable carts provide reliable and consistent point-to-point movement of loads ranging from small parts to heavy pallets. In assembly operations, the carts can be customized with a load handling carrier or a scissor lift; they can also form a continuous moving line synchronized at a close distance, while traveling at a slow speed. In warehousing, the carts can be equipped as tuggers, towing loads ranging from 60 to 6,000 pounds. Optionally, they can be outfitted with a single or dual roller conveyor for delivering pallets as large as 48 inches to and from roller conveyor systems. A counterbalanced fork version is ideal for picking up and dropping off pallets from conveyors, stretch wrappers or the floor. **Daifuku North America**, 248-553-1000, [www.daifukuNA.com](http://www.daifukuNA.com). Booth 1013.

## Direct store delivery system ideal for beverage handling

Comprised of four key components, the DSD GeoSystem (DSD-GS) optimizes beverage and other direct store delivery processes with a packaged system for picking, loading and delivering products. It includes a 4,000-pound capacity electric lift, a pallet, a hydraulic sled and Pallet Wrapz reusable unit load containment packaging (an alternative to plastic stretch film). Capable of supporting GMA and beverage pallets, as well as the supplier's reusable plastic GS pallet, the hydraulic sled portion of the system speeds productivity when making deliveries on uneven surfaces, including ramps and high thresholds. **Rehrig Pacific**, 800-315-4379, [www.rehrigpacific.com](http://www.rehrigpacific.com). Booth 3627.



## Durable pallet truck incorporates user-friendly features

Tested by the United States Auto Club, the 8000 Series pallet trucks are 33% more energy efficient and 6% more productive than comparable models. Optimized features move more product in less time, including increased material strength for heavy-duty applications, a roomy operator compartment with padding and multiple lean points, accessory bars with lights and fans, large storage totes and additional caster options. The trucks also offer PowerSteer to help operators reduce steering effort by up to 90%, while speed-sensitive steering boosts productivity with precise, smooth control at all speeds. **The Raymond Corp.**, 800-235-7200, [www.raymondcorp.com](http://www.raymondcorp.com). Booth 3219.



## System-wide software optimizes internal material flow and order picking

Savanna.NET warehouse execution system combines a tightly integrated warehouse management system

and warehouse control system into a single application. The system directs, controls and optimizes internal material flow and order picking. Flexible, the system can operate as stand-alone software or integrates with the supplier's automated storage and retrieval systems to simplify and control the entire warehousing process. This allows for more efficient use of warehouse space and equipment for increased order accuracy, improved customer service, reduced lost or damaged products, and increased throughput and productivity. **Westfalia Technologies**, 717-764-1115, [www.westfaliausa.com](http://www.westfaliausa.com). Booth 1247.

## Flexible mini-load AS/RS deploys multi-level shuttles

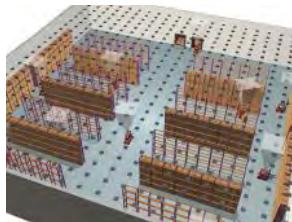
For efficient storage and picking of trays, totes or cartons in automated warehouses, the Navette flexible, multi-level shuttle can be scaled to meet overall automated storage and retrieval system requirements. The shuttle-based solution can be tailored to order volume, required throughput and individual article structure. Each unit integrates into a steel framework of mini-load AS/RS aisles and is guided by travel and support rails. Operating as a single component, the vehicle serves up to eight storage levels, two in parallel. It is equipped with two load handling devices (such as carton grabs) spaced one above the other to match the distance between two rack levels. Each device can transport two trays, totes or cartons. In one load cycle, the vehicle moves a total of four transport units simultaneously, serving storage locations on two storage levels in a single operating sequence. A cantilever configuration allows two vehicles to operate simultaneously per travel level with dynamic areas of overlap, monitoring their positions relative to one another to prevent collisions. **Schaefer Systems International (Automated Systems & Materials Handling Solutions)**, 704-731-1613, [www.ssi-schaefer.us](http://www.ssi-schaefer.us). Booth 2303.





## Real-time location system drives lift truck productivity, inventory accuracy

The Smartlift real-time location system guides, monitors and tracks every movement of a fork truck vehicle within a facility. Along with live visibility of all vehicles, operators and inventory movements, the system provides equipment monitoring and fleet management tools to track vehicle usage. To locate a truck, optical technology mounted to the vehicle decodes serialized data matrix bar codes affixed to the ceiling. The technology can track forklifts with up to 1-inch accuracy. Other sensors mounted on the lift truck provide pallet presence,



fork height, reach and pallet label data. Using real-time and historical location information collected by every truck, the system also eliminates the need to manually scan bar code labels on pallets and locations. **Swisslog**, 757-820-3616, [www.swisslog.com](http://www.swisslog.com). Booth 2912.

## Enclosed end rider for multi-shift applications

Ideal for warehouse crossdocking, shipping and receiving, the MPR080VG and MPR100VG enclosed end rider series is engineered for multi-shift applications, with 8,000 and 10,000 pounds of lifting capacity. Configured with a 160-inch fork length, the MPR100VG model can transport up to four single-stacked or eight double-stacked pallets. iSi Technology, a common control system with consistent functionality across the supplier's full line of warehouse trucks, simplifies multi-tasking by using the same software, diagnostic codes and functionality. Ergonomic features include a high backrest, fully padded compartment, and cushioned electronic floor mat with a center-mounted brake pedal and multi-zoned operator floor presence system. **Yale Materials Handling**, 800-233-9253, [www.yale.com](http://www.yale.com). Booth 1003.



## 42 x 30-inch pallet optimizes product replenishment in small-format stores

The reusable plastic 42 x 30-inch small-format HP pallet is engineered to optimize replenishment of small footprint retailers by eliminating product touches. The pallet supports full- and split-case load sorting at the point of distribution as well as direct placement on the floor of the retailer. Its 30-inch width allows for easy access through narrow doorways and tight store aisles, while contoured corners won't damage product. For ease of manual handling, the pallet weighs 20 pounds and incorporates ergonomic hand holes and molded-in stretch wrap notches in each pallet corner. A solid body construction accommodates a variety of load sizes and weights. Nestable when empty, the pallet also features generous clearance for forklifts to de-nest a full stack with slanted fork entry and a discontinuous, stepped pallet lip. **ORBIS**, 888-307-2185, [www.orbiscorporation.com](http://www.orbiscorporation.com). Booth 1803.



## High-frequency modular charging of industrial vehicle batteries

The new EnForcer IMPAQ and IMPAQ+ modular high-frequency chargers accommodate all applications in materials handling equipment, including automatic guided vehicle systems, cleaning machines and industrial electric vehicles. Providing intelligent charging with advanced efficiency, the chargers flexibly maintain peak efficiency at all times. Modules can be automatically switched on and off based on the charge cycle requirements. And, should a module develop a minor fault, the charger bypasses it for continued operation of the charging process. **EnerSys**, 610-208-1991, [www.enersys.com](http://www.enersys.com). Booth 603.

## Organize, store small parts with four-sided hanging bin

Hangable from louvered panels on each of its four sides, a new universal hanging bin adapts to changing storage needs. The bins feature a full-rim hanging cleat that also allows them to be hung from rails by two sides. In addition, the bins are sized to fit evenly across standard-sized wire and steel shelving units. Hanging the bins from their rear hanglock back creates a sloped picking face that keeps parts visible and accessible, while hanging them from the side minimizes protrusion into the work area. When the bins are hung from the front, they create a standard profile and can be filled to capacity. Nestable when empty, the bins come in seven sizes and four colors: red, yellow, blue and clear. **Akro-Mils**, 800-253-2467, [www.akro-mils.com](http://www.akro-mils.com). Booth 1831.



## High-speed mini-load AS/RS provides high storage capacity

The FX-Quad automated storage and retrieval system is a fast, flexible mini-load crane that provides high-performance handling of various product sizes and types. The system can handle one to four loads, and its twin fork, double-deep feature enables both high storage capacity and high-throughput operations. With a maximum load capacity of 660 pounds, the system can be combined with a pallet AS/RS to act as residual case management in support of high-density storage. It is ideal for use in high throughput environments such as warehousing, distribution and manufacturing. **Muratec Machinery USA (Muratec)**, 704-972-4475, [www.muratec-usa.com](http://www.muratec-usa.com). Booth 3912.



## Save energy, labor with foam-in-bag protective packaging

The Instapak Simple foam system simplifies production of foam cushions for lower-volume operations while reducing investment costs and conserving energy. Lightweight, easy to install and requiring minimal maintenance, the system is ideal for operations producing fewer than 25 packs a day. The portable device produces foam cushions without heated hoses, pumps, external controls or containers in a condensed operational footprint running at household electrical voltage. To use, an operator pushes a button to produce at least three bags per minute, generating foam materials without manual mixing or individual bag loading. The machine also aligns the foam with the center of the bag to create consistent and durable cushions. **Sealed Air**, 201-791-7600, [www.sealedairprotects.com](http://www.sealedairprotects.com). Booth 2003.



## Boost worker productivity with mobile technology

To increase the value and efficiency of employees, a selection of technology solutions deliver data and productivity to warehouses in real time. Offerings include mobile computers to printers to voice-directed devices, boosting operational efficiency by providing insight into assets being moved through distribution centers. The CK71 ultra-rugged mobile computer achieves functional agility with ruggedness, duty cycle and ergonomics to support demanding distribution environments. Features include fast-imaging engines with exceptional motion tolerance and enhanced bar code read range, plus enhanced computing performance and application response time. **Honeywell Scanning & Mobility**, 800-782-4263, [www.honeywellaidc.com](http://www.honeywellaidc.com). Booth 3563.



## Surface-mount dock lift requires no pit

With a lowered height of 5 inches, and fully raised height of 58 inches, the SMDDL surface-mount dock lift accesses loads on truck beds of any height and transfers them to a fixed height loading dock or to grade level. The lifts provide the convenience and versatility of a permanent scissor dock lift without the need for a pit, making them ideal for leased or temporary buildings. A built-in, 30-inch ramp creates a 9-degree slope for pallet jack accessibility. For traction, diamond tread is incorporated on the deck, bridge plate and access ramp. Features include an extra wide base and plate rollers for increased stability; heavy tubular legs and

cross members to minimize deflection and provide level handling of off-center loads; and capacities from 4,000 to 6,000 pounds. Platform sizes range from 6 x 6 feet to 6 x 8 feet. **Southworth Products**, 207-878-0700, [www.southworthproducts.com](http://www.southworthproducts.com). Booth 403.

## Collapsible bulk containers minimize product damage

BulkStac collapsible plastic bulk containers are constructed for exceptional strength and resistance to damage as well as improved ease of handling. Hinges recessed on a concave inset eliminate a common breakage point on the collapsible doors while maintaining a straight and flat wall inside. To eliminate sharp corners at the container's feet that are prone to fracture



and splitting, radii are incorporated at the corners. Other features include a one-piece base and fork strap, a flat deck for maximum internal cube use, and a periphery runner (instead of a center foot) for stability. The containers come in a variety of heights, including 34, 42, 45 and 50 inches, and can be outfitted with optional access doors on all four sides. **Schaefer Systems International (Reusable Packaging Solutions)**, 704-731-1613, [www.ssi-schaefer.us](http://www.ssi-schaefer.us). Booth 2312.

## Ergonomic, multi-wheel casters easily move loaded carts, vehicles

Twergo casters feature split aluminum wheels with a carved out core, allowing for thinner treads and improved ergonomics due to uniform compression. The casters come in 6- to 12-inch diameters and 2- to 3-inch widths with dual and triple wheel options. Engineered with a tread that minimizes friction and eliminates scrubbing and sliding when turning, the wheels provide easier movement of loaded carts or vehicles. **Caster Concepts**, 517-629-8838, [www.casterconcepts.com](http://www.casterconcepts.com). Booth 5244.



## 2.5-liter LPG Kubota engine included in lift truck series

The Kubota 2.5-liter premium liquefied petroleum gas (LPG) engine is now included on the supplier's S40-70FT four-wheel cushion tire and the H40-70FT four-wheel pneumatic tire Fortis lift truck series. By offering three performance modes, the engine produces the correct amount of power to maximize fuel economy in various operating conditions. The engine delivers durability by incorporating the main components from a diesel engine without using a lot of fuel. For worker comfort, the engine also reduces unit vibration experienced by drivers and noise levels for those around the vehicle. **Hyster**, 800-497-8371, [www.hyster.com](http://www.hyster.com). Booth 1503.



## Smart AGVs with reduced operational infrastructure for cost savings

A new class of automatic guided vehicle system, priced up to 40% less than comparable systems, can reduce the supporting AGV operational infrastructure. Instead, the vehicles have been made smarter, running without a supervisory system manager computer or software. Ideal for applications that currently use manual lift trucks to execute simple, repetitive pallet movement in a variety of industries, the automated vehicles are a standard forked, counterbalanced type AGV. They handle load capacities up to 5,500 pounds and reach lift heights up to 235 inches. **JBT Corp.**, 215-822-4600, [www.jbt-agv.com](http://www.jbt-agv.com). Booth 1547.

## 6-foot mobile floor fan

Featuring a compact design that allows it to fit through standard interior doorways, a 6-foot version of the AirGo mobile floor fan has debuted. It plugs into any standard 110-volt power supply for versatility and ease of use. With an ultra-efficient direct-drive motor and sculpted airfoils housed in a fabricated steel cage, the fan's robust construction and high performance make it ideal for temperature control out of the box. It incorporates an electronically commutated motor that uses no gearbox or lubricants for enhanced reliability and durability with silent operation and low energy use. **Big Ass Solutions**, 877-244-3267, [www.bigassfans.com](http://www.bigassfans.com). Booth 431.



## Vertical lift module boosts efficiency, saves space

Featuring an engineered lift configuration, the Tornado vertical lift module (VLM) is offered as a replacement for heavy lift tables. Storage trays are moved up and down by load handling devices located on the left and the right side of the machine. The machine can be configured in heights

from 13 to 50 feet, saving up to 70% floor space. With load capacities up to 1,100 pounds, the unit's trays come in widths up to 13 feet. For rapid product storage and movement, the system moves shelves horizontally and vertically for a 65% reduction in picking time. **Automation Integrators**, 877-461-2504, [www.autointegrators.com](http://www.autointegrators.com). Booth 4464.

## Optimize product flow with pick module storage system

A line of custom-engineered pick module storage rack systems provides a comprehensive solution for complex picking operations, including mezzanines, flooring and decking selections. To optimize product flow, the pick modules use pallet and carton flow racks through a storage rack system to expedite order fulfillment. Systems can include push-back, gravity flow, selective pallet rack and other storage methods and conveyors to accommodate distribution centers with high SKU traffic, high throughput or significant expansion. **Ridg-U-Rak**, 866-479-7225, [www.ridgurak.com](http://www.ridgurak.com). Booth 1512.



## Pantograph reach trucks deliver high lift speeds for greater productivity

The new ETR 340-335d series of pantograph reach trucks offers high lift speeds and high capacity retention. The 3,500- to 4,500-pound capacity trucks allow loads to be staged at higher rack levels—up to 450 inches—for greater efficiency and productivity. Performance is enhanced by advanced AC motor technology and vehicle software that minimizes energy consumption. The hydraulic system delivers lift speeds up to 160 feet per minute and supports variable reach and retract speeds for more efficient load pick-up and placement. For load stability at height and when cornering, a suspended articulating drive axle evenly balances weight. Operator ergonomic features include a spacious operator compartment, an intuitive multifunction control handle that allows travel and hydraulic functions to be easily controlled simultaneously, and extensive pantograph cushioning. **Jungheinrich**, 713-365-1000, [www.jungheinrich-lift.com](http://www.jungheinrich-lift.com). Booth 3603.

## Rings stretch bulk containers to extended heights

Originally offered in heights of 25 and 34 inches, the BN4845 series of 48 x 45-inch footprint extra-duty bulk boxes may now be specified with 7- and 10-inch extension rings. The rings can be added in any combination for extended heights in a variety of configurations; 41-, 44- and 51-inch height models are kept in stock for quick delivery. Inter-stackable (either upright or collapsed) with bins from other manufacturers, the units may be ordered with 31.7-inch wide drop-down doors that do not block fork openings. The containers come in black and feature sturdy, structural foam sidewalls connected to an injection-molded, two-piece welded base, enabling them to hold up to 2,000 pounds. Should they sustain damage, the containers are easy to repair without special tools or fasteners—panels snap into the base while the latches and hinges lock into the door. **Buckhorn**, 800-543-4454, [www.buckhorninc.com](http://www.buckhorninc.com). Booth 1219.



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## New vertical carousel systems unveiled

Two new Rotomat vertical carousels offer enhanced features that include bar code scanning options, LED lighting with an Eco-Mode function for reduced energy consumption, improved safety systems, and a variety of drawers, dividers and totes sized to meet diverse storage needs. To speed operations and improve accuracy, all options work with the supplier's item pool-and-free location management storage methodologies. The systems' compact design saves floor space while multiple configuration options allow for customization to accommodate inventory. For inventory management, the units incorporate a microprocessor-based controller for stand-alone use or to integrate with an existing warehouse management system. **Hänel Storage Systems**, 412-787-3444, [www.hanel.us](http://www.hanel.us). Booth 2319.



## Automated in-the-box packing slip and shipping label system

In addition to automating the packing slip process, the turnkey Automated Documentation System (ADS) packing slip/labeling machine also matches the packing slip with the shipping label—which is automatically applied to the shipping container. The system first scans the license plate bar code applied to the shipping container during order packing, pulling information pertaining to that particular order into the ADS. It generates a packing slip (up to 8.5 inches wide) and prints it onto tag stock or thermal paper that is then dropped into the open shipping container. Simultaneously, order information is sent to the label printer-applier where the matching shipping/routing label is printed and ready for application to the shipping container, either before or after a taping or sealing machine. **FOX IV Technologies**, 877-436-2434, [www.foxiv.com](http://www.foxiv.com). Booth 4205.



## Linerless labeling system improves efficiency, throughput with reduced environmental impact

The second generation Signature 500 label print-and-apply machine is a high-throughput, gantry-style, top-apply system engineered for linerless labeling to improve throughput. The linerless label material also produces greater uptime with up to 80% more labels per roll versus traditional die-cut label systems. With no liner waste to discard, the solution is green and efficient. In addition, the linerless technology allows the system to produce varying length labels on demand, eliminating the need for multiple dedicated systems. It is part of the supplier's ParcelMgr integrated system that accommodates cartons of varying heights with multiple label placement locations. **Bell and Howell**, 800-220-3030, [www.bellhowell.net](http://www.bellhowell.net). Booth 424.

## Adjustable label holders for high or low wire shelving

Flexible, a label holder has been engineered to snap onto major brands of standard wire shelving at three different angles: 90° (flat), 60° and 30°-degrees. This makes label information easy to view and scan without operators having to climb or bend. Made of clear plastic PVC, the label holder window protects the insertable label or bar code. Each package includes 25 holders and white paper inserts. **Aigner Label Holder**, 800-242-3919, [www.aignerlabelholder.com](http://www.aignerlabelholder.com). Booth 319.



## Clean-burning diesel forklifts meet EPA's Tier 4 Final standards

A new series of clean burning diesel forklifts is engineered to meet the Environmental Protection Agency (EPA) Tier 4 Final standards. The vehicles come in capacities ranging from 4,000 to 36,000 pounds and feature the supplier's own manufactured engines. For reliability and fuel efficiency, the engines offer longer service intervals, no regeneration, increased power and enhanced torque. **Doosan Industrial Vehicle America Corp.**, 770-831-2200, [www.doosanlift.com](http://www.doosanlift.com). Booth 662.

## Universal vehicle restraint accommodates diverse trailer configurations

Using a patented shadow hook, the Dok-Lok SHR-5000 universal vehicle restraint secures traditional trailers as well as intermodal container chassis and trailers with rear-impact guard obstructions to a dock. In addition to its vertical engagement range of 9 to 30 inches, the device incorporates a shadow hook as an extra layer of safety. If the primary hook comes in contact with a RIG, the shadow hook pivots to secure the trailer in place and locks in the safety stop if the trailer moves. The device also deters theft and can interface directly with security systems. Engineered to withstand harsh conditions, the unit features solid steel construction with a corrosion-resistant finish and extension springs that provide upward force to keep a trailer secure. An IP66-rated motor prevents water and dust infiltration, and the unit stores above ground to stay clear of ice, snow and other debris. **Rite-Hite**, 800-456-0600, [www.ritehite.com](http://www.ritehite.com). Booth 1827.



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## WMS for third-party omni-channel operations

Engineered specifically for 3PL companies and distributors, the Cadence warehouse management system supports omni-channel fulfillment operations in real time. The system organizes inventory, orders, shipments and workflow, directing and controlling varying requirements and individual operations for multiple clients. Able to manage different units of measure for single SKUs in different warehouse zones, the system matches inventory to orders in high-volume applications. It improves throughput to distribution centers (pallets), retail stores (cases/cartons), and consumers (parcels). Accessible from wireless computers/scanners, desktop applications and a Web-based dashboard, the WMS works on the Microsoft technology platform to deliver actionable information to workers, managers and customers, giving up-to-the-minute views of key performance indicators. **Cadre Technologies**, 303-217-7037, [www.cadretch.com](http://www.cadretch.com). Booth 4871.



## Automate flat goods processing with pocket sorter bag system

A sorter bag system enables the automation of flat goods processing by incorporating and optimizing adapter technologies previously used only in hanging goods handling. Ideal for use in handling accessories, clothing or boxes, the system is RFID enabled for product tracking with an RFID tag. Fully automated, the system can handle an entire intralogistics process—from inbound receiving to outbound shipping—with consistent process reliability. In e-commerce applications, the system is well suited for order picking and returns processing, and can easily be integrated into an existing building. **KNAPP Logistics Automation**, 888-606-0695, [www.knapp.com](http://www.knapp.com). Booth 3203.



## Add automation to picking with A-frame system

The Mobile-matic portable A-frame dispenser has been updated to work with any warehouse and any conveyor at unrestricted heights. To operate, product is stacked into the channels, rolled to its destination and plugged in. Connected to a facility's network, the unit

automatically ejects items into the correct destination containers or directly onto the belt. It is ideal for supporting seasonal or promotional demand spikes, relieving pressure from manual picking operations. The scalable and flexible base unit includes 16 channels and supports the addition of more units added as needed. **SI Systems**, 800-523-9464, [www.sih.com](http://www.sih.com). Booth 1278.

## Two-wheel hand truck has powered lift

Combining the vertical lifting of a small powered stacker with the convenience and simplicity of a hand truck, the new LNB-350 powered two-wheel hand truck makes it faster, safer and easier to transport and reposition items. At the touch of a button, the unit's powered platform positions loads at a comfortable height to eliminate bending and stretching. A linear actuator ensures smooth lifting and lowering with zero drift, while the tethered push-button control allows for load height adjustments from any side. The truck handles lifts loads up to 350 pounds up 36 inches. It features a lightweight, durable aluminum frame, heavy-duty 10-inch polyurethane tires, and a maintenance free, on-board 12-volt battery with built-in charger. **Lift'n Buddy**, a Southworth Co., 701-499-5290, [www.liftnbuddy.com](http://www.liftnbuddy.com). Booth 305.



## Mobile work execution solutions optimize hands-on tasks

New Mobile Work Execution solutions optimize hands-on tasks from receiving through picking, shipping and returns. The systems include a work execution server that provides flexible, intelligent work optimization and orchestration capabilities, and works with the Jennifer multi-modal mobile application for voice-directed picking and other warehouse tasks. Also included is the Engage Web-based management dashboard. For ease of integration, standard components work with JDA, SAP, Manhattan Associates, Infor, Oracle and other leading warehouse management systems, as well as legacy, enterprise resource planning and other back-end systems. **Lucas Systems**, 724-940-7144, [www.lucasware.com](http://www.lucasware.com). Booth 3538.

## Add operational intelligence to lighting with cloud-based management

To add intelligence to LED lighting systems in commercial environments, the supplier's LightRules energy platform enables facilities to maximize lighting efficiency, control and use. Cloud-based, it provides access to detailed metrics on lighting and key building performance indicators in individual or multiple facilities. Also offered are the digital light agent stand-alone controls solution that integrates any fixture type from any manufacturer into the LightRules system; and the LLE family of linear LED fixtures in 3,000 and 6,000 lumen output versions. **Digital Lumens**, 617-723-1200, [www.digitallumens.com](http://www.digitallumens.com). Booth 303.



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We have taken another step towards mechatronic integration with the combination of the new g500 gearbox range and the Lenze Smart Motor. By using this single drive solution you will be able to cover a broad spectrum of applications and reduce the number of variants you need by up to 70%. Thanks to the excellent levels of energy efficiency and the long life expectancy, your machines will achieve more productivity with a maximum degree of reliability. Find out more about our intelligent approach to solutions at [www.Lenze.com](http://www.Lenze.com).

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## Integrate crossbelt sorter into larger systems easily

Easily integrated into larger systems, the crossbelt sorter incorporates a patented mechanical drive. Loads run on polyurethane-coated wheels in aluminum profiles (linear sorter) or on steel tubes (horizontal sorter) and are pulled by a rubber block chain. Once a crossbelt carrier reaches its intended destination, a pneumatically actuated plate makes contact with a drive wheel mounted underneath its chassis. This converts the motion of the carrier into driving the crossbelt, bringing the goods gently to their desired destination. For mechanical robustness and low maintenance, and the sorter's electronic components have been kept to a minimum, saving costs and time in servicing. **Interroll**, 855-869-1828, [www.interroll.us](http://www.interroll.us). Booth 2603.

## Capture data in the field from variety of sources with customizable software

The CaptureSoft eXpress Web-based software platform enables easy building of customized data capture applications from a mobile device, eliminating manual data entry in the field for better efficiency, accuracy and connectivity. Recently updated, the software now features additional data collection capabilities, a richer user interface, and cross-platform (iOS, Android and Windows) compatibility. Users can collect data from bar codes, global positioning system devices, standard keyboard strokes, RFID, handwriting and speech recognition. Other updates include support for adding photos with mark-ups and notes, as well as compliance with FDA 21 CFR Part 11 and HIPAA.

**Barcoding**, 410-385-8532, [www.barcoding.com](http://www.barcoding.com). Booth 4263.

## Load, unload trailers of palletized and loose goods with extendable conveyor

Extending up to 69 feet, the Performer telescoping conveyor reaches into a 53-foot trailer, even when its 19-foot base unit is placed well behind the dock leveler. This allows the same dock door to handle loose-loaded and palletized goods. The base unit firmly supports the extension; when not in use, the conveyor retracts to create space for forklift traffic. With a capacity of 67 pounds per foot, the unit eliminates worker strain from lifting while speeding up the loading and unloading process by as much as 50%. To illuminate the entire work area at the head of the conveyor, the unit is equipped with 250 lux lighting and lights along the length of the chassis to illuminate the floor. An optional fan or heater and an adjustable height feature may be specified to further enhance worker comfort. **Caljan Rite-Hite**, 800-338-1751, [www.caljan.com](http://www.caljan.com). Booth 5336.



## New chargers reduce energy use, extend battery life

Two new battery chargers for industrial lift truck use are showcased: the compact, high-efficiency Legacy Neo HF for limited-space applications, and the versatile Legacy Insight HF charger for opportunity charging of a range of batteries. The Neo constantly diagnoses the battery's condition and adjusts the charging curve for optimum charge to reduce heat and overcharge for longer life. Offered in manual or automatic models, the charger comes in three charging profiles: flooded, cold store or valve regulated lead acid (VRLA) battery. The Insight automatically charges batteries of various voltages and capacities, eliminating the need to change batteries during a shift. Also offered in manual or automatic versions, the charger supports four profiles: flooded, opportunity charge, VRLA and cold storage. **Douglas Battery**, 800-211-3684, [www.douglasbattery.com](http://www.douglasbattery.com). Booth 2309.



## Flexible modular tower light provides visible and audible equipment status

Customizable as needed, the EZ-Light TL70 modular tower light allows for easy position changes in the field. Big and bright, the 2.76-inch tower features LED drive technology, providing highly visible operator guidance and equipment status indication. The tower light can display up to five colors—plus an audible alarm module—in one unit, and allows for multiple colors to be lit simultaneously. The 92-decibel, adjustable alarm offers four user-selectable tones, including pulsed, chirp, siren or continuous. Each light segment can be selected solid "on" or flashing, and appears gray when off to eliminate false indication from ambient light. For use in harsh environments, the TL70 modular tower light features rugged, water-resistant IP65 housing with UV-stabilized material. **Banner Engineering**, 888-373-6767, [www.bannerengineering.com](http://www.bannerengineering.com). Booth 3847.



## Reduce packaging costs with unit load design optimization

Best Load supply chain simulation software predicts compression strength and stress imposed on unitized packaging. This information provides for unit load design optimization and the creation of supply chain efficiencies while reducing cost. The software enables users to design and structurally analyze a variety of common distribution packaging systems unitized on any wood pallet design—with geometric fit capabilities of packaging to pallet and unit load to shipper. Typical packaging cost reductions from the load optimization software range from 8% to 18%. **White & Co.**, 855-552-1158, [www.whiteandcompany.net](http://www.whiteandcompany.net). Booth 4856.



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## Linear polybag sorting

For polybag sortation, the linear ARB S7000 sorter accommodates high-speed movement of padded envelopes, flats and cartons on the same conveyor without snagging. It sorts bi-directionally and minimizes footprint with tight divert centerlines. Offered as an alternative to shoe, tilt-tray and crossbelt sorters, the system can be enhanced with polybag merging, aligning and switching components. **Intralox**, 800-535-8848, [www.intralox.com](http://www.intralox.com). Booth 2027.



## Process single, multiple line orders with integrated workstation

Newly introduced, the UltraBatch single and multiple line order processing workstation increases operator throughput by up to 33%, boosting accuracy and matching order profiles automatically. The workstation can be configured to work with manual, semi-manual and fully automated goods-to-person inventory storage systems. Integrated software presents the description, part number and photo of each item to be picked to ensure accuracy. The screen also tells the operator how many items must be picked, while pick-to-light displays show where to place the picked items and the quantity for each location. **ISD—Integrated Systems Design**, 248-668-8250, [www.isddd.com](http://www.isddd.com). Booth 3572.

## Modular machine programming software

Engineered for modular programming with FAST application software, the new FAST winder technology module is a package of winding automation control features.

The winding application template provides a basic programming framework featuring error-handling, prepared communication interfaces and machine-specific winding functionality, making machine control and automation easier. Because it provides machine programmers with a standardized function block, the module can be easily integrated without manually entering PLCopen modules into the program code. It enables manual jogging, homing, positioning and other standard drive functions. For customization, extensions can be added to meet different winding drive requirements, such as sensor, dancer, tension and traction control. **Lenze Americas**, 508-278-9100, [www.lenzeamericas.com](http://www.lenzeamericas.com). Booth 1064.



## Third generation of conveyor, sortation control modules enhance diagnostics

The third generation of ZoneLink3 zero-pressure accumulation controllers supports the supplier's line of 22 Watt and 35 Watt Microroller—internally powered, motor-driven conveyor rollers. The controllers are constructed with a snap-in mounting plate for tool-less connection. Equipped with on-board, pre-programmed ZPA logic, the controllers can operate in slave, manual or train modes. The devices include RJ-11 auto-sensing ports for easy integration with either NPN or PNP industrial sensors. Features include six auxiliary inputs/output default functions (two inputs and four outputs) for enhanced diagnostics and control access. To optimize system throughput, acceleration, deceleration, speed and current limits are adjustable. **Holjeron**, 800-691-8302, [www.holjeron.com](http://www.holjeron.com). Booth 3903a.



## Timing belt for stacker crane lifting devices

For use in lifting devices for stacker cranes, a timing belt can be used in both ambient temperature and cold storage applications. It reaches maximum lifting speeds of 394 feet per minute and accelerates at speeds up to 6.6 feet per second squared. The belt offers five times higher life expectancy than conventional rope drives and incorporates optimized tooth geometry to produce a low noise level. **LTW Intralogistics**, 717-767-7210, [www.ltwusa.com](http://www.ltwusa.com). Booth 2716.

## Floor-level lifts can be loaded, unloaded with hand pallet jack

Ergonomic XZ series hydraulic floor-level lifts handle loads up to 6,000 pounds in assembly, maintenance and palletizing applications. Easily loaded/unloaded with a hand pallet truck, the unit's pan-style platform lowers to floor level for easy roll-on/roll-off. The lift is accessible from all four sides and rises to a height of just more than 35 inches to minimize bending and lifting. This design reduces employee fatigue, injuries and production times. To protect against toe injuries, a bright yellow 6-inch flexible strip is mounted to the lip of the platform. Other features include a lift motor controlled by a foot switch or push buttons, a 10-foot lead, bellows skirting and two standard platform sizes: 44 x 48 and 50 x 48 inches. The unit relocates easily with a hand pallet truck. **Presto Lifts**, 800-343-9322, [www.prestolifts.com](http://www.prestolifts.com). Booth 2331.



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## Trays and containers for chemical and heat-resistant applications

For processes that include baking chemicals in ovens, a new line of trays and containers made of fiber reinforced composite materials stands up to heat as well as chemicals. Offered as a replacement for porcelain-coated steel trays, the reusable units eliminate corrosion issues. Additionally, they resist cutting oils, greases, radiation, mild acids and alkaline solutions within a pH rating of 3.0 to 10.0. The composite formulation and construction holds up to constant use at temperatures from -60°F to 250°F, and intermittent use up to 300°F. Easier to handle due to lighter weight, the units enable ergonomic, faster loading and unloading of carts. **MFG Tray Company**, 814-683-4500, [www.mfgtray.com](http://www.mfgtray.com). Booth 1476.

## Universal print control system enables case marking on-demand

The new MPERIA multi-technology controller and graphical user interface platform is engineered to support the future generation of marking technologies from any supplier. The print control module runs on a real-time operating system and high-speed control network, providing scalable, single-source control of multiple printers or production lines in one or more locations. When paired with VIAjet T-Series high-resolution print heads, the system can replace adhesive labels and pre-printed cartons. The VIAjet L-Series thermal inkjet printer is a cost-effective alternative to thermal transfer and adhesive packaging labels, and industrial marking onto paper, chipboard, corrugated and plastics. Leveraging the same cartridge technology found in desktop printers, the L-Series provides high print resolution at nearly twice the speed of previous thermal inkjet systems. **Matthews Marking Systems**, 412-665-2536, [www.matthewsmarking.com](http://www.matthewsmarking.com). Booth 3903b.



## Flexible deep-lane dynamic storage

The HDX solution applies pneumatic controls and deep-lane principles to the design, build and retrofitting of materials handling and storage. Systems are offered in a variety of configurations, including: HDX-GP with pneumatic braking to safely secure the unit load; HDX-EZ with EZ-Flow technology to support a wider variety of pallet sizes and weights in the same lane; HDX-PB push-back configuration; and

HDX-CB controlled brake version. The operation of each system is activated and controlled using bar code scanners, radio control equipment or photo eyes. It can be easily integrated with warehouse management systems, as well as with automated storage and retrieval systems. **Liberty Technologies, a Millwood company**, 330-393-4400, [www.millwoodinc.com](http://www.millwoodinc.com). Booth 3631.

## Powered cart offers capacity for picking, printing, scanning and computing

The mobile PowerPick station delivers ample capacity for picking while providing on-board power for a small label printer, scanner, tablet, or laptop and LCD screen. It features a lightweight aluminum frame and shelves with 6-inch rubber locking swivel casters that make the cart easy to roll and position for optimal productivity. Stations may be specified with 4- or 6-foot adjustable shelves that can lay flat or at a 7-degree angle. All models have a load capacity of 600 pounds. To boost productivity, a rechargeable on-board battery system runs for up to 8 hours of normal use. Multiple accessory options accommodate powered devices, which can be added in seconds and adjust easily to fit the operator's height and needs. **Newcastle Systems**, 781-935-3450, [www.newcastlesys.com](http://www.newcastlesys.com). Booth 4168.



## HVLS fan features powerful, efficient motor

Powered by an electric motor capable of handling the consistent torque requirements of a 24-foot diameter industrial fan, the AirVolution-D delivers 50% more mechanical horsepower and 75% more wind power than comparable high-volume, low-speed fans. The compact motor eliminates the need for a large gearbox, reducing the fan's weight by 45% and minimizing the number of moving parts. Offered in sizes from 6 to 24 feet, the fan can be installed on ceiling heights as low as 12 feet and may be specified in custom color options. The fan has a 50,000 hours of use warranty. **MacroAir**, 866-668-3247, [www.macroairfans.com](http://www.macroairfans.com). Booth 4420.

## Read 2D matrix and direct part mark bar codes with new system

PowerGrid, a texture-based location algorithm, greatly improves 2D bar code read rates when reading 2D matrix and direct part mark codes.

Included on the supplier's DataMan 300X models of fixed-mount bar code readers, the system looks for a pattern of alternating light and dark modules within the code—instead of locating the finder pattern like conventional feature-based algorithms. This makes it ideal for applications where a part's geometry, poor lighting, occlusion or print-registration errors make it difficult to capture an image of the entire code. The system can also locate and read codes in instances with significant damage to (or complete elimination of) the finder pattern, clocking pattern or quiet zone. **Cognex**, 877-264-6391, [www.cognex.com](http://www.cognex.com). Booth 4915.





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## Light-directed picking sled optimizes cluster picking efficiency

Fast and accurate, the LP Light Sled maximizes cluster picking speed by combining the benefits of pick-to-cart, pick-to-conveyor, pick-to-light and put-to-light order fulfillment methodologies into one system. The horizontal sled enables several order cartons to be grouped together and travel on conveyor throughout a facility, stopping at each storage zone that contains items required by the orders on the sled. Software driven, a cluster feature allows



users to build a group of orders and assign them to a specific sled with light modules attached. As the sled enters each pick-to-light enabled storage zone, the operator scans the sled's bar code. This triggers the required items' light-enabled storage positions to illuminate and pick quantities to be displayed at each pick face location. The operator then distributes items as indicated by lights on the sled, then sends it on to the next zone until all orders are complete. **Lightning Pick**, 800-827-8878, [www.lightningpick.com](http://www.lightningpick.com). Booth 3903c.

## Create right-sized packaging on demand

A line of on-demand packaging machines creates just-in-time, right-sized boxes for any product, reducing shipping costs and dimensional charges while minimizing the use of air pillows. The boxes eliminate product damage, decrease environmental impact and improve customer satisfaction. The EM7-25 automated packing machine supports most FEFCO-standard box designs used in a range of industries, and the compact iQ Fusion 2 enables a single operator to transition from box creation to box induction with significantly reduced cycle time.



**Packsize**, 801-944-4814, [www.packsize.com](http://www.packsize.com). Booth 622.

## System-directed, zoneless pick-to-light

To reduce worker idle time and maximize throughput, Race Track zoneless pick-to-light aggregates and processes the real-time data generated across a warehouse using advanced system-directed algorithms. With no conventional pick-to-light pick zones, associates work along the entire length of a pick line or loop in a pre-determined direction without zone boundaries. The system assigns the most optimal order to be filled based on a variety of factors, including order priority and demand, associate's position, proximity to other associates, walk path and more. Labels are printed as needed on mobile printers or later by automated print/apply systems. Once the system assigns an order, an RF device directs the associate to the correct location, and lights in the corresponding bay illuminate with the associate's unique color out of 50 distinct color displays. **Reddwerks**, 512-597-6810, [www.reddwerks.com](http://www.reddwerks.com). Booth 4181.



## Protect rack columns with rubber and steel constructed guard

Featuring a U-shaped steel insert and force distributing rubber voids, the patent-pending rubber armored metal RAM guard protects rack columns from frontal, angled and side impacts. Key to its effectiveness is specially molded rubber compounds and energy-absorbing pockets integrated with a steel plate core. This construction allows the device to absorb significantly more energy during impacts. The unit is offered in 12-inch heights, and snaps onto rolled or structural steel 3 x 3-inch columns with no hardware or straps required. **RAM Guard**, 814-347-1174, [www.theramguard.com](http://www.theramguard.com). Booth 1816.



## Add bar code scanner to battery management system

A new, handheld bar code scanner has been added to the iBOS battery room management system enabling the tracking of individual battery run times and individual lift truck use (or deadman hours) by scanning bar codes on each battery and truck. Gathered information is fed into the system and reported through iBOSWorld Web service. When combined with the battery room management system, the scanner supports proper rotation of batteries and right-sized battery rooms. It also increases visibility into battery and lift truck use, particularly for facilities that lease vehicles. **Philadelphia Scientific**, 215-616-0390, [www.phlsci.com](http://www.phlsci.com). Booth 3541.

## High capacity spiral conveyors reach higher, handle heavier loads

A new line of spiral conveyors handles double the capacity of the supplier's conventional units and can be specified with a multiple in- and out-feed option that allows loads to enter and exit the spirals at intermediate elevations. To ensure smooth transitions, each induction and divert conveyor is individually adjustable to match the spiral pitch. The conveyor travels at speeds up to 200 feet per minute with capacities up to 75 pounds per linear foot. For energy savings, only one drive motor is employed, minimizing control requirements and system integration time. To speed up installation, most spirals are shipped in one piece, pre-assembled and pre-tested. **Ryson International**, 757-898-1530, [www.ryson.com](http://www.ryson.com). Booth 2347.



# END

# TO

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## Compact on-vehicle computer supports fleet management software

The 4th-generation VAC4 on-vehicle computer simplifies wireless vehicle management for lift trucks and other vehicles, establishing accountability for the use, ensuring vehicles are in the right place at the right time,

and providing equipment and labor key performance indicators. The computer can be installed in less than an hour on any model and any brand of lift truck due to its universal electrical system, flexible mounting bracket and simplified wiring harness. Engineered with a compact hardware footprint, the device mounts on vehicles as small as pallet jacks. Its versatile platform integrates with multiple wireless solutions, including Wi-Fi, VHF and cellular to support cloud-hosted software. **I.D. Systems, 201-996-9000, www.id-systems.com, Booth 3684.**



## Maximize inventory density with mobilized storage systems

ActivRAC mobilized storage systems enable existing pallet racking or static shelving mounted on mobile carriages and rails to move from side to side.

This design eliminates idle aisles and maximizes square footage, while providing 100% accessibility to stored items. When compared to standard static shelving or racking system in the same footprint, the system doubles capacity within that same area. Alternately, the same amount of storage can be maintained, but occupies 50% less floor space to create room for other activities. The carriages have load capacities ranging from 7,000 pounds (for tools and part storage) to 30,000 pounds (for heavy equipment). **Spacesaver, 800-255-8170, www.spacesaver.com. Booth 3694.**

## Steel shipping racks have foldable corner posts for shipping, storage when empty

A new line of steel shipping racks features a folding corner post that allows it to be positioned in three different planes to fold down for storage and transport while remaining attached. The Tringe three-way folding corner post allows the racks to be used in closed-loop applications without requiring posts to be removed (and potentially lost). The posts allow products to be placed on the rack deck, then protects the load from vertical damage when the racks are stacked. Customizable, the racks can be configured to hold rolls of materials in cradles or contents in bulk bags. **SPS Ideal Solutions, 239-514-3956, www.spsidealsolutions.com. Booth 4456.**



## Crane features reduced deadweight, increased maximum load capacity

Manufactured with 17% less deadweight than cranes with box-section girders, the new Demag V-type crane produces less wheel pressure, minimizing the forces transmitted to the existing building structure.

This also increases its maximum load capacity. Diaphragm joints allow lighter loads to be transmitted to the crane wheel components, as well as to the entire building. Its construction doubles the crane's service life to more than 500,000 load cycles. In addition, improved oscillation enables heavy and sensitive loads to be positioned more precisely and quickly. **Terex Material Handling, 203-222-7170, www.terex.com. Booth 3819.**



## Tape and laser-guided automatic guided vehicles

A line of the supplier's automatic guided vehicles and a traffic management system for line side deliveries support order picking. The magnetic tape guided TJ series automatic guided cart is a flexible, small footprint and

cost-effective vehicle ideal for moving products on an assembly line or transporting goods throughout a plant or warehouse. When combined with the laser guided LT series automated guided vehicle tugger, the two systems work together to support order picking automated deliveries. They can be managed with the Kollmorgen traffic management control system that directs the vehicles' movement and provides comprehensive operational reports. **Transbotics, 704-362-1115, www.transbotics.com. Booth 1523.**



## Protect wood pallet edge with guarding device

Enhance a wooden pallet's reusability with the easily installed SP40S pointGUARD pallet protector. Configured to fit a 40-inch opening on a 48 x40-inch

pallet, the device protects the entry points of a wood pallet and guards leading top edge where a product load is most vulnerable from lift truck damage. The guarding is ideal for automated storage and retrieval system warehouses, captive pallet situations and closed-loop scenarios where getting more turns out of a wood pallet is required and a reduction in pallet costs is desired. **United Pallet Services, 209-538-5844, www.palletpointguard.com. Booth 676.**

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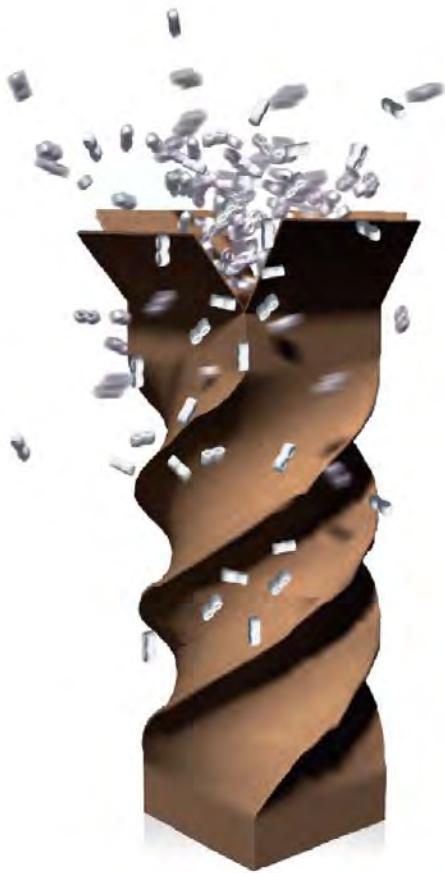
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### High-frequency fast battery charger returns more energy at lower costs

Maverick industrial battery chargers, including a high-frequency fast charger, feature a full load power factor of 0.95. The charger returns more energy at a lower cost than low-frequency opportunity chargers and recharges in a shorter amount of time than other high-frequency chargers. Additional savings in energy costs can be achieved by using integrated features, such as programmable controls that allow for staggering of charger start time outside of high-cost, peak demand periods. Other highlights include higher switching efficiencies at medium and high power, a simpler drive circuitry for use at higher frequencies without audio noise, and a controller that allows for lower battery recharge temperature due to low ripple current. **Applied Energy Solutions**, 800-836-2132, [www.appliedenergysol.com](http://www.appliedenergysol.com). Booth 2081.

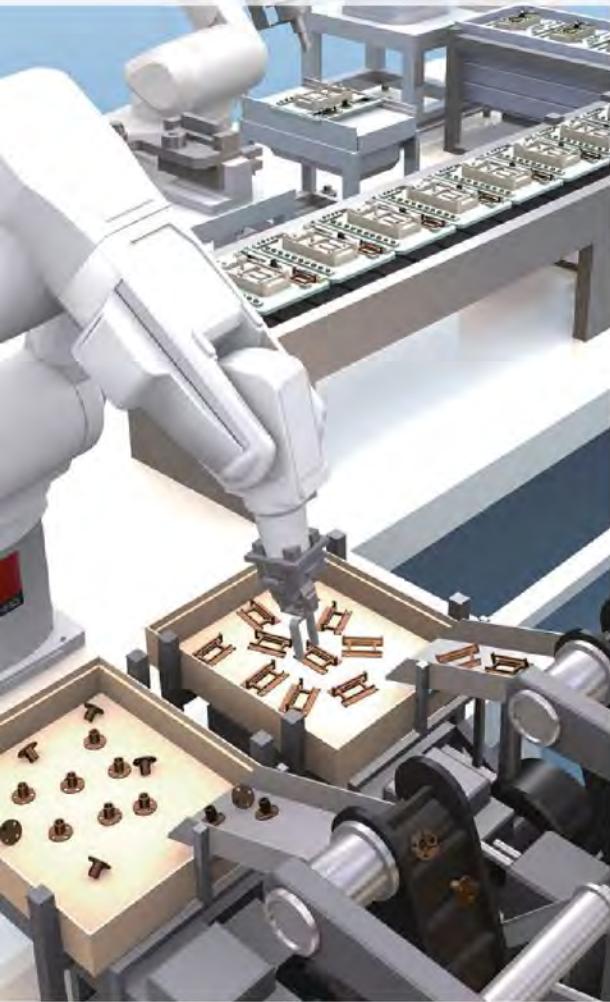


### Automated sortation of small items

Capable of carrying and sorting a range of small products, the Compaxorter

horizontal sorting conveyor incorporates full width, extruded aluminum carriers connected to the conveyor drive chains. Sort beams attached to the carriers glide across them to push the product into the output at dedicated sort destinations. The system is offered in two versions: a single-sided model with manual loading direct on the sorter and a dual-sided model with manual loading on a loading conveyor. Depending on operating speed, the sorter handles up to 10,000 products per hour. **Vanderlande Industries**, 770-250-2800, [www.vanderlande.com](http://www.vanderlande.com). Booth 2041.

# Complete Automation Solutions



Whether you are attending ProMat or Automate, you will definitely want to stop by the Mitsubishi Electric booth. There you will find the latest robotic solutions including; fenceless robotic safety, 3D vision guided bin picking, high speed pick & place, and the original egg handling robot from the movie Jurassic Park.

Additionally, you will find other material handling solutions like sensor less positioning of an AC motor, SCADA solutions for any size operation, energy monitoring solutions and much more.

Come to booth 370 on the Automate side of the show. Sit down and have a cup of coffee and cookie while checking out the latest from Mitsubishi Electric. See you there.

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MARCH 23-26, 2015  
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Full scale, cross belt sorter demo!  
ProMat, Chicago, McCormick Place, IL, USA  
March 23 - 26, 2015  
Booth 1231

# SOME THINK DELIVERY ERRORS ARE INEVITABLE. WE THINK DIFFERENT.

Running an efficient warehouse center makes a big difference to profitability and customer satisfaction. That's why many leading brands put sortation systems from BEUMER and Crisplant at the heart of their supply chain. Through operational insight and analysis, BEUMER Group is able to deliver complete automated material handling systems that fit seamlessly into your process. Offering exceptional speed, capacity and accuracy, our technology makes a difference to your customers, your brand and your bottom line.

For more information, visit [www.beumergroup.com](http://www.beumergroup.com)



## WMS powered by adaptive software

D-LogPlus warehouse management system, designed for on-premise or cloud deployments, can now be enhanced and extended with the STEPLogic adaptive software template. The STEPLogic software development tool replaces development tasks with configuration steps, enabling users to create new processes and screens without traditional programming skills. It provides decision tree analyses and automated features to enable customization of a current WMS to meet specific needs. User-created dialogues automatically update the appropriate tables and parameters and provide recommendations. The system also logs every input and step for easy research and diagnosis, allows the addition of special handling instructions and creation of testing plans. **DMLogic**, 412-458-4010, [www.dmllogic.com](http://www.dmllogic.com). Booth 4451.

## Organize, maximize cube storage with hopper-front containers

A new line of ultra-low cost plastic containers is stocked in six sizes and offered in 42 standard sizes. The hopper-front containers come in 12 colors and have straight wall sides to maximize a cube efficiently, making them ideal for shelving, carousels, flow rack, production and storage. For space savings, they ship and store flat. Lengths range from 12 to 48 inches and in capacities from 25 to 150 pounds. Fully recyclable at the end of their useful lives, the containers may be outfitted with a variety of accessories including dividers, imprinting, label holders, handles and covers, while their smooth front can be used for bar code labels. **Flexcon Container**, 908-871-7000, [www.flexcontainer.com](http://www.flexcontainer.com). Booth 1019.



## New drive system for bomb bay and push tray sorters

The Flex-Drive system adds incline and decline abilities to the supplier's line of bomb bay and push tray sorters. The new drive plat-



form also supports infinitely long sorters, lower power consumption and both left and right hand turns. This makes the solution ideal for high-volume operations with a large number of sort destinations, such as e-commerce and omni-channel distributors. **EuroSort**, 410-363-6345, [www.eurosort.com](http://www.eurosort.com). Booth 1541.

## High-frequency, switch-mode battery charging

The new LifePlus MOD3 modular high-frequency, switch-mode IONIC smart charger provides multiple charge profiles, peak efficiency and continuous power while reducing charging costs. Due to its modular construction, the charger allows each individual power module to operate independently; if one module stops working, the other modules continue charging the battery. Since each module is a stand-alone unit, the risk of failures and downtime is eliminated. For monitoring, a 7-inch wide multi-color display screen changes color according to the battery status. **Hawker**, 800-238-8658, [www.hawkerpowersource.com](http://www.hawkerpowersource.com). Booth 2327.





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## High-speed, image-based code reader provides resolutions up to 4 megapixels



The high-resolution LECTOR650 image-based code reader for high performance 1D and 2D codes offers a large field of view and an optional dynamic focus feature. The device easily identifies different code positions, object heights and transport speeds. Omni-directional, the unit provides modular integration of multiple devices for reading printed and direct part marked codes. It comes in two models—Flex

and Dynamic Focus—with resolutions of 2 or 4 megapixels. The Dynamic Focus version features a wide-angle lens and a frame capture rate of 40 hertz for identifying objects at conveyor speeds up to 13 feet per second. Easy-to-use function buttons, integrated LED illumination and an aiming laser ensure simple setup and installation without a PC. **SICK**, 952-941-6780, [www.sickusa.com](http://www.sickusa.com). Booth 1537.

## Minimize energy loss with high-performance spiral dock door

With an opening speed of 60 inches per second, a high-performance spiral dock door maximizes traffic flow while minimizing energy loss through the doorway, particularly on exterior walls. The door's high-speed operation minimizes air exchange, reducing the amount of energy required to maintain room temperature and employee comfort. Features include an intelligent controller with processor and variable frequency drive for smooth motion with soft stops and starts, and roll up aluminum slats with a durable rubber membrane covering their connecting hinges. In addition to containing heating/cooling energy and preventing air infiltration, the rubber seal also protects against dust pollution, drafts and inclement weather. **Rytec**, 888-467-9832, [www.rytecdors.com](http://www.rytecdors.com). Booth 5123.



## Belt conveyor drive technology installs quickly on electric motors

The Cross Drive internally geared belt conveyor head pulley is capable of accepting any standard C-flange mount electric motor. It also works with the supplier's new pancake motor that has been engineered to reduce the overall motor length by up to 50% when compared to standard, external flange mount electric motors.

Using a Lovejoy coupling, the electric motor mounts externally on the faceplate of the drive with a polymer spider for quick and easy installation or removal.

With all moving components enclosed inside the roller, the

unit delivers high mechanical efficiency with no required maintenance for increased uptime and production while reducing energy use and operating costs. **Van der Graaf**, 888-326-1476, [www.vandergraaf.com](http://www.vandergraaf.com). Booth 947.



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**PROMAT** 2015  
BOOTH #1512



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## Two new sorter technologies showcased

Two new Optimus sorter technologies join the existing multi-purpose OptiSorter recirculating pusher system. Based on the same pusher tray principle, the linear Vertical OptiSorter handles a range of products and parcels (including products, envelopes, cartons, totes and polybags), making it ideal for e-commerce applications. With a capacity up to 10,000 trays per hour, the system's parcel in-feed can be manually or automatically directed, while bar code identification is managed by a camera system installed above the trays. The recirculating FlatSorter can sort products directly into a tote or carton (such as garments, accessories and postal documents). Both systems are controlled by software which directs sorting according to a variety of strategies: sort to order, to store, by SKU, to postal code and by family groups, or—for returns management—count to store or to SKU. **Solutions for Sorting, 704-895-1254, www.sfsorting.com. Booth 1519.**

## Batteries and charging systems

Battery systems for motive power applications in industrial and commercial markets include high-power-density batteries, multistage energy-conserving smart chargers, and integrated watering and monitoring systems. Highlighted are flooded cell lead acid batteries, including high-density Tubular LM batteries feature extra-deep wells to maximize the intervals between battery water refilling. For high-demand applications, the Tubular HP line offers high power density. Also debuting are new chargers that meet the energy-conservation requirements of the California Energy Commission. The new high-frequency chargers can connect to single-phase as well as three-phase power supplies and have built-in software to wirelessly communicate with the battery to optimize the charging cycle. **GNB Industrial Power, 800-872-0471, www.gnb.com. Booth 2341.**



## Automated sortation system for distribution, fulfillment

The Sweeper Sorter modular and scalable sortation system for distribution and fulfillment centers is engineered with a minimal equipment footprint. The system also features a reduced packaging station coverage area for cost savings of 50% when compared to conventional sorters. The system is ideal for operations with labor intensive manual picking that require orders to be handled multiple times and distributed to multiple locations, and for operations implementing an omni-channel distribution model. **United Sortation Solutions, 562-282-2209. www.unitedsortation.com. Booth 1541.**

# Now from Aigner: Slip•Strip, the Most Versatile Label-Holding System



Ideal for all rack and shelving applications, self-adhesive **Slip•Strip™** adheres to any clean surface.

**Slip•Strip™** features a unique bottom-loading design. Bar codes, price displays, signs and

messages slip easily through the open edge and are held snugly in place. Repeated label changing without messy adhesive buildup is simple! **Slip•Strip™** has a clear face for easy reading or scanning. The white background provides a neat, clean appearance.

It can be used in its full 36" or 48" length or easily scissor-cut to size. Six standard widths accommodate labels from ¼" to 3" high, with 6 per package. Magnetic, hook/loop backings, and custom-cut lengths available on special order.



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Tel: 1.800.242.3919  
Fax: 845.562.2638

info@aignerlabelholder.com

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## Universal mounting base and brackets connect computers to lift trucks

A new forklift overhead mount for on-board computers securely connects to the top frame of a lift truck to maximize driver visibility and access. Features include a universal base and brackets manufactured from black powder-coated steel. The docking stations also integrate intelligent port replication, which allows connection to optional peripherals like printers, keyboards, antennas and bar code scanners. **Havis**, 215-957-0720, [www.havis.com](http://www.havis.com). Booth 3291.



## Apply coating to conveyor slider beds, sidewalls to minimize friction

To extend belt life and minimize wear and tear on slider beds, the DuraSurf STS ultra-high-molecular-weight polyethylene (UHMW-PE) material is applied directly to conveyor slider beds and/or sidewalls. This process creates a virtually maintenance free, low-friction surface for belts and conveyed items to glide on, minimizing the impact of heavy, abrasive materials. The coating reduces maintenance time and improves package flow, as well as cuts down on static electricity. **Habasit America**, 800-458-6431, [www.habasitamerica.com](http://www.habasitamerica.com). Booth 652.

## Collapsible tote optimizes shipping and storage costs when empty

To optimize shipping and storage costs, a new collapsible, reusable plastic tote incorporates fold down sides that are deployed when empty. Equipped with an access door, the tote allows for easy access to contents. Additionally, the tote is compatible with robotic pick and place systems. Features include rapid snap assembly and secure stacking once assembled. It quickly and easily collapses with pinch and snap latches. Ergonomic handles provide easy materials handling while an exterior support structure allows for smooth interior walls. Injection molded of polypropylene (PP), the tote measures 23.63 x 15.72 x 11.75 inches and it measures 3 inches high when collapsed. **International Contract Molding (ICM)**, 704-301-3235, [www.icmolding.com](http://www.icmolding.com). Booth 4225.



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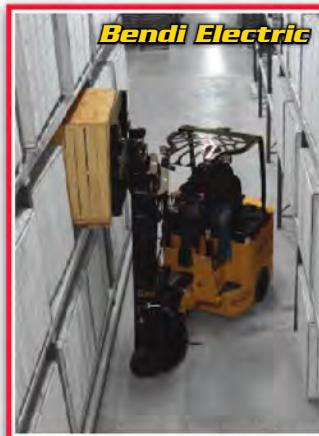
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## Identify locations in the warehouse with signage

For easier navigation within a warehouse, a full line of directional, destination, facility and safety signage are produced in multiple sizes and designs, and can connect to surfaces with a variety of attachments. Aisle marker signs can be seen from three directions to maximize visibility and can be attached to racking at heights beyond the reach of forklifts. To identify product storage bays and pick faces, bar code placards and label signs offer a range of content, including high-definition print imagery on retro-reflective material, alpha, numeric and alphanumeric iterations, as well as color coding and pictures. **ASG Services**, 877-447-9798, [www.asgservices.com](http://www.asgservices.com). Booth 2315.

## Compression hinges secure rack impact guard to rack legs

Equipped with compression hinges to ensure a secure grip, iFlex rack guards tightly affix to rack legs and maintain constant contact. A centralizing rubber lug fits the product to any size of rack leg, while 10



frictional grip points enhance the overall connection. In an impact, an engineered front impact absorption zone transfers energy around the rack leg protection rather than through the

actual racking, while side impact absorption dissipates forces through the Memaplex material, a blend of eight materials and rubber additives, before the guard reforms to its original shape. **A-Safe USA**, 919-924-0005, [www.asafe.us](http://www.asafe.us). Booth 415.

## Collect, manage data to reduce audit, recall risks

Traceability software can be implemented as a complete stand-alone solution or as a hybrid integrated to complement an existing enterprise resource planning or business system. The system supports the collection, tracking, forward/backward traceability and management of material and supply chain data. Specifically developed to help manufacturers reduce audit or recall risks, the software efficiently and effectively complies with customer, industry and government standards. Data for an unlimited number of products and components can be linked and parent/child relationships created. To support label and packaging license plating, all data is managed with the supplier's IntelliLabel technology to simplify collection of unlimited data attributes through automated data collection and unique data structures. **Radley**, 616-541-6010, [www.radley.com](http://www.radley.com). Booth 5414.





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## Full line of cost-effective battery chargers

The entire line of Quantum conventional, opportunity and fast chargers support cost-effective solutions through energy efficiency, reduced capital costs and improved labor productivity. Engineered to minimize energy waste throughout the entire charge cycle, the chargers' modular configuration can be used to build any size charge. **Advanced Charging Technologies (ACT)**, 877-228-5922, [www.act-chargers.com](http://www.act-chargers.com). Booth 2072.

## Dumping frame allows materials handling carts to hold more capacity

Constructed to minimize floor space requirements while maximizing load capacity, a line of materials handling carts features patented dumping frame. The frame and cart are made of heavy-gauge steel with fully welded seams. Features include conveniently placed handles and smooth rolling industrial casters that allow the carts to be maneuvered by one person, even when loaded to maximum 1,500-pound capacity. Offered in a variety of configurations, the carts support dumping methods including rotational, hydraulic and manual/tilt. **CECOR**, 608-845-6771, [www.cecort.net](http://www.cecort.net). Booth 4753.



## System directs manual stacking of mixed pallet loads during order picking

To assist order pickers in building mixed pallet loads, the SAT Stack Assist Tool works with IPS Intelligent Palletizing Software to calculate the optimal stacking pattern based on the pick list and the pick route. The stacking pattern is then translated into stacking instructions for the order picker and presented step-by-step with a laser pointer. This system yields higher load factors for lower transportation costs, maximizing the use of available space on a pallet. To reduce time and costs in order picking, the system can also optimize the operator's route. **RSW BV**, 31-0-38-845-83-55, [www.mixedpalletizing.com](http://www.mixedpalletizing.com). Booth 4441.



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### Versatile counterbalanced lift truck with all-wheel drive

The Teletruk TLT35D 4x4 small variable reach machine is equipped with all-wheel drive and a hydrostatic transmission that performs similarly to torque converter machines. Capable of lifting capacities of 7,000 pounds to a height of 14 feet, the vehicle can also handle 3,750 pounds on the other side of a truck or trailer. When equipped with a hydraulically controlled quick-change carriage, the vehicle can switch from forks to a bucket in seconds. **Sellick Equipment**, 519-738-2255, [www.sellickequipment.com](http://www.sellickequipment.com). Booth 1076.

### Ensure that lift truck drivers buckle up with device

To ensure lift truck driver safety compliance, the Slingbelt always-used seat belt makes it uncomfortable for an operator to sit on and annoying if not properly buckled on the driver's lap. The patented orange plastic sling also makes it easier for the operator to enter and leave the seat than a conventional seat belt. The device includes a buckle switch and easily retrofits to any make or model forklift. **Keytroller**, 813-877-4500, [www.keytroller.com](http://www.keytroller.com). Booth 4873.



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## Forklift-mountable blue safety light warns pedestrians of oncoming traffic

Projecting a clear blue spot on the ground behind a lift truck, the BlueSpot blue safety light alerts pedestrians to oncoming forklift traffic and prevents potential collisions. The lamp features a metal housing, integrated wire harness, stainless steel hardware and a polycarbonate lens that is suitable for food manufacturing applications. It incorporates a 12- to 96-volt DC input and is UL-listed and IP67 rated for use in wet environments. **Intella Liftparts**, 616-796-1288, [www.intellaliftparts.com](http://www.intellaliftparts.com). Booth 4207.



## Protect blind corner intersections with collision warning system

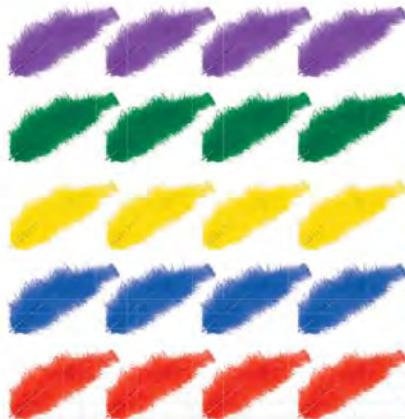
To reduce the risk of accidents in blind corner intersections, the Collision Sentry warning system signals a visual alert to approaching traffic well in advance of an impact. The unit uses infrared motion detectors to see around corners. When the system detects motion on both sides of the corner, it alerts approaching traffic with LED warning lights that flash in both directions to indicate traffic is approaching around the corner. Self-powered, portable and battery driven, the device snaps on to pallet racks quickly with integrated magnet mounts. **Sentry Protection Products**, 216-228-3200, [www.sentrypro.com](http://www.sentrypro.com). Booth 1159.



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### Store more in smaller footprint with movable shelving system

Kompakt enclosed shelving systems are engineered to store more volume in a smaller footprint. The multi-purpose movable storage system meets a variety of storage needs economically and efficiently with minimal maintenance required. Units may be specified in one of two heavy-duty wheel and rail configurations. Offered in electrical, mechanical assist and manual systems, the storage units hold up to 1,000 pounds per carriage running foot. **Tennsco, 800-251-8184, [www.tennsco.com](http://www.tennsco.com). Booth 2557.**

### High-efficiency, modular battery chargers save energy, cut costs



The Revolution series of ultra-high frequency battery chargers incorporates modular power distribution for conventional, opportunity and fast charging. Comprised of multiple 1.3kW power modules that can be combined, the chargers can be configured to provide outputs from 4 to 30 kilowatts. Compact, the charger can be mounted on a wall or rack, and delivers efficiencies greater than 90% throughout the entire charge cycle. As the charge cycle progresses and the output current tapers down, the charger will turn off unneeded modules, allowing the remaining modules to operate at peak efficiency. This allows a continuous return of 90% to 92% of the electricity pulled from the wall to the battery. **Power Designers USA, 608-231-0450, [www.powerdesigners.com](http://www.powerdesigners.com). Booth 4133.**

### Industrial carts work with ergonomic lifts, turntables and tilt tables

A line of ergonomic, integrated industrial carts can interface with ergonomic lifts, turntables and tilt tables, allowing them to deliver, convey, exchange and display containers for manufacturing and assembly operations. Their operation can be directed manually for lift truck loading and unloading, or as a part of a fully automated, fork-free system with either robotic or automatic guided vehicle delivery. **SailRail Automated Systems, 905-948-1500, [www.sailrail.com](http://www.sailrail.com). Booth 5441.**

### Ergonomic articulation arm for heavy-duty assembly applications

To support ergonomic work processes, the B-19 torque reaction articulation arm for heavy-duty assembly applications accommodates torque up to 100 foot-pounds. An adjustable air cylinder built into the arm supports multiple tool weights up to 40 pounds. The Gimbal mount adds four rotation points to an existing arm and can be used with tools up to 37 pounds—from 1 to 4 inches in diameter—making it feel weightless to the operator. The mount is ideal for multiple applications including nut running, grinding, sanding, routing, impact guns and more. **FlexArm, 800-837-2503, [www.flexarminc.com](http://www.flexarminc.com). Booth 326.**





### Space-saving motor mounted inverter for conveyor applications

To help machine builders speed up system development, installation and start up of control system architecture, the new Sinamics G110M motor-mounted variable frequency drive integrates with Simogear gear motors. The integrated drive system is engineered to save space and provide flexible control. When combined with the gear motors, the inverters provide a high level of efficiency, versatility and functionality. Rated IP66, the inverter features plug connections for all inputs and outputs for fast installation. For applications that require safety technology, integrated safety functions include "safe torque off," which can be activated with a fail-safe input or with Profisafe. **Siemens Industry, 972-947-7498, www.mobility.siemens.com. Booth 631.**

### Calculate leaf chain wear with easy-to-use gauge

A professional chain wear gauge is a replacement for steel or tape rulers that are traditionally used to measure lifting equipment leaf chain wear, but are difficult to line up and hold steady. To use, a service technician sets the nominal pitch of the chain and measures over the number of pins displayed on the front of the tool. Integrated V-jaws ensure the tool is positioned correctly, allowing it to accurately compare the chain's actual length to the nominal pitch length. It also calculates the percentage wear in 0.25% wear increments—from 0% to 4% worn—with a red warning box appearing at 2%. Suitable for measuring wear on all leaf chains, from 0.325- to 3-inch pitch, the gauge comes with a protective case and a set of instructions detailing how to determine the nominal pitch of a chain and the correct measurement procedure. **FB Chain, 44-0-14-62-670-844, www.fbchain.com. Booth 1891.**



### Diagnostic system determines best electronic industrial vehicle

The Test Mule diagnostic tool is engineered to gather the information necessary to prescribe the right style and configuration of electric industrial vehicle. The test vehicle (such as a stock chaser, burden carrier or tow tractor) is equipped with an array of measurement devices.

Deployed in a specific operation, the test vehicle carries out the specific functions required by routine handling practices, gathering and transmitting data to the supplier. Upon evaluation, a specific industrial vehicle can be recommended and constructed to meet the facility's unique needs. **Wesley International, 800-241-2869, www.wesleyinternational.com. Booth 1568.**

### Completely automated system applies documents to boxes

Fully automated, the ADA automated document applicator prints (up to 4 pages), caches, folds and attaches documents with a docufoil on boxes. The system supports variable box sizes and variable document attachment positions on the boxes. To ensure that the correct document is matched to the correct box, the system self-monitors for accuracy. The machine is capable of processing 400 boxes per hour. **Inther Integrated Systems, 847-516-8255, www.inthergroup.com. Booth 5219.**



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## Speed up load transport with motorized platform carts

A line of motorized carts speeds up manual load transport while eliminating the risk of push/pull injuries on the operator due to strain. The carts feature a center-mounted drive for maximum maneuverability and ease of use. For specific application requirements, the carts can be customized with racks, tank holders or unique deck modifications. **AmericartUSA**, 877-498-0076, [www.americartusa.com](http://www.americartusa.com). Booth 3093.

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## Streamline battery logistics with new management program

The new PCHEll streamlined battery logistics program features electric lift control, integrated PLCs, aeronautic wire and cable harnesses, proportional valves, and multiple operational and safety enhancements. It incorporates dash-mounted touch-screen controls that



allow for planned maintenance alarms, reset functions, diagnostics and controlled access features. This gives facility managers greater control and easier access to operational details. All inputs and outputs go through the PLC for easy adjustments and smoother operation, particularly at low speeds. When the system is combined with a charge cycle analytics system, it can be directed to the correct position for precise battery selection, monitoring of the charge cycle and management of battery watering. **Materials Transportation Co. (MTC)**, 800-433-3110, [www.mtcworldwide.com](http://www.mtcworldwide.com). Booth 1594.

## Software, controls for new installations and retrofits of loop sorters

For new installations or re-control of existing loop sorter systems, customized control solutions are built on Allen Bradley/Rockwell Automation programmable logic controller technology. To support these control installations, the Controller software suite features pre-engineered applications for case sort, loop sort, induct and merge. It also includes control software for outbound finishing systems such as auto-print/apply, product bagging, boxing, carton labeling and document insertion of catalogs, coupons, special offers, shipping information and other customer-specific materials. The supplier also offers the Director WCS that seamlessly integrates, optimizes and manages all automated order fulfillment operations, and interfaces with most WMS brands. **Pyramid Controls**, 513-679-7400, [www.pyramidcontrols.com](http://www.pyramidcontrols.com). Booth 3903d.



## Fabric buildings can have steel sidewalls as option

The Hybrid Building, part of the supplier's line of HD structures, can be constructed with either steel or fabric side walls. Buildings measure from 25 to 160 feet wide to accommodate any application. Because there are no internal support posts, the building maximizes usable space. The fabric cover comes in several colors, with permeable properties that make it extremely energy efficient. Allowing for natural light transmission, the polyethylene cover cuts costs associated with supplemental lighting. The cover has a 20-year warranty, and the frame has a 50-year warranty. **ClearSpan Fabric Structures**, 866-643-1010, [www.clearspan.com](http://www.clearspan.com). Booth 1925.



## Pick in narrow aisles with electric order picker

The LEOP-250 electric orderpicker for use in narrow aisles rises to 14.8 feet for item retrieval at heights. To protect the operator and items, multiple safety interlocks are built into the vehicle. Features include an attached automatic power charger, twin traveling motors with absorbers that prevent wheel slips on uneven ground, and an attached bag for easy access to documents or tools. The vehicle handles a maximum load capacity of 550 pounds. **Liftek**, 886-3-990-81-28, [www.liftek.com.tw](http://www.liftek.com.tw). Booth 4814.



## On-site hydrogen solutions

PowerTap hydrogen supply equipment provides fuel cell fleet owners the means to enhance the benefits of fuel cell motive power. The product line consists of hydrogen generation, compression, storage and dispensing equipment to fuel electric lift trucks that are powered by fuel cell battery replacement packs. By efficiently generating high-purity hydrogen on-site from natural gas and water, the system offers better value than delivered hydrogen and other hydrogen supply options, as well as provides a green alternative to battery charging from the grid. **Nuvera Fuel Cells**, 617-245-7553, [www.nuvera.com](http://www.nuvera.com). Booth 1003b and 1503b.



## Transport POWER to Your Picking Aisles

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## Extend battery life with high-frequency, microprocessor-controlled charger

The high-frequency, microprocessor-controlled MXHF motive power battery charger provides DC output, high power and maximum efficiency in a small, lightweight unit. Power conversion at a high frequency enables construction with smaller, more efficient main components compared to traditional 50 hertz to 60 hertz battery chargers. To charge batteries precisely and extend their lifespan, the system delivers an extremely low ripple current during the charge cycle, reducing charge time. When equipped with an optional APC module, one system can charge multiple battery types. **La Marche Manufacturing**, 847-299-1188, [www.lamarchemfg.com](http://www.lamarchemfg.com). Booth 141.





## Fully automated manufacturing system for rack beam production

A fully automated manufacturing system for rack beams can connect all the steps of the manufacturing process (roll forming, bracket welding, loading/unloading of painting conveyor and final palletizing) without direct human intervention. Alternately, individual robotic cells can be installed to facilitate each manufacturing process in operations with layouts that do not accommodate a single line process. Inser Robotica, 94-676-70-50, [www.inser-robotica.com](http://www.inser-robotica.com). Booth 2994.

## Cloud-based supply chain execution and planning software suite

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## Streamline battery charging with wireless identification device

Providing critical information to extend battery life, an advanced wireless battery identification device (WBID) solves service issues and helps with warranty claims. The device enables motive power batteries to be easily monitored for voltage, temperature and amp-hour usage using the battery identification device number, voltages, amp-hour sizes and start rates. It works with the supplier's DataLink 2 analysis software to gather data wirelessly, monitor battery usage and identify potential problems that could lead to downtime. AMETEK Prestolite Power, 937-440-0810, [www.prestolitepower.com](http://www.prestolitepower.com). Booth 2063.

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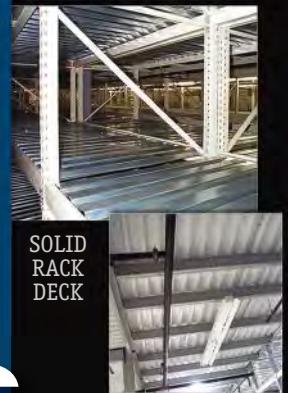
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# BHF<sup>o</sup>.com handles double-digit growth

High-fashion,  
e-commerce company  
automated fulfillment  
to meet the next-day  
shipping challenge.



By Bob Trebilcock,  
Executive Editor

# E

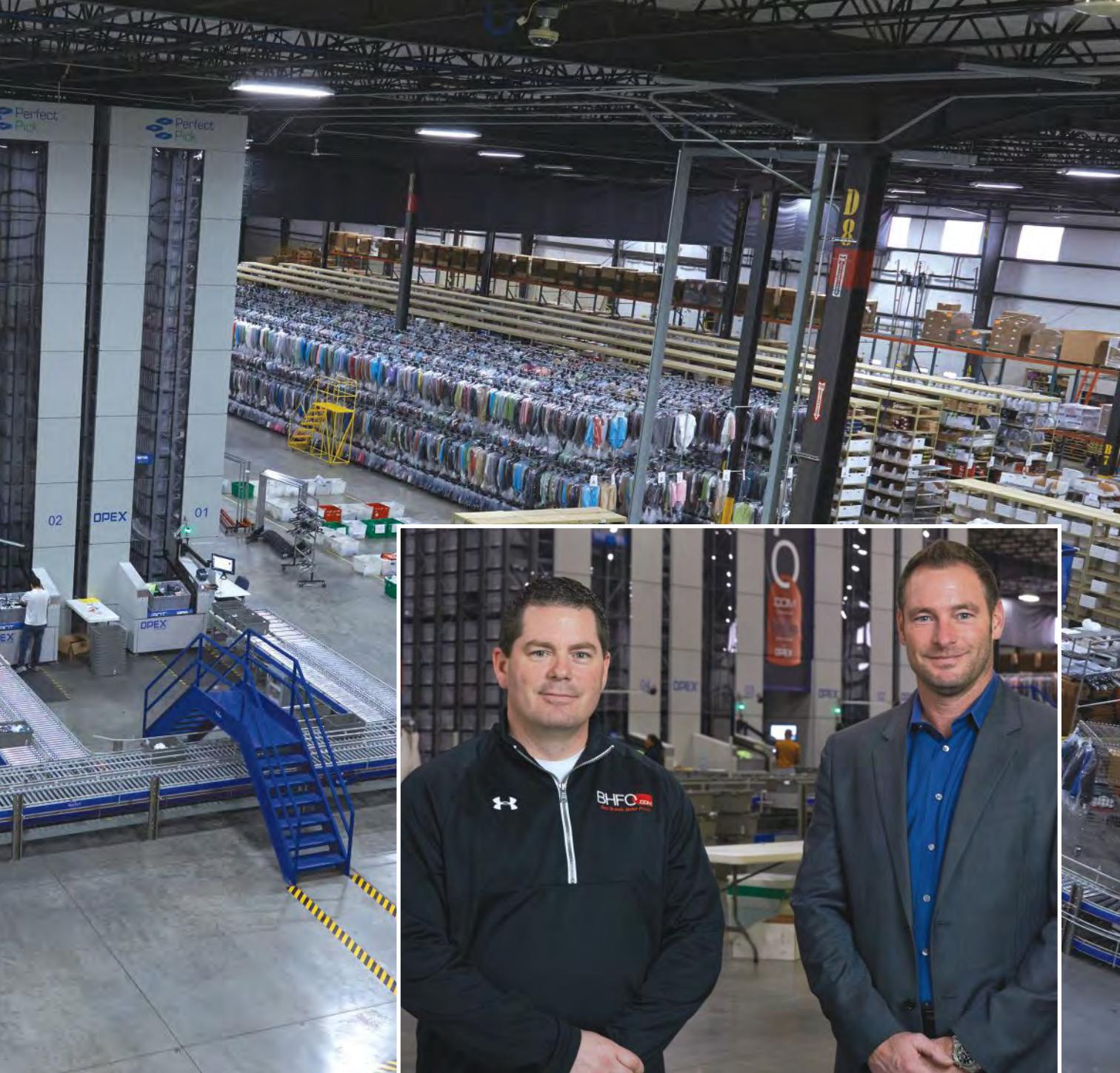
-commerce is changing the dynamics of retail: To compete with the instant gratification of brick-and-mortar retail, e-commerce sites are pushing the envelope on order cycle times to get product into the hands of customers faster than ever.

That push is also changing the economics of automation in e-commerce order fulfillment and distribution. Where automation was once only via-

ble when sales reached a certain dollar and volume threshold, even smaller pure play e-commerce retailers are embracing high levels of automation to get orders out the door—and creating a new market for the industry.

This was the case at BHF<sup>o</sup>.com, a fast-growing 12-year-old e-commerce site based in Cedar Rapids, Iowa, with about \$30 million in annual sales. BHF<sup>o</sup> features top designer brands





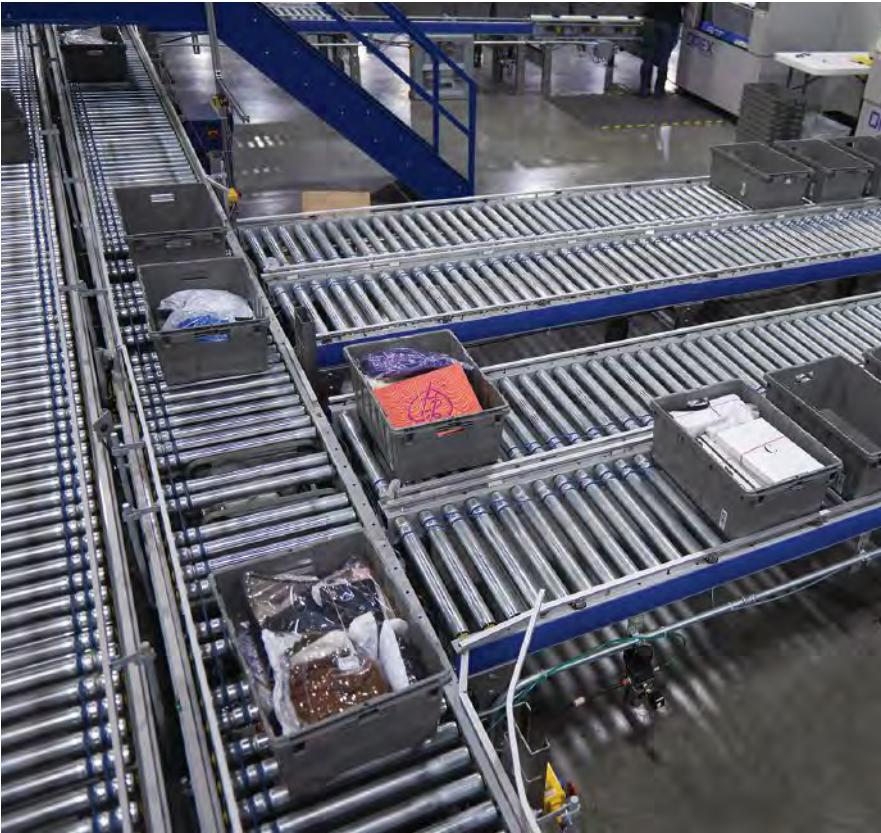
**Matt Wade, chief operating officer (left), and co-founder, Jon Sefton, oversaw the implementation of an automated goods-to-person picking solution in BHFO's Iowa DC.**

of clothing, shoes and accessories at bargain prices on its Web site—the FO stands for factory outlet. The retailer ships around the globe from its 250,000-square-foot headquarters, which includes 200,000 square feet of warehouse space. With double-digit growth, BHFO's biggest challenge in recent years was getting orders out the door fast enough to meet customer service expectations. That's where auto-

mation came into play. Working with a systems integrator (Bastian Solutions, [bastianolutions.com](http://bastianolutions.com)), BHFO implemented a goods-to-person order fulfillment and picking solution (OPEX, [opex.com](http://opex.com)) that uses mobile robots to store and retrieve items about to be picked in a compact, high-density stor-

age system that takes full advantage of the building's 36-foot ceilings. The totes are then delivered to light-directed, goods-to-person picking stations.

The system has four putaway and picking lanes, and each lane is serviced by five mobile robots inside the storage area. In all, the system can hold



**After leaving the picking station, totes are routed by conveyor to the packing area, where they are prepared for shipment within one day of payment.**

163,000 items at a time and process nearly 2,000 orders a day in roughly 20,000 square feet of space. And, in keeping with its cutting edge approach, BHFO is using iPods instead of conventional mobile computers on the warehouse floor.

Since going live in March 2014, COO Matt Wade says the site has seen accuracy rates rise to the high 90th percentile and a 30% decrease in the staff dedicated to fulfillment in its former manual system. More importantly, BHFO has seen a significant improvement in its cycle times and order fulfillment rates. “Prior to automating, most domestic orders shipped within two business days from the time of payment,” says Wade. “Now, we’re getting 95% of our domestic orders shipped within one day of payment.”

### **Explosive growth**

You probably don’t think of Cedar Rapids as a hot bed of retail innovation, but that’s where Jon and Stacie Sefton

launched BHFO from their basement back in 2003. The B and H are the initials of their daughters.

From day one, the company focused on selling high-end clothing at factory outlet prices, beginning with a partnership to help a well-known lingerie company liquidate its shelf pulls and returns. The site was hosted on eBay, where items were sold through an auction model. Eighteen months later, the company had outgrown the basement and moved into a commercial warehouse.

Since then, BHFO has continued to add brands, product sources and employees to fuel significant growth—the target for 2015 is 50% growth in sales to \$45 million, Wade says. “We are expanding our vendor partnerships and try to bring 6,000 new products to the marketplace on a daily basis,” Wade adds.

In addition to the auction site on eBay, BHFO is now working to expand its catalog to Amazon customers. BHFO is also available on Australia’s TradeMe and the company is in nego-

tiations to go live on MercadoLibre, an online marketplace serving South America.

After leaving the basement, there were several moves, including 100,000 square feet of distribution space spread across two buildings. By 2013, even that was not enough; BHFO was relying on commercial warehousing to prepare and stage pallets for processing before they were transferred to the main space. “We were inefficient because of the manual picking and handling and had the added expense of outside warehousing and transportation,” Wade says. What’s more, it took two days to process most orders.

“In e-commerce, you have to get domestic orders out within one day of payment if you want to be competitive and keep your customers happy,” Wade says. “Knowing the marketplace and how we wanted to grow, Jon and Stacie believed we had to automate to grow.”

### **Goods-to-person system**

The search for an automated solution began in 2012. The goal was to implement a goods-to-person system to cut down on travel time in the warehouse and rev up cycle times. BHFO initially looked at a number of automated systems, including mobile robots. The company was analyzing the return on investment of one solution in particular when Jon Sefton learned about an alternative solution at a business conference.

That led to discussions with a systems integrator about alternatives, including horizontal carousels. Ultimately, they chose the solution in place for several reasons. For starters, by using the whole cube of the building, the order fulfillment system occupies 20,000 square feet of the 200,000-square-foot warehouse. That leaves plenty of room for processing as



**In the packing area, associates wrap and pack items for shipping.**

of the building,” Wade says. “Once we saw it in operation, and analyzed how it would work with our operation, we knew it was a good fit.”

As designed, the system has four 80-foot lanes and four pick stations—one on each lane. Depending on order volume, picking can be handled by four operators, or two operators picking from two lanes at once. Inside the high-density storage and sequencing system, five mobile robots manage put-away and retrieval in each lane. The system was originally designed to handle 150,000 items but has since been expanded to 163,000 items to accommodate the growth in categories and SKUs. Since the system is modular, it can be expanded in the future to handle BHFO’s growth. Or, alternatively,

BHFO could add more units if needed.

Picking at the goods-to-person workstations is designed to ensure order accuracy. A touchscreen displays a picture and the lot ID of the item to be picked. Pick-to-light identifies the right order tote on the conveyor as well as the right storage cell in the storage totes. Finally, order selectors scan each item to verify the pick. “The system won’t let us pick the wrong item,” says Wade.

The design of a new corporate headquarters and the implementation of an automated picking system coincided with the implementation of a new retail enterprise resource planning (ERP) system, including order and warehouse management to drive more efficiency.

Operations are relatively straight forward. With a 90% average sell-through rate, the facility is designed to process newly received products for sale online and then move through the building quickly and effi-

well as handling space for apparel that needs to be hung rather than folded and placed into a tote.

“The ceilings in our new facility are 36 feet tall, and this solution would allow us to take advantage of the cube



**Storage containers are delivered by mobile robots to a goods-to-person picking station. There, light-directed picking tells associates what items to pick for each outbound tote.**

ciently. Storage is at a minimum: In the receiving area, new merchandise is staged, processed to be displayed online and then bagged and labeled for shipping.

From there, product is inducted into the order fulfillment system; items that are too big to be handled by the mobile robots are hung on piping in the warehouse space or stored on shelving. The exception is a growing category of fixed-price items that are stored in pallet rack. Because those items are not sold in the auction model, they may remain in the

facility for a longer time period.

Order picking and packing of the previous day's orders begins each morning. That way, the bulk of domestic orders are shipped within one day of confirmation of payment.

According to Wade, the system went live in March of 2014 and included two months of testing. After nearly a year working with the system, BHFO has seen accuracy consistently in the high 90th percentile; cycle times have improved; and the number of associates dedicated to fulfillment has decreased by 30%. Those associ-

ates have moved into other areas of the operation, including sales and customer service.

More importantly, BHFO's fulfillment operations can accommodate the company's continued growth and drive for customer satisfaction. "It's easy to scale the system: We can make rows longer, add rows, add pick stations or add more mobile robots," he says. "What's more, in the online world a happy customer is a repeat customer. Getting orders out the door more quickly is driving customer satisfaction." □

# Mobile robots and goods-to-person picking power order fulfillment at BHFO

The compact system processes nearly 2,000 orders a day in 20,000 square feet.

Like many pure e-commerce plays, especially those with an auction or flash sale model, BHFO's 200,000-square-foot distribution center is designed with fulfillment in mind. The facility features very little long-term storage space. Instead, the heart of the facility is the goods-to-person order fulfillment system, which features a high-density storage system that relies on mobile robots to receive, store, retrieve and deliver featured items to four picking stations.

**Receiving:** Product is manually unloaded, palletized and staged in the shipping and receiving area (1).

**Processing:** In the processing and staging area (2), cartons are unpacked and the items are hung or put on a cart. The items are then scanned if they have a bar code; otherwise, production identification is manually keyed into the system. That generates product descriptions for the Web site. Items that are new to BHFO are sent to photography where they are photographed on a light

table, a mannequin or, in the case of products that will be sold on Amazon, on a model. Once items have been received into the system, they are delivered to a stocking team. Items are folded, bagged for shipment in an auto bagging system, and labeled with a printed bar code label. Most items are then placed into totes. Items that are too big for the order fulfillment system are sent into the warehouse, where they are put away on shelving (3) or hung on piping (4).

**Putaway into the order fulfillment system:** Now that items have been folded and bagged, totes are placed onto the conveyor system (5). Following an automatic scan, the totes are directed to a goods-to-person picking/putaway stations (6) on one of the four lanes. At the station, a photo of the item in the tote appears on a touchscreen along with an ID number. An associate scans a bar code label to

verify that the right product was in the conveyor tote. A light then identifies the right cell for that item in a permanent tote used by the order fulfillment system (7). Once all of the items are in the tote, it is put away by one of five mobile robots serving each lane. Replenishment items relist on the Web site automatically. Brand new items are scheduled for sale.

**Order fulfillment:** New orders are processed in the morning when a fulfillment manager creates a wave of orders that will be filled from the order fulfillment system (7) or, in the case of oversized items, from the warehouse (3).

## BHFO Cedar Rapids, Iowa

**SIZE:** 250,000 square feet, including 200,000 square feet of warehouse space

**PRODUCTS:** Designer clothing, shoes and accessories

**SKUs:** Varies but approximately 6,000 new items run through the facility per day

**THROUGHPUT:** 1,800 orders/5,000 items per day

**EMPLOYEES:** 180 employees and temps

**SHIFTS PER DAY/DAYS PER WEEK:** 1 shift, 5 days per week (Monday through Saturday with one day off during the week); 2nd shift (Sunday through Thursday)

## System Suppliers

**SYSTEM INTEGRATOR, WAREHOUSE CONTROL SYSTEM AND CONVEYOR:**

Bastian Solutions, [bastiansolutions.com](http://bastiansolutions.com)

**GOODS-TO-PERSON FULFILLMENT SYSTEM:** OPEX Corp., [opex.com](http://opex.com)

**WAREHOUSE MANAGEMENT SYSTEM:** RetailOps, [retailops.com](http://retailops.com)

**MOBILE COMPUTING:** Apple (iPods), [apple.com](http://apple.com)

**BAR CODE SCANNING:** Infinite Peripherals, [ipccprint.com](http://ipccprint.com)

**BAR CODE SOFTWARE:** Seagull Scientific, [seagullscientific.com](http://seagullscientific.com)

**LIFT TRUCKS:** Crown Equipment Corp., [crown.com](http://crown.com); Toyota Industrial Equipment, [toyotaforklift.com](http://toyotaforklift.com)

**AUTO BAGGING EQUIPMENT:** Sharp Packaging Systems, [sharp-packaging.com](http://sharp-packaging.com)

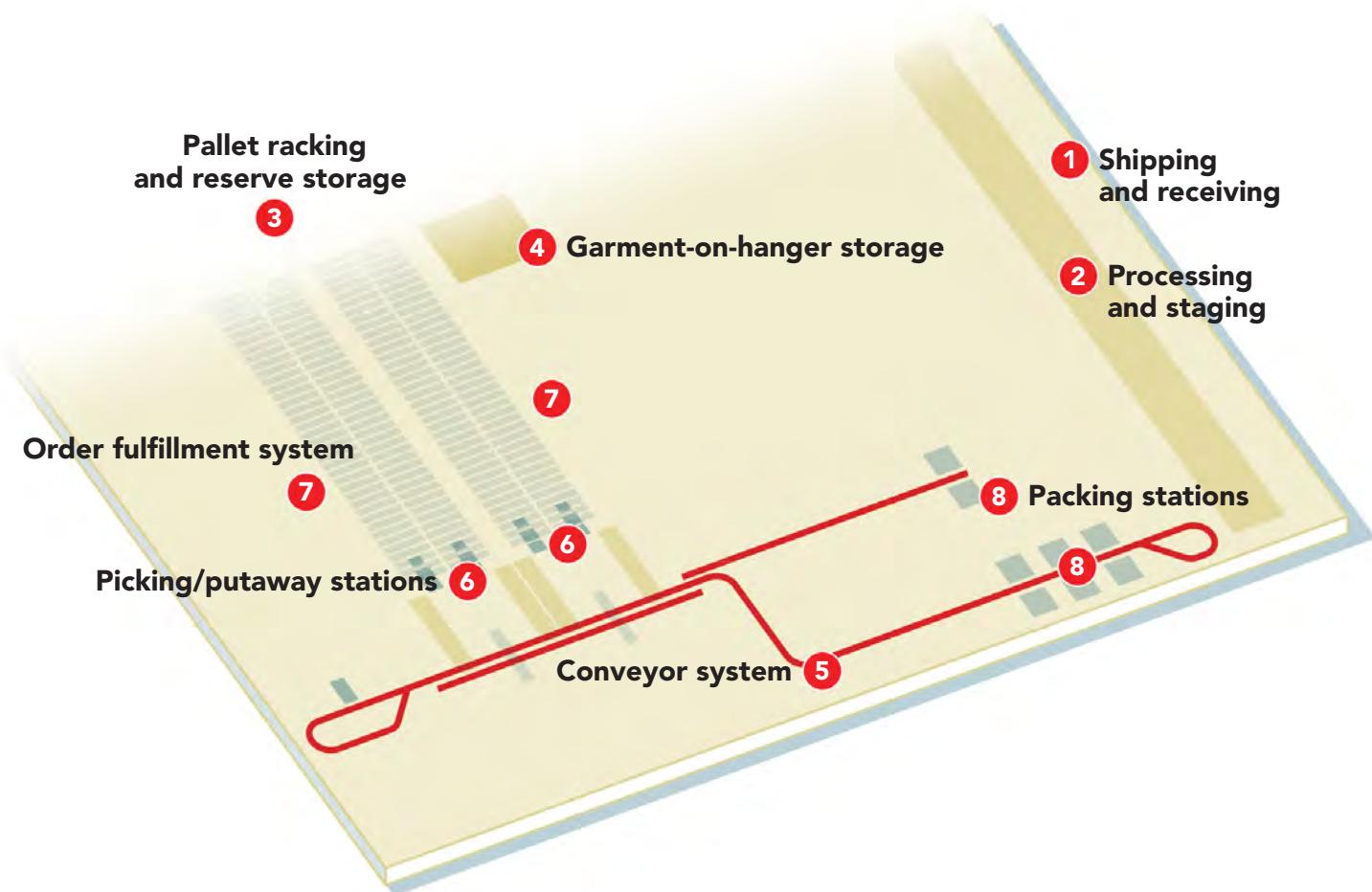
Empty order totes are then inducted onto the conveyor system (5). When they pass by an automatic scanner, each tote is associated with an order and routed to a goods-to-person station (6) on one of the lanes. Meanwhile, mobile robots retrieve totes from storage and place them on a takeaway conveyor to be delivered to the goods-to-

person station (6). When the fulfillment tote arrives, a picture of the item to be picked appears on the order selector's screen. The selector scans the bar code label on the item for verification; if it's the right item, a light indicates which order tote is designated for that item. Once all the items from that lane are in the tote, it is either routed to another

lane for more items, or, once the last item is in the order tote, it is conveyed (5) to a pack station (8).

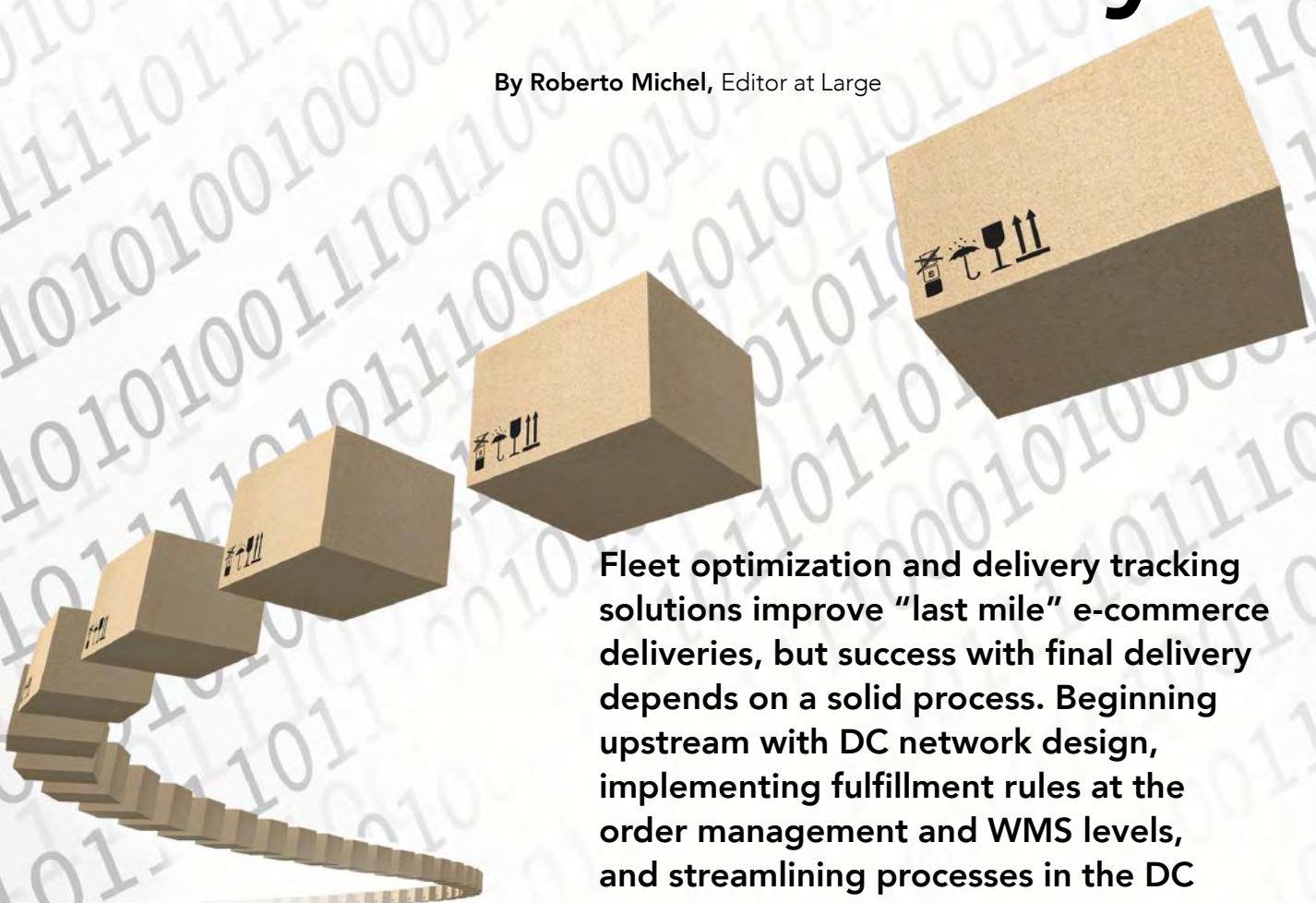
**Packing and shipping:** At the pack station (8), the operator scans the license plate bar code on the tote. The customer's order, along with pictures of the items for that order, is displayed on the operator's screen. The operator scans the items for the order into a shipping container. Once all items are in the container, it is weighed, and a shipping label is applied. Packages ready for shipment are then put on a cart that is wheeled to the processing and staging area (2), where cartons are manually sorted into carriers at shipping and receiving (1) for parcel delivery.

To see a video of the order fulfillment system in operation, visit: [bhfo.com/pages/about-us](http://bhfo.com/pages/about-us). □



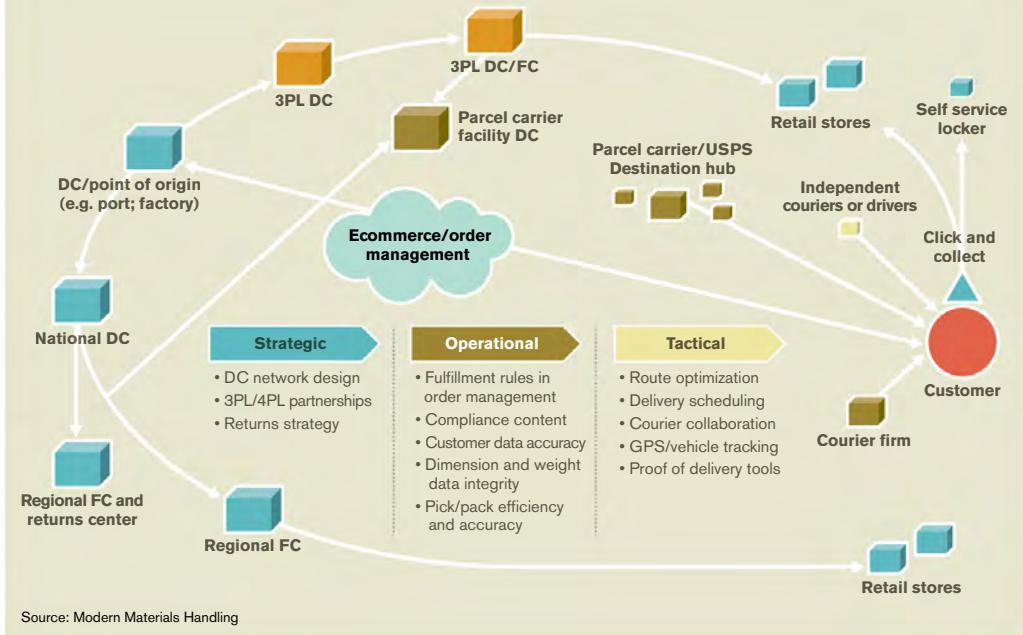
# Success with Last Mile starts early

By Roberto Michel, Editor at Large



Fleet optimization and delivery tracking solutions improve “last mile” e-commerce deliveries, but success with final delivery depends on a solid process. Beginning upstream with DC network design, implementing fulfillment rules at the order management and WMS levels, and streamlining processes in the DC all pave the way for an efficient last mile.

**Last mile: support spans strategic to tactical**



The “last mile” of e-commerce fulfillment—the processes and systems involved in making sure final delivery is efficient—is getting plenty of attention these days. New models for handling the last mile like “click and collect” locations and added cost pressures in the form of tougher dimensional pricing from parcel carriers are forcing closer scrutiny of last-mile processes.

Adding to the attention is the activity of Amazon, which has been testing its own last-mile, same-day delivery service in San Francisco and using bike messengers in Manhattan. Meanwhile, new services such as “Doorman” in San Francisco seek to appeal to consumers who want their e-commerce purchases collected for them at a secure location and delivered to them in one batch. Then, there is an evolution in courier services for urban areas, in which independent drivers may begin to compete with more established local courier firms in much the same vein that Uber has shaken up taxi services in major cities.

All of these developments revolve around the final leg of the last mile. But focusing just on the last stretch of the last mile can be short sighted, according to the logistics consultants and solution providers *Modern* spoke with for this article, since last-mile success calls for appropriate fulfillment rules and content at the order management and distribution center levels. Sure, shippers need better approaches to processes like fleet scheduling and vehicle tracking, but if front-end systems for fulfillment aren’t set up with the right

**Having the proper network design and various fulfillment rules built into order management or ERP/WMS solutions paves the way for a smooth last mile.**

rules, the last mile suffers.

Effective “final delivery” starts as far upstream as the structure of the distribution network, according to Jim Tompkins, CEO of Tompkins International. “You can go all the way back to network design and what your network should look like,” says Tompkins.

Retailers and direct-to-consumer marketplaces need to make decisions about whether they will have traditional DCs complemented by separate fulfillment centers (FCs) geared for picking and packing item-level orders, or whether they’ll have combined DCs/FCs, and determine how much geography each facility should service. “These type of network design decisions will drive where your inventory will be stored, which is going to dictate quite a bit about the final delivery that needs to take place,” says Tompkins.

Last mile might involve hundreds of miles for some shippers, adds Tompkins, so “final delivery” might be the better term to describe the variation involved. For example, a manufacturer of large marine engines might have a

delivery process for emergency repair parts that needs to span halfway across the globe. Additionally, a multi-channel retailer with hundreds of stores may want to leverage its physical stores as mini FCs, whereas a pure online retailer would not have those stores.

But recognizing these differences as well as the scope of the considerations, what is a common sense approach to excelling at last mile? The answer may lie in a balanced approach, spanning tactical solutions that address the final stretch of the last mile, combined with the proper attention to order fulfillment rules, compliance content and streamlined processes further upstream in distribution.

**Rules and content**

Many of the rules that drive final delivery should be established at the distributed order management (DOM) level, according to Tompkins. The DOM level is where retailers establish rules that govern when it makes sense to process orders so they ship as efficiently as possible. For instance, says Tompkins, if a consumer orders three items and only one is in stock at the regional DC

that services a customer's location, it might be cheaper to fill the order from a more distant DC that has all three items in stock if the order promise date can be met, and it results in one shipment rather than two or three.

"It's about having an order management system that is truly functional for e-commerce fulfillment," says Tompkins. "If you're sending too many shipments to fill one order, it not only costs a fortune, it's confusing to the customer."

And, details about the dimensions and

weights of items need to be established in back-end systems for ordering or the warehouse management system (WMS). This type of data needs to be highly accurate to ensure that systems used for shipping and carrier selection function properly and to ensure that items can be matched with appropriate-sized shipping boxes. "Today, you absolutely have to be able to understand the impact of dimensional pricing," says Tompkins.

At SEKO Logistics, a 3PL that offers final-mile solutions, much of the success with last mile actually lies in the establishment of shipping rules and retailer/marketplace compliance details within the order fulfillment software SEKO uses on behalf of clients, says Brian Bourke, SEKO's vice president of marketing.

For example, says Bourke, if an order comes in for a 55-inch flat screen TV from one of the

client's channels and only a certain courier can handle that size product for that location, the fulfillment system's rules are aware of this constraint and will select the correct courier and generate the shipping documents. Similarly, the system would be configured to follow retailer- or marketplace-specific rules on factors like label placement, or to distinguish the orders that are best shipped as part of a less-than truckload (LTL) shipment to a store.

This type of automation of fulfillment rules and content doesn't happen magically, notes Bourke, but instead relies on SEKO properly configuring the order fulfillment solution. "If you're able to write in those rules on the front end, the whole process runs relatively smoothly when it's time to execute the final mile," says Bourke.

SEKO's order fulfillment solution spans order management, WMS and transportation management system



### New models for last mile: independent couriers and click and collect

The norm for e-commerce last-mile delivery, at least for most U.S. consumers, is home delivery of a package, typically from the U.S. Postal Service, UPS or FedEx. However, new models are cropping up, including "click and collect" options at brick-and-mortar stores or other public locations, and greater use of independent delivery drivers and couriers to handle same-day and next-day options.

According to new research from Accenture, 19% of U.S. consumers used click and collect in 2014, up from 12% in 2013. In the United Kingdom, use of click and collect is more widespread. A survey from JDA found that 39% of British online Christmas shoppers opted to use click and collect services for the 2014 season. A quarter of these online Christmas shoppers chose to shop specifically with a retailer that offered click and collect over one that only offered home delivery.

Besides stores, self-service lockers are another means of handling the last mile. In the United States, Amazon offers its "Amazon Locker" program in a few cities.

While Accenture's "seamless retailing" study released in early 2014 found that U.S. e-commerce shoppers were more interested in waiting a few days for free delivery rather than next-day delivery, there was growing activity among retailers last year in testing same-day and next-day services. Amazon, for instance, tested the concept of contracting its own private delivery fleet for same-day service in San Francisco, and by using partners, now offers same-day services in several large U.S. cities.

While Amazon may have the scale to keep a courier firm busy all day with same-day deliveries, few other retailers have the sales volume to keep a courier firm busy with work all day, says Ross Merritt, vice president of strategic partnerships and marketing with Grand Junction. "The economics of working with a courier company just doesn't allow most companies to compete with Amazon and offer a similar service," says Merritt. "The way for them to compete in that area is to work straight with drivers, using technology to more effectively pool deliveries."

Grand Junction's cloud-based software is a collaboration and management platform for working with couriers and independent delivery drivers. The software provides visibility into delivery progress and offers tools to manage quality, such as tracking drivers with below average performance, and the capability to alert a driver that a package was left behind at the pickup point.

The solution is aimed at multi-channel retailers who need a collaboration solution to work with independent drivers who are picking up orders at a store or other location, and can offer lower fees to the retailer than larger courier firms with warehouse space.

The trick, says Merritt, is to have a low-cost way to collaborate with these contractors, who typically lack the real-time tracking tools and support that a major parcel carrier or larger courier service can offer. "Our goal as a software company is to give our shippers, when working with independent drivers and couriers, real-time visibility into last-mile deliveries, and all the controls that should come with that," he says.

(TMS) functionality. SEKO offers these applications on a software-as-a-service (SaaS) basis and may integrate the software with a client's enterprise resource planning (ERP) system or WMS to obtain order and inventory data.

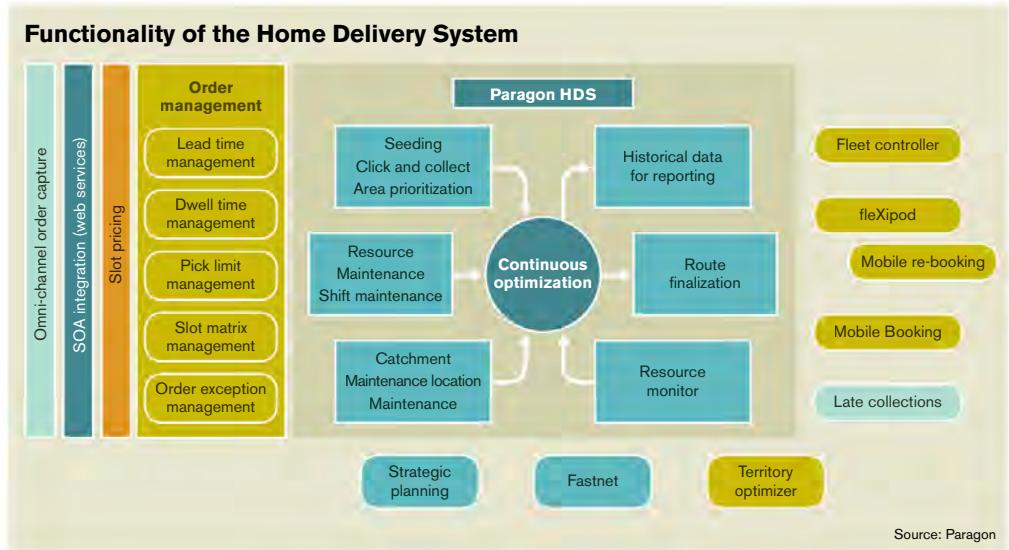
Companies can do this type of rules-building on their own, says Bourke, but regardless of who does it—a 3PL/4PL that specializes in fulfillment or a company establishing its own multi-channel order fulfillment platform, it's crucial that upfront rules building gets done.

"The principle of 'measure twice, cut once' very much applies to the upfront rules for last-mile fulfillment," says Bourke. "If you can sit down and agree on what the rules need to be, and the carrier rates and tariffs are built into your solution, then last mile becomes an automated process that runs much more smoothly."

At the same time, says Bourke, last-mile fulfillment also requires technology for the "tail end" of the process—the vehicle scheduling, routing and visibility into delivery status. As part of SEKO's final mile services, routes are optimized for lower mileage and fuel efficiency, and SEKO also uses smart phone apps for its drivers so that the drivers can capture progress and proof of delivery details.

### Optimizing delivery

Dynamically optimizing delivery routes while tying into order management to present options to customers are functions being addressed by Paragon Software Systems and its Home Delivery System (HDS). The solution differs from batch-based route optimization in that users can continually drop in new delivery orders and have the software optimize the best route, either in terms of fastest delivery time or the most cost-effective delivery window, says William Salter, Paragon's



Dynamic vehicle routing and scheduling solutions can drop new delivery requests into the current pool of deliveries and come up with a range of optimized delivery options.

president and CEO.

Batch-based fleet routing can work well for shippers like auto parts suppliers who deliver to other businesses on an almost daily basis, says Salter. In these environments, a batch optimizer can plan the next day's deliveries after all the orders for a day have been received. But with home delivery of items like bedding, furniture, cabinets and home appliances, the delivery requests are constantly cropping up, and customers might not be home during the day to receive goods, so they desire precise delivery options.

The HDS fits the home delivery scenario well, says Salter, because its software engine is a "continuous optimizer" that drops new requests into the pool of deliveries already in the schedule and generates options that take into account the actual constraints and resources at play, such as the road network and the number and types of delivery vehicles available.

"You can continually throw orders at the HDS, and it will continually optimize the routes and the schedules over the time that orders are getting fed into the system," Salter says.

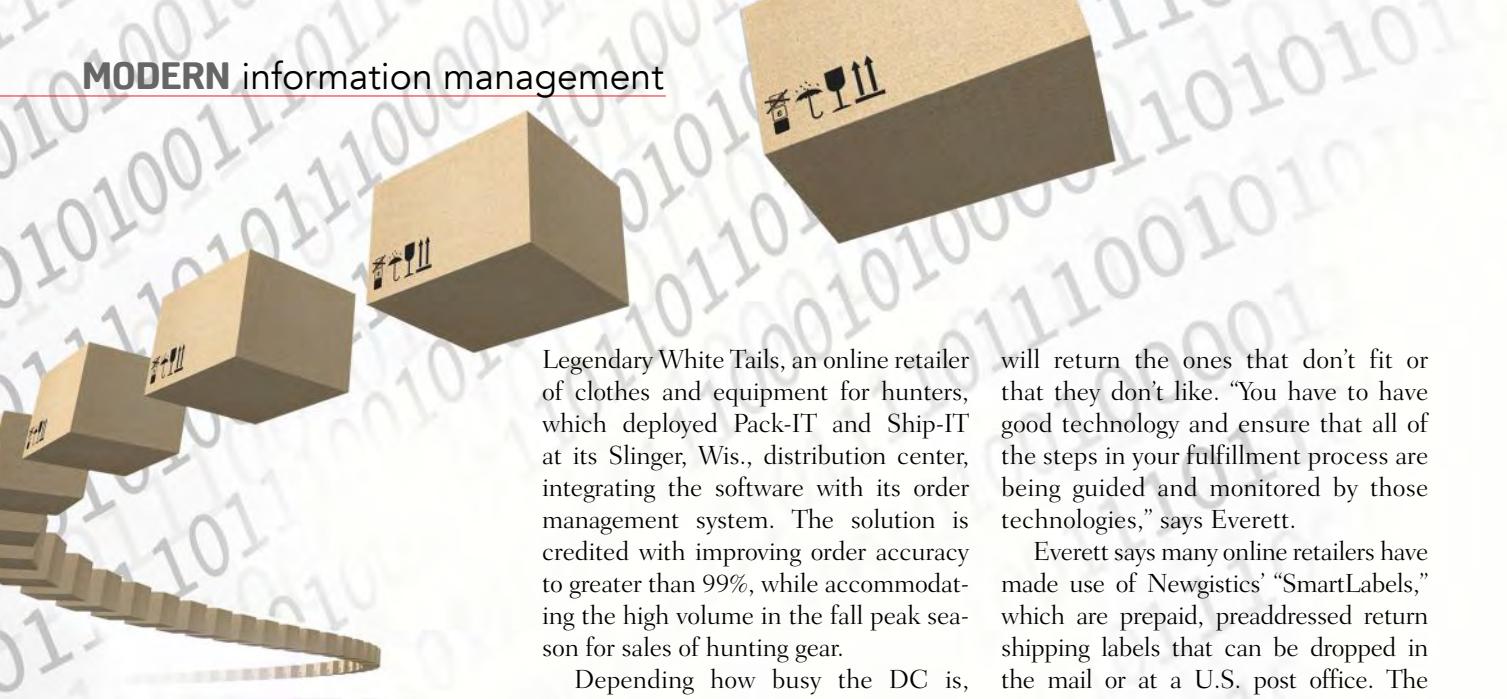
HDS also integrates with order management and outbound shipping functionality in ERP and WMS solutions. Because of ties to outbound shipping

information from WMS or ERP, the HDS knows when inventory is available to ship. The integration with order management allows for optional delivery dates to be merged into a retailer's order management process.

The HDS's optimization can suggest the first or most convenient delivery window, which may cost more to execute, or other delivery windows that might fall on a later date or a different time of day, but would be the most cost efficient to carry out given the route schedule. "So quite a few of our customers will try to encourage the end customer to pick what would be regarded as the greenest, most efficient delivery window, and there might be a lower cost associated with choosing that window," says Salter.

Paragon HDS users include Dreams, a bedding retailer using the system to schedule 6,000 home deliveries a week in the United Kingdom. Dreams delivers with its fleet of Mercedes Sprinter vans, picking up from a network of nine home delivery depots.

Dreams has integrated HDS with a Microsoft Dynamics NAV ERP system so that when a customer order is processed in the ERP system, it calculates the earliest availability date for the products and passes the data to HDS to work out the optimized delivery



times to offer the customer. The delivery options are presented graphically to Dreams sales staff in red, amber and green shadings, with green being the most cost efficient delivery option.

The solution also integrates with GPS vehicle tracking units in the Sprinter vans allowing the system to monitor deliver progress. This generates a live report feed for Dreams' Intranet so that the company can monitor the progress of deliveries.

### Efficiency at all levels

At the DC level, there needs to be a high degree of accuracy and efficiency in pick, pack and shipping processes. According to Bob Fischer, CEO of Advanced Distribution Solutions Inc. (ADSI), one way to gain efficiency is to combine packing, validation and shipping processes into one step using modular software at one station. To this end, ADSI's Pack-IT solution allows for a worker to scan items into a carton, which validates the correct items and quantities are in the carton, while Ship-IT software can be used at the same station to handle carrier selection and generation of shipping labels.

"Instead of having separate processes, we've integrated the pack and ship processes, says Fischer. "This streamlines the workflow, while ensuring that you are shipping the right items in the right boxes to the right customers and addresses."

Users of ADSI's software include

Legendary White Tails, an online retailer of clothes and equipment for hunters, which deployed Pack-IT and Ship-IT at its Slinger, Wis., distribution center, integrating the software with its order management system. The solution is credited with improving order accuracy to greater than 99%, while accommodating the high volume in the fall peak season for sales of hunting gear.

Depending how busy the DC is, up to 20 pack/ship stations use the combined solution, with each station capable of handling 60 orders per hour. The packers capture and validate each line item by product code and quantity shipped, and use ring scanners to allow for a more hands-free operation.

Pack validation software does require integration to order management, notes Fischer, so that it can alert packers if a duplicate or wrong item is scanned. "That's an important part of solution—integrating with host systems and the order level details those systems provide," he says.

With shipping software, it's also necessary to establish carrier selection rules so that the people running the shipping station can have the system automatically select the best carrier for an order given factors such as dimension or weight. "You have to automate these processes through technology, or they're not easily executable," says Fischer.

Todd Everett, COO for Newgistics, a logistics services and e-commerce solution provider for direct-to-consumer retailers, agrees that systems at the DC level have to be ingrained with the proper rules for final delivery to work smoothly, as well as to speed returns processing.

Today, according to Everett, an online retailer can have nearly perfect order accuracy, but the rate of returns may be 20% or higher because many buyers purchase multiple sizes or colors of the same item, and inevitably

will return the ones that don't fit or that they don't like. "You have to have good technology and ensure that all of the steps in your fulfillment process are being guided and monitored by those technologies," says Everett.

Everett says many online retailers have made use of Newgistics' "SmartLabels," which are prepaid, preaddressed return shipping labels that can be dropped in the mail or at a U.S. post office. The labels have customizable fields that can hold data such as customer information, order number or the DC of origin, which generate useful data as labels are scanned during the returns process.

Attention to a smooth returns process is vital, Everett contends, because it will drive more business. "If the consumer doesn't have a convenient and enjoyable returns experience, they probably aren't going to buy from that retailer again," he says.

Ultimately, the toughest part about the last mile is the scope of the contributing factors. As Tompkins sees, prowess with final delivery takes strategic thinking about the fulfillment and returns network, backed up by the right structure and supporting systems at each point in the process. "The correct approach is to focus first on strategy, then on structure, followed up by implementing the systems you need," Tompkins concludes. □

### Companies mentioned in this article

**ACCENTURE:** [accenture.com](http://accenture.com)

**ADSI:** [adsionline.com](http://adsionline.com)

**GRAND JUNCTION:** [grandjunctioninc.com](http://grandjunctioninc.com)

**JDA:** [jda.com](http://jda.com)

**NEWGISTICS:** [newgistics.com](http://newgistics.com)

**PARAGON SOFTWARE SYSTEMS:**

[paragonrouting.com](http://paragonrouting.com)

**SEKO LOGISTICS:** [sekologistics.com](http://sekologistics.com)

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# Robotics: On a case-by-case basis



End-of-arm tooling, or grippers, must quickly react to new or different products.

**When their prowess in manufacturing proved a liability in warehousing and distribution, robots were forced to rapidly evolve.**

By Josh Bond, Associate Editor

For several years now, industrial robot suppliers have worked to penetrate warehousing and distribution applications like palletizing, picking and case handling. Early missteps resulted from poor pairings, where a robot proven in a production environment struggled with order fulfillment, or specialized control software synced up awkwardly with existing systems, or robots were introduced as a cure-all without appreciation for their impact on upstream and downstream processes. In other cases, the justification for investment didn't hold up over time, or simply wasn't there to begin with.

Robotic solutions and related methodologies have almost completely overcome an impressive number of these challenges in just the past two years. But rapid shifts in market pressures and customer demands have been equally impressive, and as soon as a solution and application approach harmony, the target moves again. The limited availability of labor favors robotics alternatives, but SKU proliferation

remains a challenge. Nimble grippers allow robots to handle a case securely, but that SKU's packaging characteristics could change suddenly and without warning.

This volatile environment, however, has accelerated development rather than hindered it. From their roots in rigid repetition, robots are being forced to mature into adaptable, self-teaching, highly dexterous systems that fit within warehousing and distribution environments more like intelligent coworkers than pieces of equipment. Although it has proven a quick study, the warehouse robot still has plenty to learn.

"I've watched the evolution of welding robots from the early stages to where they are now, and I've seen plenty of 'revolutionary' robots get bulldozed in the early days," says Bob Hoffman, director of sales support and strategy for Grenzbach Logistics. "But now, no one would even think of installing a manual weld station. That's where warehouse robotics is going to be one day. Once we fight



through the growing pains, some day someone will say: 'Why did we ever manually case pick?'"

### Making the case

The answer is that, once upon a time, throwing labor at the problem was as good a way as any to get the job done. The scale starts tipping when speed becomes the central objective. The rate at which a person or robot can stack a case is one thing, but more important are the pace at which product from suppliers moves through a facility, the ability to quickly get staff onboard to keep pace with growth and seasonal peaks, and, ultimately, the speed with which deliveries reach customers.

"DCs are therefore getting closer to urban centers and that creates pressure to be more efficient in less space," says Patrick Pepin, business development manager for Axium, which specializes in robotic materials handling and assembly solutions. "As you get closer to urban areas, it's also more of a challenge to find a workforce willing to handle boxes all day, especially across

three shifts."

Exponential growth in the number of SKUs further complicates the issue. Hoffman offers the example of a food and beverage distributor that anticipates the addition of 1,000 SKUs in the coming year. "The area they serve still drinks the same amount of product, but the variety of SKUs is changing," he says. "That means the number of SKUs per pallet keeps growing due to the increase in slow-movers. To run from pick face to pick face hand-stacking a case here and there will quickly become unsustainable."

These challenges impact large and small operations alike, according to Ross Halket, executive director of ASD sales for Schaefer Systems International. "Little guys are struggling against the big guys who have the economies of scale, and the only way they can win is to take incremental bites out of their supply chain," he says. "As a result, some of the smaller companies are actually spending more capital on automation than the big ones."

Still, uncertainty can be a big hur-

**Suppliers, integrators and end users have learned a lot in recent years about how robots impact neighboring processes.**

dle for those considering robotics, and Halket says a system's stability means not only handling all the volume, but all the variations. "If today a system works well with 1,000 SKUs, the customer needs to know they can get to 1,500 SKUs—without knowing what the new 500 will be—and be sure the machine can handle it."

### Get a grip

Perhaps more than any other element of robotic development in warehousing and distribution, the end-of-arm tooling, or gripper, is the place that can make or break a robot's success. A robot might have advanced vision, speedy cycles, extreme precision, and smart software, but if it struggles to grasp even a small percentage of SKUs, the application is unlikely to succeed.

"It's easy to achieve speed with robots in a production environment,"



Grippers are increasingly capable of handling both products and data.

Pepin says. “In an unstructured environment you need a system efficient enough and flexible enough to handle shrink wrap, cases, cans, trays, you name it. Handling one type of packaging quickly means nothing if you can’t handle another type of packaging equally fast.”

Borrowing from lessons in manufacturing, suppliers considered automatically swapping grippers as needed, but the several seconds required to make the change were seconds where productivity was zero. If the application calls for swapping, a better practice is to install more than one robot, each specializing in a certain range of SKUs. This also creates redundancy in the event one robot is down or does need a gripper change.

In just the past couple of years, grippers have become adept at handling all sorts of cases individually, in groups or in layers. “The speed of evolution is huge,” Pepin says. “In 2009, a single-robot, mixed-case palletizing cell handled around 500 cases per hour. In six years, we can now reliably reach more than three times that.”

The demand for layer-picking solu-

tions is particularly strong, and these applications magnify the impacts of packaging changes. Gripper technologies have had to tread carefully amidst transitions from corrugated to shrink wrap, the removal of trays, and the risk of damage to a pallet of goods from a single broken juice bottle. Tom Pollard, applications engineer for Cimcorp North America (formerly RMT Robotics), says a single gripper using vacuums, clamps and magnets can now handle items that were out of the question until very recently.

“There was no alternative; you had to go for a manual process instead,” Pollard says. “Now, a lot more situations can apply the technology. Customers wonder if the robot will still work if they take on a new product line. With a high probability we can say it will, whereas three years ago I would have had to ask more questions to qualify that.”

Grippers are so advanced that Hoffman describes them as essentially “a robot on the end of a robot.” Capable of self-programming, grippers can collect and hand off information to the robot and into the system. For a particular SKU, Pepin suggests, one supplier

facility might package it in two rows of six, while a sister facility does it in four rows of three. The gripper can identify this discrepancy, react to it, and update the system accordingly.

Similarly, the gripper and robot can draw data from the system of record to adjust the vectors on how it will bring the case to the pallet. Robots building pallets should know if it’s a jar of honey that could destroy a pallet if it broke, or if it’s diapers that can be handled more rapidly, Schaefer’s Halket says. The robot can slow down or speed up on a SKU-by-SKU basis.

This approach depends on fairly robust warehouse management and control systems, but it is rare that companies have a good information technology backbone to deploy a robot, according to Alfredo Valadez, vice president of business development for Wynright’s robotics division. Even sophisticated customers might have advanced control systems, but they are based on the rules and picking processes as they existed before automation. “When you introduce robots,” Valadez explains, “you need to add additional rules, including the details of how each case should be handled.”

There are two methodologies to address this. Valadez says it’s possible to start building a database from scratch by manually populating it, or automation can help collect SKU-specific data. At a “teach-in” station, a new SKU can be weighed and measured in terms of displacement as opposed to simple width and height, since not every item is square. Manual entry is costly, time-consuming and an opportunity to introduce errors, and automated systems can capture this information before a new or differently packaged SKU enters the system.

### Goals in sight

Halket says vision is essential to creating a solution that can handle unpredictability. Lasers, sensors and cameras can combine to better detect and identify an item, which can help bypass



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manual intervention for simple obstacles like poor orientation, damaged labels, drops or other exceptions. Vision systems can even keep an eye on an item in motion, meaning a piece-picking robot can retrieve items in motion. For example, piece-picking robots of the past might not have boosted performance very much if a conveyed tote had to come to a stop and allow a robot to “think” about how to get an accurate grip on an item.

“Now the arm, not the base, can move along with a donor tote while confirming the product is correct and outlining the best donor piece,” Halket says. “If the piece is at an angle or there’s insufficient contrast, it can still challenge these solutions, but it’s a rapidly developing technology.”

In other applications, vision can enable mobility of the robot’s base. Daniel Theobald, co-founder and CTO for Vecna, says it starts with perception. LIDAR (light detection and ranging), ultrasound, infrared, cameras, bumpers and more help a robot perceive the world.

“Once it perceives something, the robot has to make sense of that information,” Theobald explains. “Then it can navigate and maneuver itself and is not dependent on a hard-coded path.

Once you have a robot that can get from point A to point B, the next challenge is manipulation.”

Theobald describes a project where a mobile robot can autonomously pick a 50-pound box or an individual pen out of a box. It can then put the box on a pallet or the pen on a shelf.

### Bends in the river

No matter the task a robot is asked to perform, its deployment is sure to impact processes upstream and downstream of that task. “Early on, when robots entered the warehouse, they were often looked at as an island where existing systems could simply feed the robot,” Valadez recalls. “Lots of early failures were due to that mindset.”

Especially if a robot can pick at three times the speed a person, it’s critical to ensure downstream functions can handle that velocity. A complete solution will include consideration of these impacts as well as the necessary control software to coordinate neighboring processes.

Cimcorp’s Pollard says robots have also improved a facility’s overall layout. Once the robot is in place, you can springboard into other improvements, he says. Upstream, suppliers can use an automated order fulfillment system as a means

**Suppliers have noted a dramatic increase in demand for solutions for picking layers and building rainbow pallets.**

to schedule production, rather than on a forecast. Downstream, it used to be that because an order fulfillment system was less predictable, an operation would often stage product near the dock then load from that buffer area to the truck. With a layer-picking robot, it is possible to delay the picking until the truck comes, Pollard says, then pick the entire contents of the truck while it’s parked.

“The buffering of products at the dock is starting to go away,” Pollard says. “Efforts to establish a just-in-time order fulfillment process can limit inventory. We used to see lots of companies staging 30 or 40 trailers in the yard that won’t even leave until tomorrow. Then they have inventory in the yard they would have rather shipped to someone else, but they can’t because it’s tied up. Instead, just pick it at the last minute.”

Once a robot is installed and running, benefits continue as its owners learn and experiment with the system. “Once the customer takes ownership, you start to see the really exciting things happen,” Hoffman says. “They might try something the team never thought of when we designed the system, and they suddenly gain a jump in production just by changing one parameter. They start taking pride in finding a half a percent here and there, and times five million cases per year that adds up quickly.” □

### Companies mentioned in this article

- [AXIUM SOLUTIONS, axiumsolutions.com](http://axiumsolutions.com)
- [CIMCORP AUTOMATION, cimcorp.com](http://cimcorp.com)
- [GRENZBACH - LOGISTICS, grenzebach.com](http://grenzebach.com)
- [SSI SCHAEFER SYSTEMS INTERNATIONAL, ssi-schaefer.us](http://ssi-schaefer.us)
- [VECNA TECHNOLOGIES, vecna.com](http://vecna.com)
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# Wine & spirits distribution: The right blend of automation

Though subject to unique constraints, advances in the distribution of wine and spirits holds lessons for the wider industry.

By Josh Bond, Associate Editor



In the wilderness of the supply chain, the distribution of wine and spirits is a unique animal. Of the few hundred of these specialized facilities across the country, each is subject to stringent state- or county-level regulations. Each building serves only customers in that state and is usually located as close as possible to population centers.

And as suppliers broaden their product ranges, steadily increase the number of SKUs and minimize packaging, these facilities struggle to cope with inventory variability. Facing higher costs for real estate and labor, managers are compelled to make the most efficient use of space and staff.

Then again, maybe wine and spirits distributors are not so different from the rest of the distribution world.

“Wine and spirits operations are aiming for 99% accuracy or better, like all other industries, but they have not been very automated in the past,” says Kyle Brock, sales engineer at Intelligrated. “Some still pick with paper and don’t have a good handle on

where inventory is stocked. Joe might know where the Crown Royal is, but there might not be anything in the system that necessarily says that.”

On the other hand, some have deployed automation with an eye toward route stop sequencing and a few are even implementing voice-directed bottle pick lines, case pick lines replenished by automated storage and retrieval systems (AS/RS) and some of the fastest case sortation systems in the business. As a whole, the industry is confronting changing conditions that open the door to conventional warehousing and distribution automation, but realize that this automation will assume a unique form for wine and spirits distribution.

In a challenge familiar to many markets, distributors face increased pressure from customers who want to place smaller and more frequent orders, and place them later in the day for next-day delivery. “Those delivery objectives become the key to justifying automation or making improvements



inside the facility,” says Brock.

Paul Laman, vice president of W&H Systems, adds that significant consolidation among wine and spirits distributors and suppliers in recent years has contributed to the segment’s progressive mindset. “When a wholesaler makes the pitch to handle a particular brand or group of brands, it includes an emphasis on the wholesaler’s order fulfillment capabilities,” he says. “In the past, that was not much of a concern. Now, it’s a big part of landing new business.”

### Hard data helps find the right mix

Wine and spirits distributors are weighing a number of factors in the design and location of their facilities, especially as they bump up against the limits of conventional approaches to distribution.

SKU proliferation, for instance, has extended the tail of slow movers, resulting in significant volumes of split case bottle picking. So, facilities are handling various SKU ranges differently, replacing uniform facility layouts with areas of heavy or light automation where appro-

priate. Before setting out on any new projects, John Barry, vice president of sales and marketing for ITW Warehouse Automation, suggests that a solid software foundation is critical to ensuring disparate processes and technologies work in harmony.

“Improvement has to start there, and these companies have to build an understanding of what is happening with SKUs, inventory and labor,” Barry says. “Otherwise you’re just guessing.”

Laman notes a transition in the 1990s where wave-based picking with labels replaced discrete order picking to increase productivity and overall production capacity. These tools also supported route stop sequencing and visibility. Initially, Laman says, only a few of the largest wine and spirits facilities adopted this approach; since then, that number has increased to around 90% of the top 100 distributors.

Still, the homegrown software in some facilities is often well short of a proper warehouse management system (WMS), says Brock. Ten years ago, as

**Wine and spirits distribution has traditionally required lots of manual labor. And although automation is making inroads, there are still plenty of applications where people provide the best value.**

wave-building features were folded into fulfillment systems, the end result still didn’t perform true inventory control. “Many found that canned software packages did the trick, allowing them to manually build waves to drive picks so they would show up at the dock in the right sequence for deliveries,” says Brock. “It’s why many don’t have a WMS today, so things like slotting, yard management, automatic waving, inventory control and quality control systems might be new to them. The next big transition in this industry will be the move from an order fulfillment system to a full WMS.”

Many will welcome the ability to take control of inventory in an environment where “SKU proliferation is on fire,”

says Jon Schultz, vice president of business development for Westfalia. In other industries, manufacturers can comfortably produce to a forecast, perhaps working to warehouse a 12- or 30-day supply of a product. "With the variability in wine and spirits, all those bets are off," he says. "It's not uncommon to hold six months to a year of a particular low-volume SKU." Visibility into inventory will support efficiency inside each building, but it can also inform strategies for the wider business.

"Given the logistics of having inventory in several places, as SKUs get more numerous and include more slow-movers, the harder the inventory holding model becomes," Schultz says. "But pooling inventory saves a lot of headaches. A number of the companies we work with have begun closing satellite facilities in favor of a big central DC that crossdocks to smaller markets."

For instance, a large facility near Chicago can handle that dense population, but the rest of the state still needs to be serviced. Instead of holding inventory or picking orders in each of the remote locations throughout the state, those warehouses are shuttered, leaving only a sales office and the crossdock



system. With the combined volume, the central facility can justify automation.

### Top shelf to bottom

The targeted deployment of automation should result in the most efficient processes for each product and order type. Similarly, storage methodologies should be designed around specific SKU profiles to achieve optimum density. The two overlap in AS/RS, which Schultz says can help manage SKU variability by providing the flexibility to configure

**Technologies to increase accuracy are increasingly common in each picking, a notorious source of errors.**

storage and achieve high density.

"The traditional approach involves a lot of empty selective rack or floor storage," he explains. "If you have 30 pallets of a particular SKU, you will fill your selective rack and run out of space to store slow movers. If it were predictable, you could have the rack ready for dedicated SKUs. Floor storage is flexible, so many go that route, stacking and making lanes as they want, but you get very low utilization."

Barry describes the transformation of a customer that upgraded its software, reconfigured its storage and deployed targeted automation. "It was a big, disorganized operation, with a big footprint of stored product and a lot of equipment running around," Schultz says. "Using a homegrown WMS, they would print a piece of paper, then run around and look for the inventory. Some of the studies we did suggested that pickers collectively traveled 26 miles per day." With automation, a new warehouse control system (WCS) and a WMS, that number

## A safe place for fine wines

Two hours northeast of Munich, Germany, only a small part of the Remstallkellerei wine cellar protrudes from the ground. Like an iceberg, 70% of it is under the surface. There, an automated storage and retrieval system (AS/RS) installed 33 feet underground stores 700,000 bottles of wine at a constant temperature of about 57°F. Following a complete modernization of the system, the company improved reliability and accuracy.

Built in 1978, the aging AS/RS was often subject to failures like cable break and cable fire. In such cases, the warehouse came to a grinding halt. "The error rate was still below 10%, but the situation was just too nerve-wracking and time consuming," says Roland Bäuerle, deputy logistics manager. "The most common error

was the failure of our old punch cards. Sometimes it was up to two days before we were able to restore access to our goods." It also became increasingly difficult to find spare parts for the system.

The biggest concern was that the AS/RS cranes did not align precisely with the pallets, requiring staff to manually correct the position at dizzying heights.

In addition to a new warehouse management system (WMS), the company installed two new AS/RS cranes, new controls, new electrical systems and new drives (viastore, viastore.com). The AS/RS consists of 90 gravity throughput channels with a 3.75% slope and a throughput speed of 39 feet per minute. These channels are loaded automatically in the WMS by the AS/RS cranes. The

WMS manages the entire inventories for each channel.

Today's product range includes about 250 items, some of which are the same wine from various years or in different packaging types. Before storage, the wine bottles are automatically packed and then grouped according to grape and vintner. A robot picks the packages and places them onto pallets. These are stretch-wrapped before the AS/RS automatically places the pallets into the rack from one side. If a pallet is to be retrieved, the AS/RS picks it from the other side. Gravity ensures that the replenishment pallet rolls to the front automatically.

"If failure does occur today, one phone call is all it takes," Bäuerle says. "The experts can analyze the problem on the hotline and resolve it by gaining direct access to the system."

shrank to less than 5 miles.

The operation—familiar to beer distributors and increasingly appealing to wine and spirits—was divided into two areas. One uses full automation for fast movers, as one associate picks layers from inbound pallets and feeds them into the AS/RS where fast movers are stored in case quantities. In the second, semi-automated area, the picker does not have to know the order details, but when the software calls for a case he or she feeds it into the system. Those cases replenish a flow rack and manual each-pick area where they are coordinated so that individual picks are performed in a more consolidated footprint.

The process removes much of the decision-making responsibility from pickers, where traditional manual practices create the most opportunity for error. Unlike other markets, where errors primarily aggravate customers, misplacement of the high-value products common to wine and spirits is most expensive for the distributor.

“Bars don’t get a case of high-end vodka, they get a bottle or two,” Brock says. “But if you ship the wrong bottle, the bar will probably sell it. They’re not going to return it, so you didn’t get paid.”

In many cases, more expensive bottles of wine might not have bar codes to preserve a premium shelf presence. Or, the bottler might apply the same UPC for a wine of both 2012 and 2010 vintages, whose prices can be very different. “This can make it very hard on the bottle pick side,” Brock says, and those compelled to do a manual read of each pick still assume a certain amount of loss and pilferage.”

Technologies to increase pick accuracy at the same time as productivity are critical to a successful operation, and businesses have several options.

### Raising the bar

Laman recalls when most of the industry would use duplicate copies of invoices as a pick ticket. A pick console could expect to move about 700 cases per hour in those days, and if an opera-



Semi-automated processes can boost productivity, accuracy and storage density.

tion needed more throughput, it simply used two consoles with two conveyor lines in every pick module. People still walked with invoices, picking to conveyors with no batching benefits, scanners or labels on cases. “Now, there are all kinds of mobile technologies, scanning systems, vision capture systems and other solutions to ensure accuracy,” Laman says. “Some houses now move more than 100,000 cases a night through automated systems.”

Sean O’Farrell, market development director for Dematic, says voice-enabled picking is a good starting point for a smaller operation, especially in split-case, bottle picking operations. Hands-free and directed picking allow for improvements in order cycle time and accuracy, he says, and might also complement an automated system.

The next step can be a shuttle used as a replenishment engine to the pick face, after which the shuttle can serve as an order consolidation buffer to accumulate cases and totes until the order is complete. The order can then be quickly released from the shuttle to the assigned shipping door in route stop sequence.

“We have a customer using a shuttle

to pick wine and spirits out of totes that are delivered to goods-to-person workstations,” O’Farrell says. “Pick rates doubled while accuracy improved and product damage decreased. Software also cubes out the order carton or tote to make the tote ‘aisle-ready’ for shelf replenishment.”

O’Farrell says the customer reduced shipping costs and picking uses only 40% of the floor space it once required. “In wine and spirits in recent years, order fulfillment has gone from full pallet to full case to each-level picking,” he says. “The good news is that although order fulfillment costs in the supply chain are going up, automation costs are coming down. DC automation is increasingly within reach for large and small companies alike.” □

### Companies mentioned in this article

- DEMATIC: [dematic.com](http://dematic.com)
- INTELLIGRATED: [intelligrated.com](http://intelligrated.com)
- ITW WAREHOUSE AUTOMATION: [itwwa.com](http://itwwa.com)
- VIASTORE: [viastore.com](http://viastore.com)
- WESTFALIA TECHNOLOGIES: [westfaliausa.com](http://westfaliausa.com)
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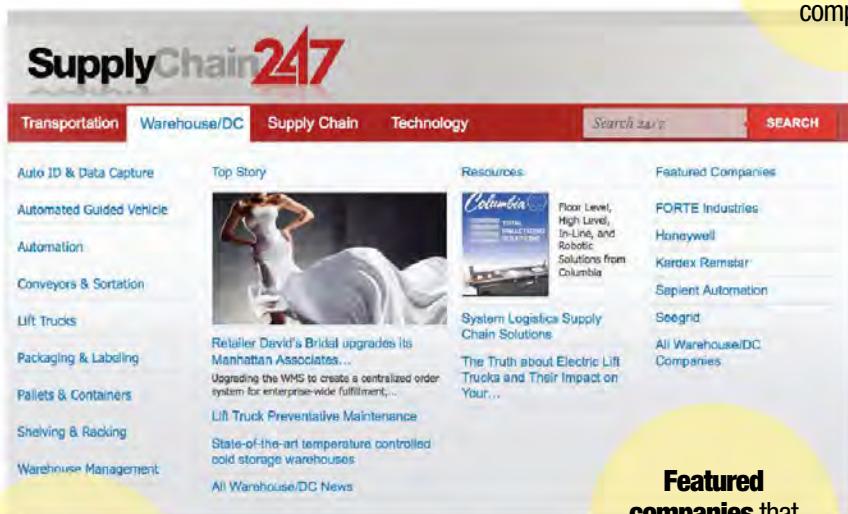
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Each year, *Modern's* Productivity Achievement Awards honor those companies that made outstanding operational improvements through materials handling systems and related information systems. *Modern's* editorial team selects finalists from among the monthly system reports published by *Modern* in the previous year. A panel of industry experts then reviews the finalists in each category, selects a winner and outlines the merits of the winning company.

Finalists in the *Manufacturing* and *Warehousing/Distribution* categories are recognized for their ability to provide outstanding customer service, quickly respond to changing business conditions, deliver orders that meet customer requirements, and improve operations. The *Innovation* category recognizes a company that successfully employed a solution that defies convention.

In addition to achievements in productivity, throughput or efficiency, winners were also judged on how projects inside the four walls enable or comple-

ment the broader business objectives of the company.

This year's panel of Productivity Achievement Awards judges consists of: James A. Tompkins, CEO of Tompkins International, a supply chain consulting and implementation firm; Bryan Jensen, vice president and principal for St. Onge Co., a supply chain strategy and logistics consulting firm; Steve Simmerman, senior director of North American sales for JDA; and Ron Grove, vice president at TZA, which specializes in workforce productivity solutions for manufacturing and distribution operations.

This year, none of the votes were unanimous, and winners edged out their fellow finalists by narrow margins. Still, *Modern's* editors and guest judges agree the winners offer models for success in their respective fields as well as for the future of the industry as a whole. For the full text of last year's honorable mentions, visit [mmh.com](http://mmh.com) and search "Year in Review: 2014 System Reports."

The winners are:  
 Innovation Award: **Tech Data**  
 Manufacturing Award: **Diversity Vuteq**  
 Warehousing/Distribution Award: **BRG Sports**



# Tech Data asks: What's next?

One of the world's largest wholesale distributors of technology solutions rolled out a WCS, WMS and labor management across six U.S. distribution centers to keep up with demand.

By Bob Trebilcock, Executive Editor

**W**hat technology does it take to provide a consistent and efficient customer experience across a network of distribution centers? That was a question posed several years ago by Tech Data, the world's largest wholesale distributor of technology and solutions.

At the time, Tech Data was managing its North American fulfillment activities with paper-based legacy systems. Aging warehouse systems were a contradiction for a company that delivers the latest IT hardware and solutions to its customers. At the same time, Tech Data prides itself on something Darryl Branch, senior vice president of logistics and integration, calls an attitude of constant transformation. He says, "We are constantly look-

ing at what other technologies can be applied to our business and asking: What do we do next?"

What's next for the logistics centers—Tech Data's term for its DCs—was the roll out of a common warehouse control system (WCS; Fortna, [fortna.com](http://fortna.com)) one facility at a time across a network of six U.S.-based logistics centers. The multi-year project was completed last year. The WCS provides real-time control and visibility into the status and location of orders as they travel through miles of conveyor and sortation, including the all-important "priority" orders scheduled for next-day or two-day delivery. Since going live, on-time delivery rates have improved from 99.6% to 99.9% for prior-





ity orders, while meeting on-time delivery rates of 99.999% on standard delivery orders.

WCS was not the only technology update. In 2007, prior to the WCS roll out, Tech Data went through a network-wide warehouse management system (WMS) implementation. And, after launching the WCS project, Branch's team also took on a labor management system (LMS) and employee incentive program. The ultimate goal is to be the industry leader on customer service while enjoying the lowest logistics costs among its competitors.

So far, the technologies are delivering results. In addition to improved on-time delivery, labor costs are down, the number of full-time equivalents



**A warehouse control system is providing a new level of visibility and performance at Tech Data's six U.S.-based distribution centers, according to Darryl Branch, senior vice president of logistics and integration.**

Photos by Shannon Faulk/Getty Images



**The WCS routes orders from the pick modules to the right shipping lane (left), based on priority. In packing (right), an associate adds paper to a carton prior to shipping.**

has been reduced from 1,100 to 500, and throughput has improved from 45 pieces per labor hour to 70 pieces per labor hour. “We’ve been able to improve our metrics every year since we implemented the WCS, WMS and labor management,” Branch says.

**Launching WMS**

With more than \$26 billion in revenue and 9,000 employees worldwide, Tech Data is ranked No. 119 on the Fortune 500 and is consistently one of Fortune’s most admired companies. It distributes and resells approximately 150,000 high-tech products for HP, Dell, Microsoft and others in North America, South America, Europe, the Middle East and Africa, and supports approximately 115,000 value-added resellers, direct marketers, retailers and corporate resellers in 100 countries.

The list of offerings includes computer peripherals, physical security, consumer electronics, digital signage and mobility hardware. It also provides services ranging from logistics management to training and technical support, customized shipping documents, product configuration/integration and access to flexible financing programs, as well as a suite of electronic commerce tools including Internet order entry and electronic data interchange services.

Order fulfillment and distribution are core competencies and competitive differentiators, says Branch. In the United States, Tech Data operates a network of logistics centers comprising more than 2 million square feet, including Miami (273,000 square feet); Suwanee, Ga. (196,000 square feet); Swedesboro, N.J., (407,000 square feet); South Bend, Ind. (347,000 square feet); Fontana, Calif., (407,000 square feet); and Dallas/Ft. Worth (535,000 square feet). A seventh facility in the network is located in Costa Rica.

Today, the facilities use mobile computing and bar code scanning to direct work and ensure quality; more than 22 miles of conveyor feed high-speed sorters that route the correct orders to the right trucks to meet customer service levels; and labor management is used to create consistent work standards, provide objective metrics to measure associates and compare productivity across facilities. The facilities are clean, well-organized and consistent. “We believe that one of the keys to our success is having as much consistency as possible in how we operate our systems and how the logistics centers are measured against each another,” Branch says.

While the buildings are relatively new, as a 40-year-old company, they were managed by aging legacy software systems. The

quality of those systems varied from one facility to the next and depended on how much was available to invest at the time a building went live. Increasingly, Tech Data was challenged by changes taking place in the types of products it was handling, smaller order profiles and increased customer service-level requirements.

For instance, the product mix expanded beyond conventional IT products to include toys, printers, copiers and asset tagging for configuration centers. E-fulfillment resulted in more small orders and more each picks. Priority orders were increasingly a competitive differentiator. “In a business where our competitors all offer the same SKUs, a customer may decide who to use based on how efficiently we can ship an order on time,” says Branch, adding that a customer will typically pay more for higher service levels. As a result, the ability to deliver on priority orders is a key metric when it comes to evaluating how well the company is performing.

The first step at modernizing the facilities came in 2007. After implementing SAP WM in its European facilities, Tech Data went live with the WMS across the United States. While order selectors could pick orders without paper and get them onto the conveyor system more efficiently than in the past, the existing WCS systems

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couldn't track the status or location of orders—especially priority orders—as they traveled on the conveyor and sortation systems. The subsequent processes involved a lot of manual intervention, inefficiencies and the potential for errors because the WCS could not differentiate priority orders from regular orders.

To compensate, Tech Data developed manual workarounds to visually track orders. When a priority order dropped into the system, it was picked into special red totes and placed on the conveyor line. Associates were stationed on the floor to manually divert the red totes to the correct lane for next-day or two-day shipment. With a reliance on manual diverts, it's no surprise that some orders ended up in the wrong trucks, impacting service levels.

**High-tech tool for a high-tech company**

It was clear that the company needed a high-tech tool to match its high-tech requirements. "We realized that to get the full efficiency out of our WMS, we had to have smart conveyors powered by a WCS," Branch says. "Otherwise we were going to have a lot of automation that still relied on people." Moreover, they wanted one technology platform that would provide a consistent way of operating across the network, even if the conveyor systems were different.

Having just gone through a major WMS roll-out and a lot of change management, Tech Data took a step approach to the new WCS, rolling the system out one facility at a time starting with the DC in South Bend. The idea was to learn how to run and maintain the new system, including the dashboard for the control system. An additional goal was to identify best practices and develop several super users in each facility who could apply lessons learned to the next implementation. It took five years to get all of the U.S. facilities up, running and experienced on the WCS—



In addition to the WCS, Tech Data has rolled out labor management across its facilities to drive further improvements.

the last went live in 2013.

The outcomes were impressive. Thanks to the WCS, Tech Data could now track priority orders as they progressed through the order fulfillment system and ensure they were automatically sorted to the right shipping lane for the customer service level. Manual intervention and red totes were things of the past. More importantly, the sophisticated systems enabled Tech Data to look at its business more strategically and to add more value for customers.

"We saw an improvement in throughput and accuracy," Branch says. "But we also gained visibility into how orders flow through the facility. That allows us to understand when trucks need to leave to meet next-day or two-day delivery."

In turn, Tech Data can now provide a better customer experience than in the past—and do so more economically. Moreover, by operating on common platforms, the network of DCs collaborates on best practices and standards across the sites. Finally, the company thinks more strategically about how inventory is positioned across the network and what type of orders are filled in each facility.

**Improving labor standards**

Tech Data took the same "one facility at a time" approach with labor manage-

ment, rolling it out concurrently with the WCS system. "To get the most from the WMS, we wanted a common set of labor standards across all of our facilities, just like our common software platforms," says Branch. The new software and engineered labor standards were accompanied by an employee incentive program. Last year, every employee, including temporary employees, received a bonus. This year, bonuses are paid every two weeks.

Labor management had two impacts. For one, there was a nearly 60% reduction in the number of full-time equivalents along with the increase in throughput. Just as important, morale has improved.

Branch adds that other companies have taken notice of its systems. In fact, Tech Data is now providing third-party logistics (3PL) distribution services. "They're looking at how we manage our labor, how we manage our inventory and at our commitment to continuous improvement," Branch says. "We have made investments that they don't have to make in their facilities if we manage their distribution."

"Since launching this initiative in 2007, we have clean, organized buildings with high morale," he adds. "We've brought consistency to our operations and measurements across our network. And, we continue to look at what technologies can be applied to our business. We continue to ask: What do we do next?"

**System suppliers**

**WAREHOUSE CONTROL SYSTEM:** Fortna, [fortna.com](http://fortna.com)

**ERP, WMS, LMS:** SAP, [www.sap.com](http://www.sap.com)

**CONVEYOR AND SORTATION:** Hytrol, [hytrol.com](http://hytrol.com)

**TURRET AND WALKIE LIFT TRUCKS:** Crown, [crown.com](http://crown.com); Raymond, [raymondcorp.com](http://raymondcorp.com)

**MOBILE COMPUTING AND SCANNING:** Motorola Solutions, [motorolasolutions.com](http://motorolasolutions.com)

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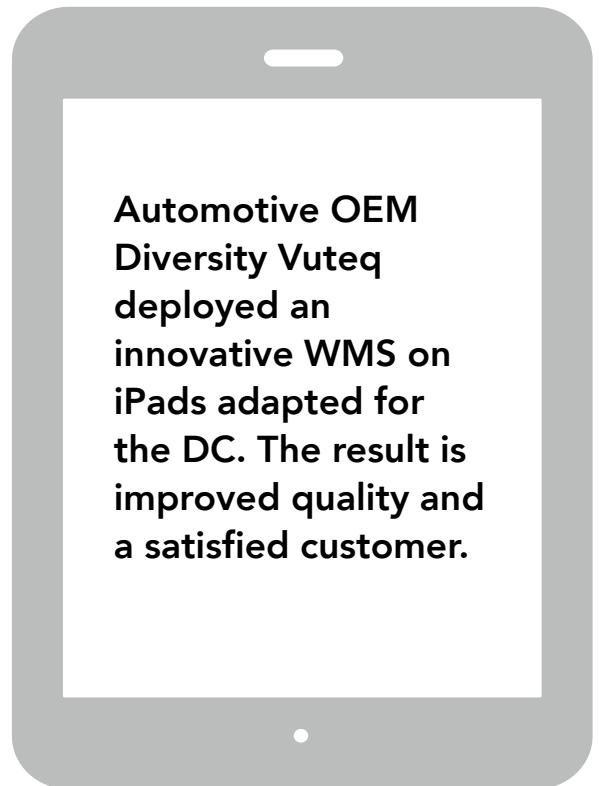
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# Diversity Vuteq brings iPads to the shop floor



By **Bob Trebilcock**, Executive Editor

**M**obility has been one of the most pervasive trends inside and outside the four walls of the distribution center in recent years. Every organization is looking for more opportunities to automatically collect and use data to improve processes. While conventional, industrialized mobile computers, scanning devices and voice hardware are still the norm, analysts and end users

alike are asking when consumer devices like tablets and smart phones that we all use in our daily lives will find their way to the shop floor.

According to Bill Buck, assistant manager of sales and logistics at Diversity Vuteq's plant in Princeton, Ind., the answer to that question is: "Right now!" Last fall, Buck and his logistics team deployed a highly visual warehouse management system (WMS; HOJ Logistics

Engineering, [hoj.net/hoj-logistics](http://hoj.net/hoj-logistics)) in the plant, which manufactures injection-molded plastic components used at a nearby Toyota assembly plant for the interiors of vehicles like the Toyota Highlander and Sienna.

There were three goals to the project:

1. Develop a process that minimized the number of picking errors, measured by the number of plastic kanban containers sent back by Toyota because



PHOTOGRAPHY BY CHRIS CONE/GETTY IMAGES

**At its Indiana plant, automotive OEM Diversity Vuteq is using a WMS developed for industrialized iPads to direct storage and picking processes. The result has been significantly improved accuracy, says assistant manager of sales and logistics Bill Buck.**

they held the wrong part;

2. Provide 100% accountability so that if someone does make a mistake, Buck's team can investigate where the error occurred and take corrective steps so that it doesn't happen again; and

3. Eliminate redundant team members from the process whose only purpose was quality control.

Since going live in October 2013, the plant has reduced errors from an average of 10 to 15 containers a month being shipped back to virtually none in those areas where the system has been deployed. "Our total error for the current month was two containers," says Buck, "but those two containers were pulled

from a dock area where the WMS is not yet in place. Where we're using the system, we have zero errors."

As a side benefit, Buck says the system is so simple and visual that almost anyone can come into the plant and quickly learn the job with little or no experience. "We are a Japanese plant and we have embraced lean methodology," he says. "Visualization is an important component of lean. That was a big selling point to implementing this solution."

#### **Running lean, delivering just in time**

Although Diversity Vuteq has been operating in North America since 1986, it may not be a household name to most North

American readers of *Modern*. However, Vuteq, its parent company, is a leading supplier of parts and components to automakers around the globe. Vuteq manufactures or assembles and sequences a range of products for its customers, from glass components to instrument panels.

One of the company's hallmarks is its ability to support its automotive customers on a global basis. When Toyota moved production of the Highlander to Indiana, Diversity Vuteq was slated to play a leading role. The Princeton plant shipped the first load of parts in October 2008, just nine months after breaking ground. "We were making parts with just a roof, no walls, and tarps to cover the



Associates receive color-coded part numbers, storage locations and quantities to be picked on their iPad screens, along with a photo of the part to be picked. A yellow border initiates a task (left). When the associate scans the right location, SKU label or picks the right quantity, the border turns green (center). If the associate performs a task incorrectly, the border turns red (right).

machines from rain,” Buck recalls.

Diversity Vuteq is a lean plant. It produces 100 different parts and each part is available in three colors. The production team receives a six-week forecast on a rolling basis. At the start of each month, Toyota provides a firm production number that details how many vehicles will be produced in a specific period of time. However, the monthly forecasts don’t tell Diversity Vuteq what colors or options will be required—that information isn’t available until closer to the run. As a result, the plant creates production schedules broken down by part and color based on the law of averages.

“We try to keep one-and-a-half to two days worth of inventory in storage at all times,” Buck says. “Using the forecasts and Toyota’s order history, we try to anticipate what they may order and build stock from that.” He adds,

however, that there are days when the production run will consist entirely of options, which are hard to forecast.

About 90% of the production is packed at the end of the assembly line into plastic kanban containers that are used for both storage and delivery to the assembly line. In fact, Buck says, there is an intense design process at the beginning of every project with Toyota to optimize the package that will go to the line. “On the last launch, we provided eight different samples before we all agreed on the right package,” Buck says.

Kanban containers are stored in a rack system that consists of carton flow for full containers ready to go to the plant on the bottom and pushback pallet storage for empty containers received back from Toyota on top.

Each evening, Diversity Vuteq receives an order release detailing what parts will be needed for the next day’s run. The master order is broken down into 36 deliveries, with a pick up roughly every 42 minutes. Deliveries are made to the assembly plant in Toyota trucks on a just-in-time basis.

**Getting visual, reducing errors**

Prior to putting in a WMS, picking for those 36 delivery runs was done with paper-

based pick lists. The old system was a three-person affair: One team member picked the containers from storage and placed them on a staging area on the floor. A second team member was assigned to quality control, checking each of the staging areas to make sure the right containers had been picked. Once verified, a third team member pulling six dollies behind a tugger would put the containers on pallets and deliver them to the shipping dock.

Even with the extra verification step, Toyota was shipping back 10 to 15 containers per month because of errors. “We were still relying on a person for quality control,” says Buck. “We tried variations of the process to reduce errors and make it less time consuming, but we basically had two people doing one person’s job and we still had some errors.”

Meanwhile, he adds, Toyota’s goal is zero returned containers per month.

Buck began looking for a solution to automate the verification process and eliminate those manual errors. The first option was a full-blown enterprise resource planning (ERP) system. That seemed like more horsepower than was required for the job at this stage in the plant’s development. Researching options on the Internet, Buck and his team came across a video illustrating a different approach to WMS using iPads. The iPads had been industrialized by the solution provider to account for the rigors of the floor: The tablets are housed in a protective metal case that is mounted on a vehicle; the case has its own rechargeable battery that can last up to 18 hours between charges—much longer than the standard internal iPad battery.



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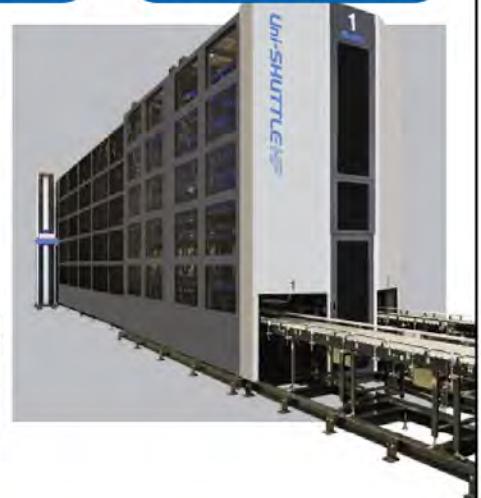


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Although unconventional, there were at least four reasons Diversity Vuteq chose to investigate the system:

1. One was that it was so visual. For instance, the iPad screen is larger than the screen on a conventional mobile computer. Instructions are color-coded as well. When a task is delivered to the iPad, the border of the screen is yellow. If a team member performs the task correctly—if the right item or location has been scanned—the border turns green indicating that the task was correct and it's time for the next task. If the border turns red, the team member knows an error occurred and has to be corrected. "Visualization is an important component of lean, which was attractive to our management," Buck explains.

2. Another was the fact that the system used iPads specifically. "Our management admires Apple products and that made it an easier sell," Buck says.

3. In this case, unconventionality—or innovative—was a selling point. If successful, it would set that plant apart from other suppliers as an innovator. The Princeton plant already stood out for being the first plant in North America to install a certain kind of injection press. This would be another first. "Toyota favors suppliers that are considered leaders," Buck says. "If you're having problems in your plant, they'll suggest you look at those supplier's processes because they're doing something unique. My goal was to be that supplier."

4. Finally, the solution would make team members 100% accountable. "The system is so visual that you can look at the iPad and see whether the process is being followed just by the colors," Buck says.

In the new process designed to work with iPads, tasks are optimized by the system to eliminate unnecessary walking time and then delivered to the tablets in steps. When orders drop to the device, the team member first sees a storage location on the screen with a yellow border. If the team member scans the right location, the border turns green. The storage location is next, the associate sees a part number and a yellow border. If the

associate scans the right container, the border will again turn green. Finally, the associate sees the the number of totes to be picked and a yellow border. Once each pick has been scanned, the border will turn green again. If there are any errors in those steps, the yellow border turns red. The team member can't move to the next step in the task until correcting the error.

Buck admits there was a learning curve. For one, the internal Wi-Fi infrastructure had to be expanded to accommodate additional users and provide coverage throughout the facility. For another, team members didn't pay attention to battery life, even though the external batteries will last 18 hours.

Last, Buck says that initially the error rate remained stuck at previous levels. However, because the new system-based approach kept a record of transactions, Buck's team identified where the process was breaking down. It turned out that the production team was sometimes loading finished goods into the wrong containers because they weren't paying attention to the internal label system used to identify kanban containers. "Because we could now review data, we were able to identify the problem," Buck says. "We'll be rolling this system into production shortly."

In the future, Diversity Vuteq plans

another modification to the system, adding a color picture of the part required for a pick along with the part number. "We make 300 SKUs, which consists of 100 different parts in three different colors," he says. "Now, they'll see a picture of the right part in the right color."

Nine months after going live, the process is streamlined and error free. As Buck points out, where the iPads are in use, errors are virtually non-existent. And, the team members previously assigned to quality control have been reassigned to other tasks. "Today, we have one person doing a one-person job, and we're investigating ways to further streamline picking and palletizing," he says.

### System suppliers

**WMS:** HOJ Logistics Engineering, [hoj.net/hoj-logistics](http://hoj.net/hoj-logistics)

**MOBILE COMPUTING:** Apple, [apple.com](http://apple.com)

**BAR CODE SCANNING:** Socket Mobile, [socketcom.com](http://socketcom.com)

**LIFT TRUCKS:** Yale, [yale.com](http://yale.com); Crown, [crown.com](http://crown.com)

**PUSH BACK RACKING:** Steel King Industries, [steelking.com](http://steelking.com)

**TUGGERS:** Toyota Industrial Equipment, [toyotaforklift.com](http://toyotaforklift.com)

**PLASTIC PALLETS AND CONTAINERS:** Orbis Corp., [orbiscorporation.com](http://orbiscorporation.com)



**Diversity Vuteq manufactures and delivers injection-molded plastic components on a just-in-time basis to a nearby automotive assembly plant. Since adopting the iPad enabled WMS, errors are virtually non-existent.**



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# Taking out the BRG Sports

**BRG Sports' new DC was designed from the ground up as an omni-channel, omni-brand distribution and manufacturing facility. Most of all, the materials handling solution optimizes fulfillment and takes touches out of the process.**



By Bob Trebilcock, Executive Editor

Let's face it: Distribution has never been more complicated. The best retailers and distributors want to fill orders across multiple channels, multiple brands and a multitude of order profiles, all from one facility. Meeting those requirements with conventional materials handling processes often results in more touches that add waste, time and cost to the order fulfillment processes.

Taking those touches out of the process was one of the guiding principles behind the design of BRG Sports' new 813,000-square-foot manufacturing and distribution facility in Rantoul, Ill. The acronym stands for Bell, Riddell and Giro, three of the best-known names in sports helmets and accessories. Riddell, for example, is the leader in football helmet technology. Last spring, BRG Sports expanded its portfolio with the acquisition of C-Preme, a manufacturer of action sports helmets for children, teens and adults.



**Lewis Hornsby, vice president of global logistics and fulfillment.**



# touches at



Photography by Peter Wynn Thompson/Getty Images

The facility, which went live in October 2013, is a complex environment. When the integration is complete, BRG Sports will have consolidated eight different distribution centers and four brands into one facility. Currently, BRG Sports is managing 23,000 SKUs while shipping an estimated 10,000 pallets a month. Its customer base includes big box retailers that may receive full truckloads with up to 10,000 cartons and smaller specialty retailers and organizations, such as professional sports teams and school athletic departments, which may order a handful of mixed cartons. Some orders are palletized and others are floor loaded.

While full pallet orders represent 70% of the volume, the number of e-commerce orders for parcel delivery is doubling every year. In addition to distribution, the facility includes a manufacturing operation that can produce 25,000 Bell helmets per week.

To manage that complexity, BRG Sports worked with a systems integrator (Numina Group, numinagroup.com), to design and build a Greenfield facility to minimize those touches that uses:

- very narrow aisle storage to optimize space;
- hands-free, multi-modal data collection tools to direct picking activities (voice and ring scanning); and
- automated materials handling equipment (conveyors, sortation, and automated print-and-apply and packing systems).

The facility features 44,000 pallet locations, expandable to 60,000 locations; 2 miles of conveyor; and systems that can support 60 cartons per minute in mixed full-case order shipments and 100 cartons per minute in the combined full case/split case modules.

The solution is tied together by a warehouse control system (WCS) that enables parallel pick, pack and ship operations across brands, channels and order profiles. The WCS times the



**Workers assemble Bell helmets at the facility. In the future, helmets will be produced and shipped according to real-time demand.**

release of work and synchronizes activities so the right cartons for an order arrive at the right shipping area at the right time and with the least amount of travel—and touches—by associates.

Building a Greenfield facility meant that BRG Sports could design new processes from scratch. “We didn’t want to automate our existing processes,” says Lewis Hornsby, vice president of global logistics and fulfillment. “Instead, we wanted to use automation to streamline our processes.” While there is still some manual handling, about 80% of the orders go through the automation. “Although we ship multiple brands in split and full cases, to the automation, an order is an order and a box is a box,” Hornsby says.

While BRG Sports took a phased approach to integration, consolidating one DC at a time, Hornsby is already seeing a significant improvement in throughput.

#### **Network design led the way**

Headquartered in Scotts Valley, Calif., and with more than \$825 million in revenue in 2012, BRG Sports is a leading designer, developer and marketer

of sport equipment and accessories. Formerly known as Easton-Bell Sports, the corporate name was changed last summer following the sale of the Easton businesses—baseball/softball, ice hockey and cycling. Today, BRG Sports focuses on sports helmets, protective equipment and accessories that support the bicycle and football businesses.

The project was initiated in August 2010, when Hornsby and his team began researching the feasibility of a new facility. At that time, each of the brands had its own unique supply chain. In all, there were seven distribution centers prior to the acquisition of C-Preme. “We had duplicate processes, and we frequently had to prepare multiple shipments from different DCs to fill orders to a big box retailer who ordered from more than one brand,” says Hornsby. “What our customers really wanted was to place one order and get one shipment from one facility.”

Hornsby laid out three goals for the new facility. No. 1 was customer service: The facility had to reach most of the United States in two to three days. No. 2 was to eliminate duplicate processes

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in multiple facilities to fill one order. Finally, the facility had to pay for itself.

Since many big box retailers arrange their own transportation and pay their own freight, finding a location that met BRG Sports' needs without adding to its customers' supply chain costs was paramount. "We did a lot of analysis on the miles our customers traveled, the amount of lead time required from the time an order is placed until pick up and the costs associated with pick up at our old facilities," Hornsby says. He adds that in addition to in-house analysis, his team also worked with a consulting firm on network analysis and site selection.

At the end of that process, BRG Sports chose Rantoul, Ill., where the company has operated manufacturing and distribution operations for more than 30 years. "We were able to meet our transportation and customer service



**A modern warehouse control system (WCS) and voice technology synchronizes pick and pack activities across multiple sales channels and order profiles.**

requirements and retain key employees to help us transition the operations in a phased move," Hornsby says.

**Bringing in automation**

With a location set, the next step was to design a facility where automation is used to streamline and optimize labor intensive, manual processes.

In the existing facilities, lift trucks and wireless bar code scanning were the dominant technologies. Full cases were picked to pallets and delivered to staging areas. There, they were repalletized into mixed pallet orders for individual retailers. Shipping and retailer compliance labels were applied by hand. When trailers arrived, the pallets were broken down again and the cartons were floor loaded for delivery.

Split case orders were picked to totes and delivered by lift trucks to the packing area where they were separated into LTL and parcel shipments. Parcel orders traveled by conveyor to a shipping station; however, they were weighed and labeled by hand.

What's more, associates spent a considerable part of their day walking to pick locations. With the growth of business, especially e-commerce orders, "we needed a leaner, faster process to meet the continued parcel shipment growth," Hornsby says. "We wanted a solution that could give us two- to three-times more efficiency, minimize wasted labor and increase lines per picker."



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The order fulfillment system does that by bringing together automated materials handling systems and hands-free data capture technologies to enable parallel pick, pack and ship processes; that means the system allows the facility to simultaneously pick full case, split case and e-commerce orders. As Hornsby says: A box is just a box to the automation.

There are four distinct picking areas.

1. One is represented by two, three-level split case pick modules with 3,024 carton flow positions and 237 two-deep case pick pallet flow pick positions. In the split case area, picking is done on the first two levels. Pack stations and automatic weighing and print-and-apply technology is located on the third level.

2. A second area is a three-level full case pick module with 1,131 carton flow positions and 260 two-deep pallet flow pick positions. This area represents more than half of the orders processed in the facility. In this module, picking takes place on all three levels; the full case pick module is connected by conveyor to the third level of the split case module. In that way, full cases are transported to the split case module where they are automatically weighed and labeled for shipping, inducted into the shipping sorter and diverted to the right shipping lane. In the new facility, floor-loaded cartons are conveyed directly into a trailer for fluid loading.

Picking activities in both of these modules are directed by voice recognition technology that selects the carton, and directs and confirms picking by either hands-free scanning with ring scanners or by voice.

3. Slow-moving items, some hot items and non-conveyables are picked to carts from the reserve storage area and are directed by voice. To cut down on walking, the carts are designed so an order selector can use the forklifts to transport the carts and reach both floor and upper rack pick locations, rather than manually push the cart. Picking in these areas is also directed by voice. Once all of the picks to a cart have been completed, the items are inducted into



**Automated print-and-apply technology has replaced the manual labeling processes that were used in the old facilities.**

the automation system, and conveyed to the third level of the split-case module for packing, weighing and labeling.

incomplete orders or those requiring a quality check or value-added services, such as price ticketing.

4. Finally, an exception processing area located on the third level manages

Regardless of where they are picked, once orders leave the packing and label-



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ing area, they pass through a scan tunnel and enter a narrow belt shipping sorter located above the dock, which sorts them to the right shipping area for full trailer loads, LTL shipments or parcel shipments.

Multi-modal voice and scanning technology has delivered significant quality improvements. "Our error rate is less than one half of 1%," says Hornsby. "That's not just mis-picks, but damage from shipping or a shipping label that can't be read." But the real benefit comes from the use of the WCS to direct activities. The logic in the WCS analyzes a batch of orders and determines the correct start times

**New merchandise is processed in the receiving area and then delivered to a staging area for putaway in the very narrow aisle storage area.**



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to synchronize processes in the different modules.

For instance, the WCS may initiate picks in the reserve storage area first because those take longer to process. Similarly, the WCS can distinguish between full truckload and LTL orders, and segregate split case orders that may require more time than full case orders. The system then synchronizes the delivery times so that full case and split case orders arrive at the palletizing area at the same time. In all instances, the double and triple handling that was common in the old processes has now been automated out of the operation.

**Lessons learned**

When the facility went live in October 2013, BRG Sports staggered the closing of facilities, integrating them one at a time. The goal was to minimize the risk of a glitch from trying to do too much at one

time. At the same time, Hornsby believes that approach delayed BRG Sports' ability to realize the full benefits of automation. "We had a significant number of people doing manual processes while we spoon-fed the automation," Hornsby says. Still, there have been improvements in customer service, and he and his teams are seeing some of the synergies they expect to see when the process is complete.

Similarly, once integration of all the DCs is complete, BRG Sports will move into Phase 2. At that time, the company will integrate orders with manufacturing so that it can take product directly from the assembly lines to the packing station and shipping dock in response to real-time demand. "We're not there yet," says Hornsby, "but the design and automated conveyor is in place to do that."

"We have some work to do, but that's part of the strategic plan for this facility," he adds. □

**System suppliers**

**SYSTEM DESIGN/INTEGRATION, WCS, VOICE PICKING, & PRINT-AND-APPLY SOFTWARE & MOTION SCALES:** Numina Group, numinagroup.com

**NETWORK MODELING & SITE SELECTION:** Competitive Insights, ci-advantage.com; Avison Young, avisonyoung.com

**VOICE ENGINE:** Topvox, top-vox.com

**VOICE HARDWARE, RING SCANNER & MOBILE COMPUTING:** Honeywell, honeywell.com

**CONVEYOR, NARROW BELT & SHIPPING SORTERS:** TGW, tgw-group.com/us-en

**PRINT-AND-APPLY HARDWARE:** Panther Industries, print-n-apply.com

**ERP & WMS:** SAP, sap.com

**FIXED BAR CODE SCANNING:** Sick, sick.com

**PICK MODULE & RACKING:** Unarco, unarcorack.com

**NARROW AISLE LIFT TRUCKS:** Raymond, raymondcorp.com

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By Josh Bond,  
Associate Editor

# Two new sorters support omni-channel fulfillment

*Replacing manual processes,  
automation moves as many as  
380,000 units in a week.*

**P**ort Logistics Group (PLG) is a logistics, distribution and transportation company serving manufacturers, wholesalers and retailers in a variety of industries. When opening a new crossdocking and transloading facility in New Jersey to handle fulfillment operations for a client's growing omni-channel business, the company installed a high-speed sliding shoe sorter (Intelligrated, [intelligrated.com](http://intelligrated.com)) and tilt tray sorter (W&H Systems, [whsystems.com](http://whsystems.com)) to process up to 25 million cartons annually.

"Before working with the integrator, our operation was completely manual," says Jeffrey Wolpov, CEO of Port Logistics Group. "The automation they designed and installed allowed us to demonstrate to our customer that we could handle their required business volumes."

In the crossdocking area's six receiving lines, full cartons are offloaded from an import container onto a powered extendable conveyor. Garments on hangers are offloaded at two receiving doors and staged on trolleys for packing into cartons according to the retailers' specifications. The cartons are transported to the outbound system and sorted.

Merchandise to be stored at the DC and shipped as individual units is received, unloaded and palletized by SKU. Orders are generated for this merchandise at the store. RF scanners are used to scan each carton and assign it to a tilt-tray sort location.

The single-level tilt-tray sorter consists of 965 tilted trays on an enclosed conveyor system, operating at 120 feet per minute. This presents about 60 trays per minute past each of the two induction areas. There are three manual inductions at each



end of the sorter, which operates at a maximum capacity of 7,200 pieces per hour.

As the carrying trays reach their discharge point, the warehouse control system (W&H Systems, [whsystems.com](http://whsystems.com)) releases the trays' bottom edges. Products slide into a chute where they accumulate. Each side of the tilt-tray sorter has 142 locations, where operators pick the pieces out of holding trays and pack them into cartons. When the carton is full or the wave is complete, the operator pushes the carton onto a takeaway conveyor. The cartons are then transported to an accumulation conveyor, which feeds a tape-sealing machine, and then onto the outbound system.

Cartons are merged into one line with a high-speed combiner in the outbound crossdock area. The sliding shoe shipping sorter diverts cartons into 23 pitched gravity conveyor lines designed to accumulate cartons for either processing or truck loading. This sorter operates at a maximum capacity of up to 6,000 cartons per hour.

PLG has achieved record production numbers with on-time delivery performance of 99.7% annually. The tilt-tray sorter has processed up to 380,000 units in a week and has increased individual labor productivity by 50% with no overtime. □

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By **Josh Bond**,  
Associate Editor

# Lift trucks heighten comfort and throughput in grocery DC

*As part of ongoing warehouse optimization, customized fleet increases productivity and cuts costs.*

**W**ith sales approaching \$500 million a year, Associated Grocers of New England (AGNE) operates a 380,000-square-foot distribution center serving more than 300 members and 650 independent retailers in New England. After re-evaluating its equipment needs and maintenance practices, the company deployed a fleet of lift trucks tailored to specific temperature-controlled environments.

Storing dry groceries, perishable products, freezer meat, deli, dairy, produce, the entire facility is temperature controlled, including areas with refrigerated storage and blast freezers. Lift trucks move product throughout the facility, starting at the receiving dock. To select product to ship out of the warehouse, operators use a voice picking system that is synchronized with a replenishment system. As product gets selected for shipment, the voice picking system updates lift truck operators on which pick slots need to be replenished.

“It’s like a synchronized dance of product coming in, being put away, then retrieved,” says Robie Robichaud, vice president of warehousing and transportation for AGNE. “The goal is to not let anything run out. This way operators will not have to go back to try to re-pick something that was not there the first time.”

Despite a smooth materials handling process from dock to slot, productivity in the old facility suffered due to limitations with slotting availability and ceiling height. The facility and equipment were being damaged due to improper sizing of lift trucks, which were going too high. After evaluating several brands and models, the company partnered with



a nearby dealer to deploy a fleet (The Raymond Corp., [raymondcorp.com](http://raymondcorp.com)) tailored to multiple working environments, aisle width, ceiling height and overall flow of the operation.

The new fleet includes two reach truck models that improved operator visibility when working at a clear stacking height of 32 feet. Both also use efficient motors that require fewer battery charges and smaller, less expensive batteries. With temperatures reaching as low as -20°F, some of the lift trucks are fitted with heated operator platforms and heated control handles. The system also automatically cycles on and off when moving from cold areas to other areas of the warehouse.

In addition to the reach trucks, the facility now uses a mixture of new and existing equipment. Orderpickers are used for high-level picking or planned item retrieval functions; end rider pallet trucks are used for loading and unloading tractor trailers as well as low-level orderpicking; and pallet trucks are used for delivering products to retailers.

Robichaud notes improvements in warehouse visibility, lift truck productivity and cost savings. Combined with continuous upgrades throughout the facility in recent years, AGNE has seen a 58% total improvement in throughput and achieved cost savings of up to 18%. □



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**Bell and Howell**

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[bellhowell.net](http://bellhowell.net)



**BEUMER Corporation**

**Booth 1231**

**BEUMER launches Automatic Parcel Singulator (APS) at Promat 2015**

BEUMER will introduce its latest offering, the Automatic Parcel Singulator (APS) for handling a variety of parcels. The APS transforms a bulk flow of parcels into a flow metered for high-capacity loop sortation. The APS handles parcels, flats, totes and sealed bags, minimizing the need for manual handling and supervision during normal operation. The compact, energy efficient, low maintenance design is ideal for new loop-sorter parcel systems or retro-fitting into existing loop-sorter systems.



**BEUMER Corporation**

732-893-2800  
 Email: ka.si@beumergroup.com  
[www.beumergroup.com](http://www.beumergroup.com)



**Buckhorn Inc.**

**Booth 1219**

Visit Buckhorn at ProMat Booth #1219 where we will be showcasing Buckhorn's BN4845 extra-duty bulk boxes, now available in extended heights. The BN4845 series has the proven design of sturdy, structural foam panels and drop down doors you expect from Buckhorn and combines that technology with an equally-strong, injection-molded, two-piece welded base. The boxes stack securely when upright or collapsed and are available with or without drop-down doors.



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**Columbia Machine, Inc.**

**Booth 3959**

**Find Your Pallet Transfer Solutions at Booth #3959**

Columbia will demonstrate the Load Transfer Station with Pallet Cart (LTS) at ProMat Booth # 3959. LTS-C allows the operator to place the "go to" pallet onto a pallet cart allowing the process to complete automatically. The LTS-C is capable of transferring products that are packaged in cases, barrels, drums and bags from one pallet type to another, including Plastic, Chep and GMA pallets that are commonly used in both receiving and shipping applications.



**Columbia Machine, Inc.**

Mike Richard  
 800-628-4065  
 Email: micric@colmac.com  
[www.loadtransfer.net](http://www.loadtransfer.net)

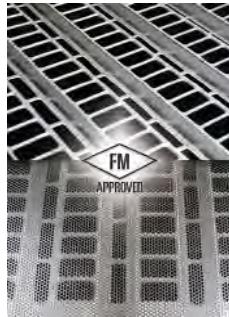


**DACS, Inc.**

**Booth 1922**

**Punch Deck® and Punch Deck® Plus**

When fire codes dictate "open" shelves and customers require a smooth surface - DACS offers two proven solutions. Punch Deck® is a steel decking product with 50% open area and is ideal for storing boxes, bags, carpets, mattresses, rolled goods, etc. Where furniture legs need a flat shelf surface with a smaller holes, PLUS provides a unique, accepted design. Both have been laboratory tested and are FM Approved. Visit booth #1922.



**DACS, Inc.**

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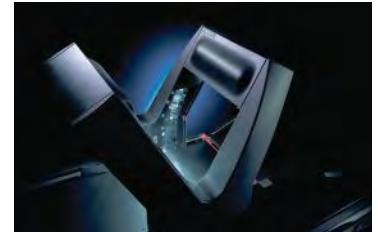


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**I.D. Systems**

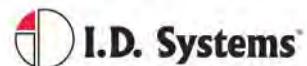
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**Wireless Vehicle Management Systems for Industrial Truck Fleets**

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## Industrial Netting

Booth 259

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Now available in heavy duty black or medium duty forest green.

For dimensional stability and aesthetic appeal specify **RackGuard**.



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## Intelligrated

Booth 5123

### Intelligrated OLS shuttle system

The Intelligrated OLS (one-level shuttle) system provides quick access to cartons, totes and trays in a reduced footprint, ideal for high-volume distribution, fulfillment and manufacturing operations with high-turn inventory storage and short order cycle times. The flexible, efficient automated storage and retrieval system (AS/RS) handles the widest variety of product types and largest carton sizes in up to quadruple-deep storage for goods-to-operator fulfillment, just-in-time inventory management, product sequencing and buffering applications.



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Booth 3603

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Booth 2031

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Kardex Remstar is a leader in manufacturing and implementing automated storage and retrieval solutions for warehousing, distribution, and manufacturing to meet each customer's unique needs, requirements and business plan. From space savings solutions, to increasing productivity and throughput, to fully integrated application solutions Kardex Remstar meets customer needs.

Solutions include Shuttle® VLMs, Horizontal Carousels, Megamat® Vertical Carousels, and Power Pick® Global inventory management software.



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Lenze Americas, based in Uxbridge, MA, is a subsidiary of Lenze SE in Germany, a global leader in industrial automation systems. As a manufacturer of electrical and mechanical drives, motion control and automation technology, Lenze's solutions are found in many material handling applications: roller and belt conveyors, rotary and scissor lift tables, lifting stations, palletizing systems, storage and retrieval units, monorail overhead conveyors and AGV systems. Our drive and automation solutions guarantee a smooth connection to any upstream or downstream system—steady or dynamic, lifting or lowering, moving or positioning—increasing the productivity of your logistic systems.



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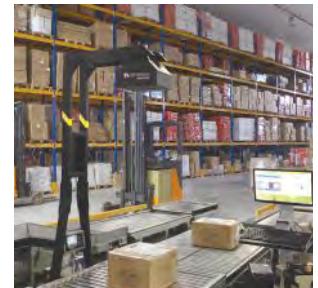


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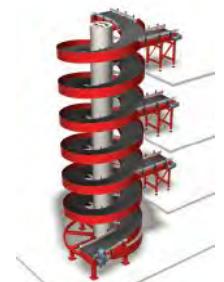


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**CF collapsible containers inter-stack on pallet-base systems**

The CF collapsible containers by Schaefer Systems inter-stack with multiple, different sized units to form a mixed, straight-wall pallet load. The units come in outside dimensions of 11.9 x 14.9 to 23.9 x 22.4 inches and in heights from 7.5 to 15.1 inches.



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**Schaefer Systems International, Inc. Booth 2303**

**LogiMat® - flexible storage, picking of small parts**

The LogiMat® vertical lift module (VLM) by Schaefer Systems improves performance, reduces picking costs and consolidates floor space in finished goods warehousing, small parts inventory and tool cribs.



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**Navette – flexible, multi-level shuttle**

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Swisslog is a leading global provider of automated Order Fulfillment and Inventory Solutions. We design, implement and support the optimal solution for our clients, by integrating the best type of equipment, controls and software especially for our key focus markets of E-Commerce, Temperature Controlled Foods and Pharmaceuticals. With North American headquarters in Newport News, VA, Swisslog employs over 2400 staff in 20 countries worldwide.



**Swisslog Logistics, Inc.**  
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**UniCarriers Americas Corporation Booth 2091**

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**Van der Graaf Corp. Booth 947**

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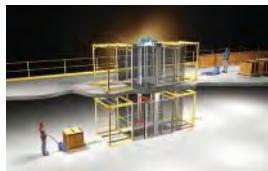
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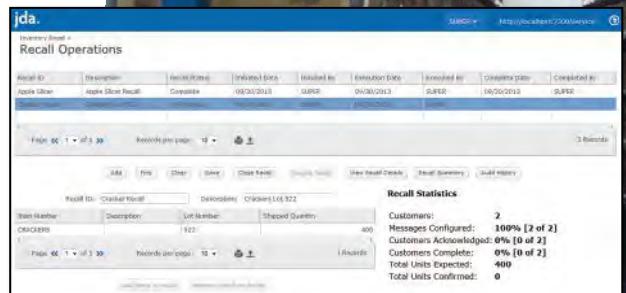
# Food chain traceability supported by software

Manufacturers are deploying the latest software solutions engineered with advanced functionality to target, locate and isolate impacted product even faster in the event of a food chain recall.

By Sara Pearson Specter, Editor at Large

Food product traceability, or the ability to track, trace and locate unique products throughout a broad supply chain—from growers to raw ingredients to manufacturing to packaging to distribution to shipping to store to consumer—is critical should contamination occur that might cause harm to human (or animal) health.

Obviously, no food or beverage purveyor wants a consumer's well being compromised by a tainted product. But the fragmented nature



Operations using third-party managed reusable plastic pallets (left) can leverage asset location information to further support traceability. Automation hardware (right) supports traceability with control software. In the event of a recall, the latest software solutions (inset) locate and isolate impacted product in minutes.



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**Another advantage of advanced software traceability functionality is the ability to create shelf consistency at all retail outlets. The same information allows a DC to send certain batches to certain stores based on “use by” or “picked on” dates, meaning customers at every location have the same product experience.**

engineered with advanced functionality to target, locate and isolate impacted product in minutes—instead of hours—should a manufacturer issue a recall.

**Software supports better traceability throughout the supply chain**

There’s a lot of data to be captured about food in every category, from perishables with short shelf lives to processed foods that could reside in a pantry for years. A facility’s place in the supply chain often determines the types of information it records and stores.

The key is in maintaining a level of record keeping that will enable a company to most cost-effectively manage a recall, says Garrett Smith, director of system sales at viastore systems.

“Manufacturing tracks to the batch; distribution tracks down to the pallet level; retailers might break a pallet down and ship individual cases, so they track to the case level. Or, if they break a case down into individual piece picks, they track to

of the food supply chain can make a recall challenging. Without fast access to traceability data at a granular level, a manufacturer might decide it’s safer to issue a broader recall, pulling all potentially suspect products from shelves, or anywhere else in the supply chain, rather than just the impacted lots.

Such a drastic measure is costly, not only in time and waste, but also in image, says Dan Grimm, vice president of industry strategy at JDA. “Today, traceability is all about brand protection. In our 24-hour news cycle, product recalls get more visibility than they did 10 to 20 years ago,” he explains. “If a product recall hits the national news, and it can do significant damage to a company’s reputation and sales.”

Companies throughout the food supply chain recognize that it’s not a matter of *will* a recall occur, but *when*. For that reason, manufacturers are deploying the latest enterprise and warehouse management system (WMS) software solutions

the unit level,” Smith explains. “If each level knows precisely which items went where, the manufacturer can issue a recall specific to just those items, saving money and minimizing waste.”

Simply managing the volume of traceability data can be staggering, says JDA’s Grimm: “There can be hundreds of millions of records that companies need to maintain in order to track something from manufacture, through transportation, through a possible series of warehouses until it reaches a grocery retailer.”

Complicating matters is the potential variety of different systems storing sources of record at each point in the supply chain. Although data is captured, the responsibility for maintaining and archiving for a given period of time (shorter for perishables and longer for pantry products), accessing it quickly and easily can be complicated depending on the number of participants in any given supply chain.



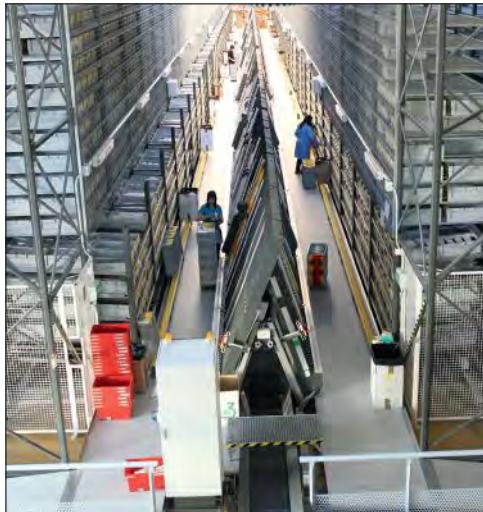
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To mitigate that complexity, manufacturers might require service partners to adopt the same technology, suggests Grimm. “For example, if a manufacturer outsources distribution to a third-party logistics provider (3PL), they might require the 3PL to use the same WMS. That enables the manufacturer to own the data across one cohesive system for easier visibility and tracking of products.”

Still, not every manufacturer can justify the investment in an enterprise-wide license. Understanding that, tier 1 WMS suppliers have developed robust interconnectivity functions that enable integration with a variety of disparate systems across the supply chain. Although in the past such functionality was an add-on, that’s no longer the case.

“Integration and portability of information from one application to another is a big component of traceability,” says Dave Williams, director of software solutions at Westfalia Technologies. “It used to be a piece that had to be added on to a host interface, but not any longer.

“Our warehouse execution system, Savanna.NET, captures and carries much of the batch data associated with growers or manufacturing, pairs this data with the lot data generated at processing time, and passes it directly through the storage and distribution systems, from packaging through transportation of the product,” Williams explains. “We can make parts of this information available downstream to the retailers if they want it.”

This increased level of data and detail means inventory can be searched by specific ingredient, as well as by stock keeping unit (SKU), universal product code (UPC), batch or lot level. A single source tier 1 WMS enables faster identification and location of impacted products. With the advent of retailer-issued membership incentive cards for shoppers, the impact of a recall can also be minimized.

“By tying manufacturing data to a retailer’s point-of-sale (POS) system, a recall might just entail an automated

**Automation systems inside a facility ensure high levels of accuracy thanks to the ability to locate items anywhere—whether they’re in storage or traveling on a conveyor to outbound shipping.**

phone call to everyone who purchased an item, requesting it be returned to the store—instead of broadcasting it on the news,” Williams adds.

**Other sources of traceability support**

Additional sources of traceability information—as well as better means to control and lock down inventory should a contamination question arise—can be found in other handling systems beyond WMS.

“Automation is a great way to have traceability,” says viastore’s Smith.

“Within the four walls of a facility, automation hardware ensures the highest levels of accuracy by putting items in the correct storage location, for example,” he says. “Then, automation control software merges the hardware’s handling processes to locate items anywhere throughout the facility: whether they’re in a storage location or traveling on a conveyor to outbound shipping.”

That, says Smith, allows the system to locate and lock down any item to the unit level if necessary without manual searches.

Likewise, for operations using reusable plastic pallets, third-party management of those assets can yield valuable location information, says Bob Klimko, ORBIS’ director of marketing for food and beverage.

“As part of our managed pool solution for specific industries including food and beverage, ORBIS uses an information system called SmartTrak to manage fleets of assets to optimize their use in a supply chain. Traceability for food



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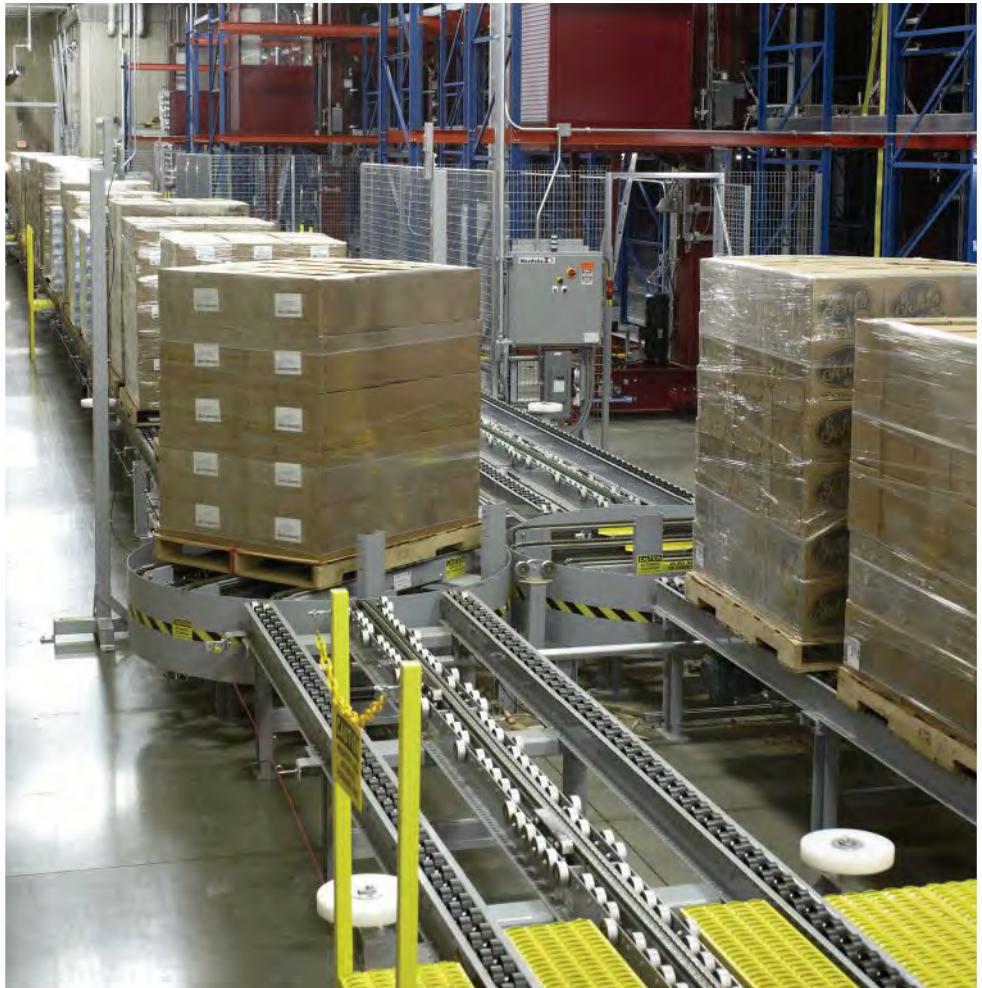


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**WES capture and carry batch data associated with food products, pair it with data generated at processing, and pass it through storage and distribution systems—from packaging through transportation of the product.**

safety really fits into the tracking we do, because the system knows where the pallets are going and where they are coming from,” he explains.

“Although we’re using our software to manage our own assets, it’s absolutely applicable to product traceability, because SmartTrak can be set up to support those requirements,” adds Andy Dewitt, ORBIS’ director of customer solutions. “When SmartTrak is set up to support tracing, if a company experiences a product recall and some of the suspect items are on designated pallets, it would be very easy for us to support that recall and locate those specific pallets.”



**Beyond recalls: Other track & trace software benefits**

Traceability functionality in software also offers companies benefits beyond fast location of targeted inventory for recalls, says Chuck Fuerst, director of product strategy at HighJump. “The track-and-trace functions of a tier 1 WMS also enhance analytics and reporting by providing real-time intelligence to drive better inventory forecasting and more strategic operational decisions,” he says.

The level of traceability detail also helps companies better manage returns, Fuerst adds. “If a company sees the same item being repeatedly returned for the same reason, they can trace that back and provide information to suppliers about a quality issue,” he says. “Likewise, a retailer might use the data to determine where an item was purchased and when to verify the legitimacy of a return.”

Another advantage of advanced traceability functionality is the ability to ensure shelf consistency at all retail outlets, says Mark Dickinson, executive sales manager of automated systems at SSI Schaefer Systems International.

“For example, a retailer servicing 10,000 stores from one DC that receives daily shipments of bananas can evaluate the information that comes with them, including the day they were picked,” Dickinson explains. “That information allows the DC to send certain batches to certain stores based on pick date: The most recently picked bananas to stores on the longest delivery route, and the ripest bananas to the stores closest to your DC. That ensures that your customers at every location have the same product experience.”

Also, from a marketing and customer

experience perspective, enhanced traceability means certain products, such as produce, can sport QR codes that invite purchasers to see precisely where and when their fruits or vegetables were picked. That functionality wouldn’t be possible without software, says Dickinson. □

**Companies mentioned in this article**

- [HIGHJUMP, highjump.com](http://highjump.com)
- [JDA, jda.com](http://jda.com)
- [ORBIS, orbiscorporation.com](http://orbiscorporation.com)
- [SSI SCHAEFER SYSTEMS INTERNATIONAL, ssi-schaefer.us](http://ssi-schaefer.us)
- [VIASTORE SYSTEMS, us.viastore.com](http://us.viastore.com)
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## Durable pallet truck series maximize productivity, energy efficiency

The newly launched 8000 Series pallet trucks are engineered with productivity and sustainability features that make the vehicle 33% more energy efficient. Constructed with increased material strength, the vehicle stands up to heavy-duty applications with reinforced components to reduce wear for greater uptime and lower maintenance costs. The vehicle's undercarriage is backed by a five-year structural warranty. For driver comfort, the operator compartment incorporates padding and multiple lean points, accessory bars with lights and fans, large storage totes and additional caster options. A PowerSteer feature reduces steering effort by up to 90% and provides speed-sensitive steering for enhanced productivity and precise, smooth control at all speeds. The **Raymond Corp.**, 800-235-7200, [www.raymondcorp.com](http://www.raymondcorp.com).



## Enclosed end riders' performance customizable to match operator's skill level

Engineered for multi-shift applications, two models of enclosed end riders offer 8,000 (MPR080VG model) and 10,000 pounds (MPR100VG model) of lifting capacity. The MPR100VG version is

configured with a 160-inch fork length, allowing it to transport up to four single-stacked or eight double-stacked pallets. To simplify multi-tasking, the vehicles are equipped with a common control system with consistent functionality across the supplier's line of warehouse trucks. The smart interface uses the same software, diagnostic codes and functionality for ease of use among operators, supervisors and service personnel. By offering full customization, the system allows truck performance to match the operator's skill level. Ergonomic features include a high backrest, fully padded compartment and cushioned, electronic floor mat with a center mounted brake pedal and multi-zoned operator floor presence system. **Yale Materials Handling**, 800-233-9253, [www.yale.com](http://www.yale.com).



## AC-powered stand-up rider counterbalanced forklifts

Offered in lifting capacities from 3,000 to 4,000 pounds, the new 8-Series electric stand-up rider counterbalanced forklifts feature an AC drive and lift system that conserves or regenerates power to maximize efficiency between battery charges. In addition, the AC motor contains no brushes, springs, commutator or wearable parts to inspect or replace, reducing maintenance costs and forklift downtime. To further boost vehicle longevity, dual steer tires improve weight distribution to reduce tire-loading pressure by 30% for longer tire life, while moisture-resistant electrical connections protect against water intrusion and corrosion.

An optional 16.5-inch battery compartment increases maneuverability in tight, confined work areas. For operator comfort, ergonomic features include a shock dampening, isolated compartment floor and thicker floor mat with a universal low-effort brake pedal to reduce strain on ankles, knees, hips and lower back. **Toyota Material Handling U.S.A.**, 800-226-0009, [www.toyotaforklift.com](http://www.toyotaforklift.com).



## Internal combustion, pneumatic tire lift trucks deliver better fuel efficiency

The GP15N-GP35N/DP20N-DP35N series of 3,000- to 7,000-pound capacity internal combustion pneumatic tire lift trucks have been upgraded for enhanced performance and better fuel efficiency. Equipped with a new 4EG 3.3-liter diesel engine, the DP20N-DP35N models achieve emissions levels below Tier 4 Final requirements with a common rail fuel injection system. The system precisely calculates the right mixture of fuel and air in the combustion process, recirculates exhaust gas and employs a diesel oxidation catalyst (DOC) that oxidizes NOx, carbon monoxide and particulate matter into carbon dioxide and water. Further, the GP25N liquefied petroleum gas (LPG) model generates 10% more productivity in ramp performance, lift and top speeds. For enhanced reliability, an engine protection system monitors vital fluid levels and pressures, notifying the operator when thresholds are reached. An elevated air intake and filtration system keeps the truck running clean and the engine compartment free of contaminants. **Cat Lift Trucks**, 713-365-1000, [www.cat-lift.com](http://www.cat-lift.com).

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ity and fuel economy through higher maximum travel and hoist speeds, with or without a load, and 10% more horsepower. The Power Solutions International (PSI) engines feature variable power technology that enables adjustable performance modes. A 2.0-liter liquid propane (LP) engine may be specified on S30-40FTS cushion tire trucks and H30-40FTS pneumatic tire trucks; higher capacity models—including the S40-70FT and S50CT cushion tire trucks and H40-70FT and H50CT pneumatic tire trucks—use a 2.4-liter engine in either LPG or a dual fuel version that runs on either LP or gas, making it ideal for rental applications. For further fuel efficiency and improved emissions, the engines also use an E-controls fuel system with an electronically controlled regulator. **Hyster, 800-497-8371, [www.hyster.com](http://www.hyster.com).**



### Four new electric counterbalanced forklifts

Four new models of the BC-9 series four-wheel electric counterbalanced forklifts offer load capacities ranging from 4,000 to 6,400 pounds. The cushion tire forklifts are engineered for high efficiency, with all four models featuring an enclosed drive and pump motor, brushless AC motors for improved efficiency and reduced maintenance, and various mast heights. For safety, a curve control function limits travel speed based on turning radius, reducing speed for a smooth, precise turning. A new standard load indicator system measures the weight of the load as it is lifted; should the load exceed the limit, a warning is activated. Four different performance modes—high, normal, economic and turtle—allow operators to work at their desired speed. **Hyundai Forklift, 877-509-2254, [www.hceamericas.com](http://www.hceamericas.com).**

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## Electric pneumatic tire lift truck runs two shifts on single battery charge

Featuring advanced AC technology for increased performance and productivity, the new EFG 535k-S50 series of electric pneumatic tire lift truck handles 7,000 pounds. Equipped with the newest generation of three-phase AC technology, the vehicle can run up to two shifts on a single battery charge in most applications. A maintenance-free braking system uses regeneration to turn momentum into energy and feeds it back into the battery for longer run times. Precise positioning and operator control are supported by responsive acceleration and braking, as well as by a curve control function that automatically reduces the driving speed when turning. For proper ergonomics, a spacious operator compartment enhances comfort, while hydraulic lever control makes the vehicle easier to operate. Jungheinrich, 877-543-6757, [www.jungheinrich-lift.com](http://www.jungheinrich-lift.com).



## Handle up to 11,000 pounds with hydrostatic drive-equipped diesel forklift

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## Reach truck's features enhance operator comfort, lower maintenance costs

The BSRP pantograph reach truck delivers performance, comfort and low maintenance costs with Curtis AC controls and brushless drive and lift motors. Ideal for use in narrow aisle applications, the vehicle features a padded, ergonomic compartment, instinctive multifunction control handle and adjustable armrest. Power outlets for accessories and convenient storage compartments further support operator comfort, while the truck's visibility and precise handling improves safety. Doosan Industrial Vehicle America, 770-831-2200, [www.doosanlift.com](http://www.doosanlift.com).

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floating front axle allows the vehicles to traverse smoothly over uneven floors. When equipped with a freezer cab option, they can be used in cold storage areas to -22°F. The B55AC high volume model lifts loads up to 5,500 pounds to heights of 30 feet; the B55AC-HL high lift version raises 4,500-pound loads to heights of 41 feet. **Bendi by Landoll, 800-428-5655, www.landoll.com.**

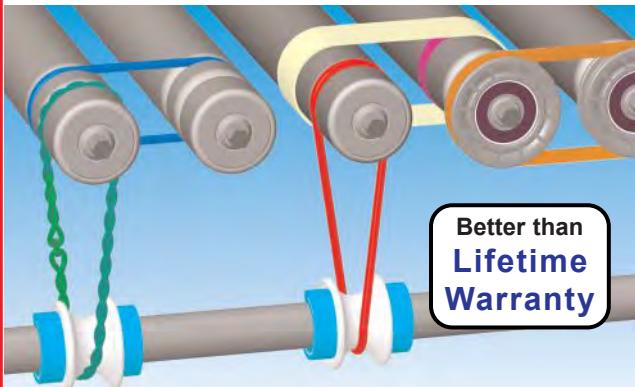
## Easily maneuver AC-powered walkie straddle stacker



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loads up to 4,000 pounds to heights up to 18 feet to accommodate two- and three-shelf racking. Manufactured with fewer moving parts and easier access to key service points—including lubrication fittings, rotation sensing encoder, brake system and drive unit assembly—the stacker employs Hall Effect non-contact speed and acceleration control for maximum uptime. To reduce component wear, the smart electric braking system uses regenerative motor torque, proportional plugging and a spring-applied/electronically released disc brake. A 5.2-horsepower, AC drive motor features an advanced controller to distribute consistent power for longer run times between charges. **Barrett by UniCarriers, 800-971-5438, www.unicarriersamericas.com.**

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The Orion line of high capacity forklift trucks can now be equipped with a Cummins QSB 4.5 diesel power engine on the 80,000- and 90,000-pound capacity, solid-tire models. Rated EPA Tier 4i (interim) compliant, the engine offers reduced gaseous and particulate exhaust emissions. The vehicles are sized to travel through 10-foot tall doors and can be equipped with attachments including coil prongs, forks and millwright or rigger booms with lifting heights to 28 feet. To switch between forks and a rigger's boom in fewer than 10 minutes, the vehicles include a standard quick-change carriage. High Reach, 905-844-4164, [www.orionlifts.com](http://www.orionlifts.com), [www.highreachinc.com](http://www.highreachinc.com).



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# PRODUCT Showcase

## Semi-automated AGV solution for case-to-pallet picking

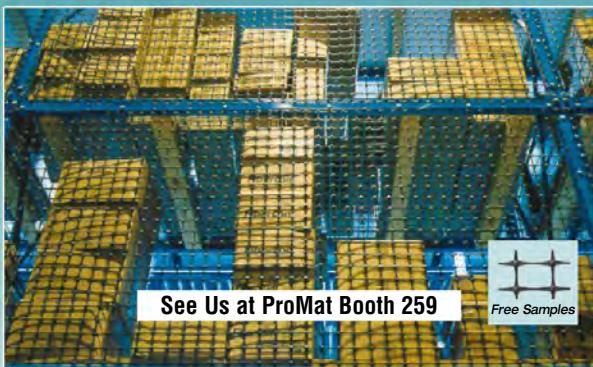
The AGVPick solution enhances case order selection tasks and increases picker performance and accuracy by deploying an automatic guided pallet truck with laser guidance, wireless communications, traffic management software, order management software and voice verification control. The system allows order fillers to concentrate on picking accurately and safely as they follow the vehicle and place picked cases onto the empty pallet it transports. To optimize the process, the vehicle automatically navigates to the next pick face. Completed pallets are autonomously delivered by the vehicle to a wrapping machine or dispatch area, allowing pickers to remain in their zones. **Swisslog**, 757-887-8080, [www.swisslog.com](http://www.swisslog.com).



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## Brian Gibson

### Auburn University

**TITLE:** Wilson Family Professor of Supply Chain Management at Auburn University

**LOCATION:** Auburn, Ala.

**EXPERIENCE:** Eight years of retail distribution management and 21 years of teaching, research and consulting

**PRIMARY FOCUS:** Supply chain education, retail supply chains and talent management

**Modern:** Brian, you've been co-authoring a state of the retail supply chain report for the Retail Industry Leaders Association (RILA) for the past five years. What have been the most important changes you've observed in that time?

**Gibson:** One of the most critical aspects has been the strategic shift of logistics as a cost center to logistics as a customer experience facilitator. We're focusing less on saving a penny in logistics while ignoring the impact on the stores and the customers. Supply chain executives are becoming more customer-driven and store support-focused.

**Modern:** What is driving that shift?

**Gibson:** In part, it's because supply chain professionals have become comfortable in their own skin. They realize their value to the organization goes beyond cutting transportation and fulfillment costs. In part it's because supply chain executives now have a seat at the strategic planning table. They have an opportunity to shape the decisions that affect customer satisfaction and company profitability.

**Modern:** I know you're still compiling your findings, but at this



**point, what strikes you as most important in this year's survey?**

**Gibson:** What strikes me the most is the willingness of retailers to talk about their need to be profitable in omni-channel activities. It's no longer good enough to say: Amazon's doing it, so we're going to do it. Retailers are starting to look beyond market share. They're becoming more strategic and purposeful about omni-channel profitability.

**Modern:** This seems almost counter-intuitive, because marketing continues to talk about offering more selection, more value-added services, faster delivery and lower prices. Is that model sustainable? Or, put another way, have any retailers figured this out?

**Gibson:** Chasing e-commerce market share at any cost is not sustainable, in my view. You have to be rational about the products you offer online, the level of service provided to customers, and what you charge for delivery. If you don't, margins will rapidly deteriorate to the point where e-commerce is a perpetual money loser. Retailers have to become much more strategic and bottom-line focused, especially in their fulfillment and transportation decisions. Fast and free is not sustainable. The interesting thing is, retailers understand the problem and are becoming more creative in

their omni-channel approaches. They're asking: How can I protect the margins for any given order? Is it best to fill it from the store, transfer it from the DC to the store or bypass my network and ship it from a vendor? Those are all critical options that need to be considered to ensure you're optimizing margins rather than narrowly optimizing availability, variety or speed. Retailers who take a purely marketing perspective will pay a steep price.

**Modern:** How important to the retail economy is Amazon?

**Gibson:** That's a good question. I think some retailers are starting to question whether it is financially worthwhile to chase every Amazon initiative. Retailers have said to me that they're not going to out-Amazon Amazon on everyday products. They realize that it's impossible to make money trying to be all things to all people.

**Modern:** Look five years down the road. What do you expect the landscape to look like?

**Gibson:** I think we will have a more realistic vision of omni-channel, though we will probably just call it retailing by then. People won't care where their orders originate as long as the timing is right, the price is right, and we deliver perfect orders. The role of the supply chain will simply be to support the buy-anywhere customer in a cost-efficient manner. I think that we will also see smaller stores that carry less inventory and focus on the basics. When customers want a specialty product, unique color or odd size, they'll preview samples in-store, order it online and have it delivered to their homes. Customers will grow much more comfortable with that model over the next five years. □

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## welcome

### The most important component of your system: Maintenance

Last month, I was seated next to a distribution manager from one of the country's best-known apparel brands at a conference. After we introduced ourselves, I asked him what was the biggest challenge he



was grappling with in his facility. I expected him to say something about e-commerce or customer demands. Instead, he talked about maintenance. "I have more automation than ever," he said, "and I can't find enough good technicians to keep it running."

He is not alone. North American DCs have been on an automation boom, adding complex systems to keep up with the increase in labor-intensive, each picking, aggressive order cut-off times and labor-saving strategies like store-ready pallets. A skilled mechanic could maintain yesterday's systems, but software, sensors, programmable logic controllers and data collection technologies enable today's systems.

These new systems require a whole new set of skills. It's no wonder that MRO—the maintenance, repair and overhaul of automated systems and equipment—has moved from a conversation that once took place after the system went live to a critical component of the RFQ. Meanwhile, as the current generation of technicians gets closer to retirement, training the next generation is becoming paramount.

At *Modern*, we're excited by this new focus for our industry. Just as we've covered innovative solutions for the past 70 years, we look forward to keeping you up to date on maintenance best practices and the emerging field for supply chain technicians.

*Bob Trebilcock*

**Bob Trebilcock**, Executive Editor  
Modern Materials Handling

Comments? E-mail me at  
btrebilcock@peerlessmedia.com

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# TECHNICIAN INSIGHT

## Certifying tomorrow's supply chain technicians

A national certification for supply chain technicians with the right skills to maintain today's automated materials handling systems is around the corner.

By Colleen Molko,  
executive director,  
National Science  
Foundation  
Center for Supply  
Chain Technology  
Education



Technicians in the materials handling field face an identity crisis. If your company wants to hire an auto mechanic, you know how to advertise for the position because, first and foremost, you are probably looking for technicians who are ASE certified. But there is no equivalent certification for a technician who is qualified to repair and maintain automated materials handling systems.

When your company posts a job opening, are you looking for a mechanic, an electrician, an installer, someone versed in warehouse management system (WMS) software or some combination of all four? And, what about your competitor down the street who has a job opening but is calling the position something completely different?

What's more, today's systems are much more complicated than yesterday's systems. Conveyors and sorters that could once be repaired by a mechanic trained to swap out a motor, a roller or a bearing are now part of a complex ecosystem that includes data collection technologies and sensors that are controlled by programmable logic controllers (PLCs) and software. Keeping that level of technology up and running requires very specific skill sets that are not easily classified.

We expect that situation to change the first of next year. The Manufacturing Skill Standards Council (MSSC) and MHI have just established the frame-

work for a new national industry certification for supply chain technicians, titled "Certified Technician in Supply Chain Automation (CTSCA)." This industry standards-based certification for a new occupation is based on a definition of "supply chain technician (SCT)" developed by the National Center for Supply Chain Technology Education (NCSCTE), a consortium of community colleges based in Norco, Calif. NCSCTE defines a supply chain technician as: "a person who installs,

Supply Chain Technician Employment	
Number of SCTs currently employed:	203,000
Number of SCTs in two years:	264,000
Source: The National Center for Supply Chain Technology Education and California COE	

**The number of supply chain technician jobs is projected to grow by 30% over the next two years, according to a recent survey.**

operates, supports, upgrades or maintains the software, hardware or automated equipment and systems that support the supply chain."

It's a broad field of expertise, characterized by the variety of different job titles used to describe the position. Among them: Industrial Machinery Technician, Industrial Maintenance Mechanic and Electro-mechanical Technician. Regardless of the title given by their employer, supply chain technicians are in high demand. The U.S. Bureau of Labor Statistics projects job growth in the field to be as high as 28%,

or 120,000 new positions, by 2020.

This tremendous growth can be attributed to the need for supply chain technicians by every industry that uses a supply chain to produce and deliver its goods to market. Among them are retail, automotive, pharmaceutical, food and beverage, consumer packaged goods, manufacturing, aerospace and durable goods. These valuable employees support, maintain and repair increasingly complex automated equipment and machinery: advanced technologies that are installed and used throughout warehousing and distribution facilities with increasing frequency. However, the anticipated growth in the number of new jobs tells only half the story. The need for supply chain technicians is exacerbated by the impending retirement of a cadre of trained technicians. What's more, as non-industrial sectors of our economy implement automation including health care facilities, airports, hotels, resorts and casinos, supply chain firms will now face new competitors for talent.

When implemented, the purpose of the certification is described below:

*Certification independently verifies that an individual can demonstrate a specific level of supply chain-related technical knowledge, skills, competence and ability. The credential will allow individuals to demonstrate proficiency in four critical areas of work function germane to the SCT:*

1) *Demonstrating Basic Supply Chain Automation Competency*; 2) *Maintaining Equipment/Systems*; 3) *Installing, Modifying, Troubleshooting and Repairing Equipment/Systems*; and 4) *Installing, Modifying, Troubleshooting, and Repairing Basic Controllers and Networks*. Candidates will have the option of securing certification in each respective function area and would receive a master CTSCA certification upon attainment of all four. Those possessing the MSSC Certified Logistics Associate certificate would be granted equivalency in function area No. 1, making these certifications truly stackable. Two Plus endorsements will also be available to those who have attained the master CTSCA and wish to add certifications for the still higher skilled areas of *Advanced Controllers Systems and Advanced Equipment Network Systems*.

Certification meets a number of important industry needs for its employees including independent verification of skills, easier identification

and recruitment of qualified employees, enhanced knowledge of safety practices, consistent and common skills and knowledge, standardization of advancement and promotional opportunities, reduced dependence on outside vendors, and a reduction in operational downtime that results in improved customer service.

The establishment of this certification represents the culmination of a three-year partnership between NCSCTE, MSSC and MHI. Each partner has contributed something critical and unique to this process.

For instance, the NCSCTE began the work of identifying the occupation of SCT back in 2011 through a grant from the National Science Foundation Advanced Technological Education program. The National Center has

## One-third of businesses in a recent survey expect to increase the number of supply chain technicians they employ.

—findings from a recent study from The National Center for Supply Chain Technology Education and California COE

since completed its research and developed resources to facilitate the adoption of an SCT program of study by community and technical colleges throughout the nation. The over-arching goal of the center is to increase the number of skilled supply chain technicians nationwide.

For those not familiar with the organization, MSSC is the national leader in developing the first-ever national certification for front-line materials handling and distribution work through its MSSC-Certified Logistics Associate/Certified Logistics Technician (CLA/CLT) program. MSSC is also the only national certification body accredited by the American National Standards Institute (ANSI) under ISO quality standard 17025 (Personnel Certification) for manufacturing and logistics. And MHI, the sponsor of the ProMat and Modex trade shows, is the leading national, non-profit association representing the suppliers of materials handling and logistics solutions.

The certification is expected to be released on Jan. 1, 2016. If you ask me, there's no better way to start a new year.

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*Colleen Molko is executive director, National Science Foundation Center for Supply Chain Technology Education. She can be reached at [colleen.molko@norcollege.edu](mailto:colleen.molko@norcollege.edu).*

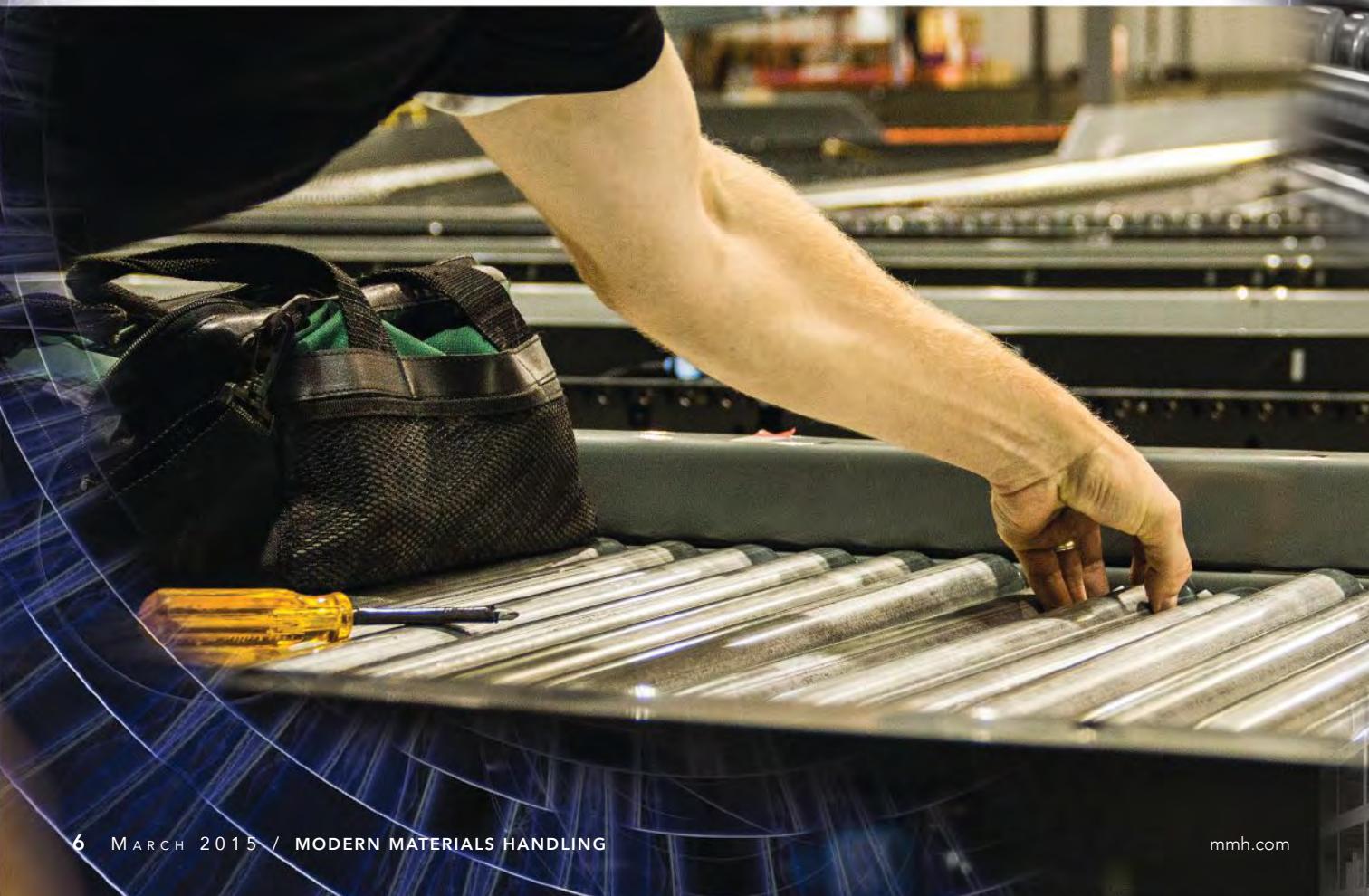


**As automated systems become more complex and rely more than ever on PLCs, sensors and computers, technicians require a new set of skills.**

# MRO comes to materials handling

For years the materials handling industry has focused on providing great solutions for customers. Maintenance services are quickly becoming the next area of focus.

By Bob Trebilcock, Executive Editor





**A**s a new entrant in the market for automated goods-to-person picking solutions, Jeff Hedges, president of OPEX Material Handling, understood that he had to do something to allay the concerns of potential customers who might be comparing his solution to one from a more established competitor. “We understood that customers are not only going to ask if we have sold and installed systems, which we have, they’re going to ask how are we going to support them in the future,” Hedges says.

As a result, Hedges decided to compete on its solution and its service, offering one year 100% parts replacement and service from OPEX-certified service technicians as part of all contracts. “The contract essentially takes the guesswork out of budgeting for ongoing maintenance and support,” says Hedges. “Service technicians can typically respond within 2 hours and OPEX maintains and owns all required spare parts either on-site at our customer’s location or at a nearby location.”

OPEX is certainly not alone in its approach. MRO—maintenance, repair and overhaul—is emerging as a new best practice, one that is becoming every bit as important as the technology chosen for a system. MRO is also emerging as an area of competitive differentiation among leading automation providers, who are now touting the depth of their technical bench, their ability to monitor a system 24/7, and their expertise at service parts management.

This trend is customer driven. “As recently as three or four years ago, service wasn’t mentioned until after the system was installed,” says Martin Maier, Knapp Logistics Automation’s vice president of projects and services. “Today, customers are asking detailed service questions in their RFPs.” In fact, according to Maier and others, the customer service manager is now likely to be part of the initial sales presentation. Similarly, customer contracts now detail the level of spare parts inventory a supplier will stock to support the cus-



**As automated systems have become more complex, systems integrators are competing on their maintenance offerings. More importantly, customers are now demanding it.**

tomers’ system.

The trend is also driven by the increased importance of uptime in a world where stores keep less inventory on the shelves and e-commerce has increased customer expectations. “With just-in-time delivery, the sequencing of orders to the pack stations and crossdocking with critical paths from receiving to shipping, a few minutes of downtime can bring everything to a stop,” says Kieran Ryan, director of field service for Intelligrated.

Consider the following three examples:

- Two years ago, Daifuku North America acquired Elite Line Services, one of the world’s largest providers of operations support for airport baggage handling systems and passenger boarding bridges. Daifuku North America plans to leverage that expertise to offer resident maintenance programs to its distribution customers, according to

Roger Olle, Daifuku North America’s director of technical services.

- At Modex last March, Dematic showcased Sprocket, the MRO software application it gained with the acquisition of Uptum Solutions, a provider of Computerized Maintenance Management Systems (CMMS). The software is now part of Dematic’s Resident Maintenance Program, which provides on-site technicians and maintenance personnel to DC operators.

- Intelligrated is partnering with Columbus State Community College and the state of Ohio to certify 100 service technicians a year for the next three years. That will bring Intelligrated’s team to nearly 550 technicians. They’ll provide on-site technical and maintenance services to DC operators across the country.

They are not alone: most industry leaders, including Swisslog, Schaefer



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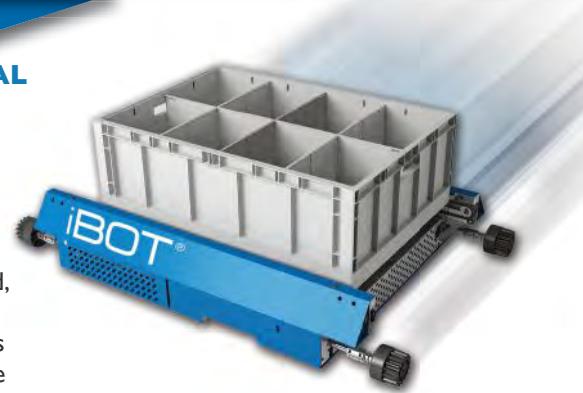


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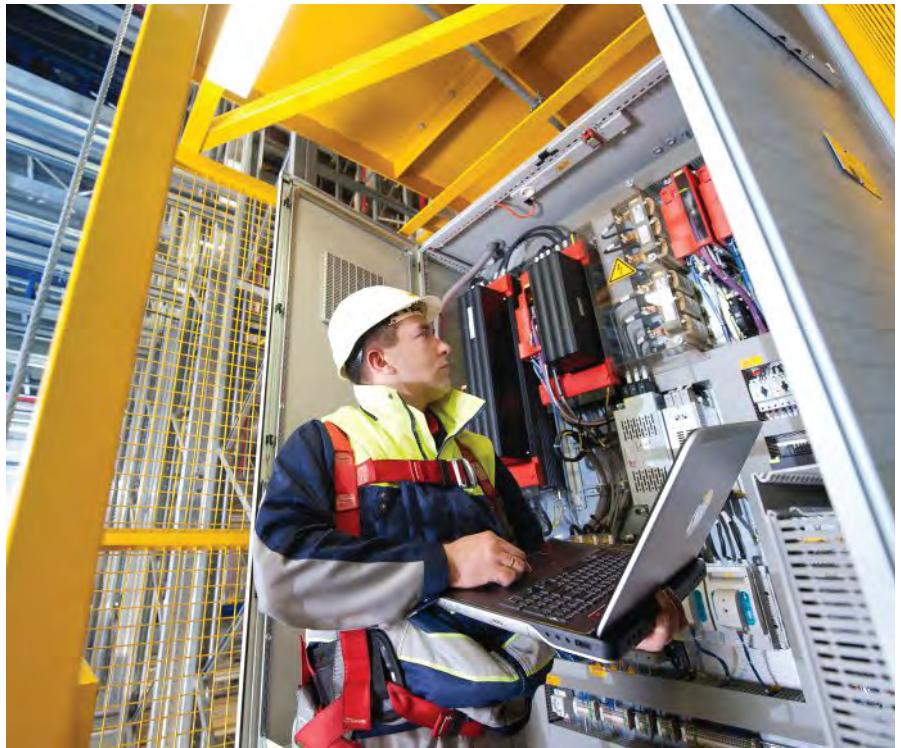
Systems International, Dematic and Knapp, are providing resident maintenance services, technical training, 24/7 remote monitoring and access to a help desk and service parts management.

What's more, third-party organizations like SDI, that manage the maintenance, repair and operations supply chain for manufacturers, has had discussions "with companies in a non-manufacturing environment" that would include distribution, according to Ron Fijalkowski, SDI's CIO.

### It's complicated

Driving this new level of interest in MRO is the increasing complexity of today's software-driven systems, especially those designed for e-commerce and grocery and beverage distribution. In fact, in a recent survey of Modern readers, nearly 40% agreed that automated systems have become harder to maintain and 54% reported that it is very to extremely difficult to find technicians qualified to maintain complex systems (see story p. 22). "Uptime is more critical than ever, and you have to ship things in a very smart way," says Robert Nilsson, vice president and general manager, software and supply chain intelligence, for Dematic. "Those are made possible by the software and controls running the systems."

If a conventional materials handling system goes down, the repair is often mechanical—swapping out a motor or replacing a conveyor belt. The facility can often keep working with manual processes until the system is up and running again. In the software or con-



**It's no longer good enough to be handy with tools. Today's technicians must understand mechanics, electronics, software, and sensors and scanners.**

trols fail in one of today's highly automated systems, the whole system is likely to be down until the problem is isolated and repaired. It could be mechanical. But, it could also be the result of a software glitch, a faulty scanner or a sensor on the fritz.

Meanwhile, maintaining these systems requires a level of technical skill known as mechatronics that most distribution center maintenance personnel just don't have. That makes the customer more reliant than ever on automation suppliers with a team of certified techs. "You need to have technicians who are comfortable with soft-

ware applications, who understand programmable logic controllers (PLCs) and how the data exchange works," says A.K. Schultz, vice president of customer service for Swisslog. "The maintenance teams present in distribution centers are used to fixing lift trucks and air curtains. There just isn't a deep talent pool with that kind of technical skill."

This is nothing new to other industries where uptime is essential, such as commercial aviation, mining and heavy manufacturing. MRO has been a best practice in those industries for decades. Best-of-breed software packages have been tailored for planning

## The best MRO program is only as good as its people

There's a fourth component that we haven't touched on in this article, and that's the people component. Keeping systems up and running and expanding resident maintenance programs requires a pool of trained technicians, which are currently in short supply.

The materials handling industry is beginning to address that issue, too. In addition to the partnership Intelligrated has established with Columbus State Community College, Swisslog is recruiting trained technicians from the military

bases near its Norfolk headquarters. And, MHI, the industry trade association, is partnering with community colleges and other industry organizations to develop a national standard for supply chain technicians.

As part of that effort, MHI is sponsoring a workforce summit aimed at technicians at this month's ProMat 2015 in Chicago.

*"The U.S. Roadmap for Material Handling & Logistics Workforce Summit" will be held March 25-26 at ProMat 2015.*



**Inventory management and speedy logistics is as important in spare parts management as it is in the management of the goods kept in a facility to fill customer orders.**

and managing maintenance events by industry. And, the ability to forecast the demand for critical spare parts and position them in a network is essential. Now, the materials handling industry is adopting some of those practices.

Based on conversations with some of the largest industry players, there are at least three components to the maintenance programs available today: the maintenance services themselves, service parts programs and MRO software applications developed for the industry.

### **Keep it running**

Solution providers are offering a range of maintenance services. They run the gamut and are dependent on whether their customers view maintenance as a core competency. "Early adopters of automation discovered very quickly that the skill set, pay scale and even the job descriptions for their maintenance personnel were not suited for the new systems," says Chris Krafft, who oversees technical services for Schaefer Systems' automation division. "We also see customers who are new to automa-

tion and are concerned that they won't be able to keep the systems running."

The early adopters, Krafft says, either make the investment to upgrade their technical pool or outsource maintenance to a solution provider. "One of our big retail clients had their technicians work with us on the installation so they were ready to support the system when it went live," Krafft says. "We spend a lot of time reassuring less experienced customers that we have the infrastructure in place to support them as they make this leap."

Typical services include:

**Training:** Leading providers like Daifuku North America provide in-house training on their equipment for their customers. Knapp Academy offers customers on-site training, certification classes at Knapp's facility in Georgia, and e-learning.

**Virtual monitoring:** Whether you call it 24/7 customer service or a 360-degree service package, almost every service provider has the ability to monitor its customers' systems around the clock, remotely troubleshoot and

diagnose service issues and provide telephone support to mechanics and technicians.

**Auditing:** Even a system that's up and running may not be operating at peak efficiency. For that reason, most providers offer annual audits to ensure that the system is meeting the customers' business objectives. Swisslog calls this "throughput assurance," according to Schultz. "You buy a large system with an ROI and expectation of throughput," he says. "If your business changes, we look at how the system can be enhanced to support those changes."

**On-site maintenance:** These services run the gamut from working with a customer's planning and engineering departments to maintaining critical pieces of equipment to maintaining an entire facility, including the docks, HVAC and electrical systems. Intelligrated, for instance, is staffing resident maintenance centers in metropolitan areas or logistics hubs where many facilities are located. "We view it as risk mitigation," says Intelligrated's Ryan. "We can offer technical phone support,

spare parts delivery services, manage the areas of highest risk or handle maintenance for your entire facility.”

**Right part, right time**

Right part, right place, right quantity and right time is as important in maintenance as it is in order fulfillment. It’s also a balancing act, since no one wants to shut down operations because a repair isn’t available. At the same time, no one wants to invest more in expensive repair parts than is needed to keep a facility running.

Spare parts management begins with “provisioning.” When a system goes live, the solution provider recommends a package of spare parts that is tailored to the customer’s system. “We will create the package with A, B and C parts, based on criticality, so that a customer can decide if they want to stock the whole package or a portion of it and rely on us for the rest,” says Knapp’s Maier. He adds that Knapp sends out parts on a daily basis. Most have services to expedite parts on an emergency basis.

Many customers are outsourcing parts management to their system suppliers. Similarly, suppliers are creating their own networks of stocking points, managing inventory at their customers’ storerooms and shipping parts from one customer’s storeroom to another customer to expedite a part. “We have a variety of service models, ranging from consignment to customer-owned inventory to our own distribution network to partnerships with suppliers who agree to maintain and ship parts for us,” says Swisslog’s Schultz. “We will have a part stocked somewhere in the United States that is available for rapid delivery.”

Daifuku North America’s Olle notes that some automotive customers require 24-hour turnaround on parts orders. “In those cases, we strategically locate warehouses that can support a location on a 24-hour basis,” he says. “Those discussions are now taking place at the RFQ stage.”

**Software makes it happen**

Software isn’t just powering automated



**Software and technology are key enablers of a maintenance program. With this headset, an on-site technician can transmit images and communicate with a remote technician to diagnose and repair a system.**

order fulfillment systems. MRO software tailored for the distribution industry is also coming to the fore. The most visible example is Dematic’s acquisition of Upturn Solutions, an application that Nilsson describes as “robust, cloud-based maintenance software” that enables Dematic and its customers to track equipment, spare parts for the equipment, as well as the technicians working on the equipment.

Other providers are also investing heavily in maintenance software. Knapp, for instance, has developed a cloud-based software platform dubbed e-insight that allows a warehouse manager, operations team or technician to log in through a mobile portal and gather real-time operational data, maintenance and service reports, and other key information. A separate online, audio-visual tool allows on-site technicians and Knapp technicians to collaboratively troubleshoot, diagnose and repair an issue. By outfitting the local technician with a headset and microphone equipped with a camera and display, a remote Knapp technician can see the same live view. Once a problem is diagnosed, the local technician can pull up a manual and see a

display of the repair that needs to be done in the visual display on the headset. “Visualization allows you to prevent any misunderstandings,” says Knapp’s Maier.

What all of these solutions highlight is how MRO in North America is maturing as a best practice. “In Japan, where our parent company is located, our customers don’t have maintenance teams. That’s all handled by the materials handling equipment supplier,” says Olle. “You have certified technicians who maintain the equipment. We’re now seeing our North American customers, including our distribution center clients, rely more on us as well.” □

**Companies mentioned in this article**

- DAIFUKU NORTH AMERICA: [daifukuNA.com](http://daifukuNA.com)
- DEMATIC: [dematic.com](http://dematic.com)
- INTELLIGRATED: [intelligrated.com](http://intelligrated.com)
- KNAPP LOGISTICS AUTOMATION: [knapp.com](http://knapp.com)
- OPEX: [opex.com](http://opex.com)
- SCHAEFER SYSTEMS INTERNATIONAL (SSI): [ssi-schaefer.com](http://ssi-schaefer.com)
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# The new role for supply chain technicians

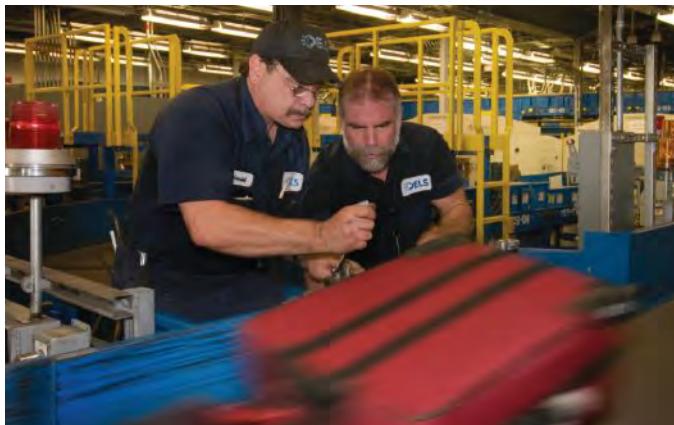
Today's highly automated systems demand technicians with new skills and new training. The industry is beginning to respond.

By Bob Trebilcock,  
Executive Editor

Perhaps you've seen the Safelite commercials while channel surfing. Sure, the auto glass repair company touts its technical abilities and competitive prices. But the stars of the commercials are amiable certified technicians who promise to come to your home, place of business or even a vacation spot to get you back on the road. They'll even send you an e-mail with the name, photo and credentials of the technician who is going to give you a hand. Forget

the stereotypical grease monkey of days gone by; neatly groomed and dressed in crisp red golf shirts and black slacks, Safelite's technicians look more like customer service reps than mechanics. And, maybe that's the point. In today's world, technicians and mechanics are the face of the company to the customer and not just some Mr. Fix It.

Something similar is happening in the world of automated materials handling systems and lift trucks (see p. 18). Given the complexity of today's systems, it is no longer sufficient that a technician be good with a wrench. Now, technology and mechatronics are part of the skill set. "Technicians have to understand software and programmable logic controllers (PLC)





**Industry leaders have ramped up their internal training programs to meet the growing demand for supply chain technicians.**

says Mike Kotecki, senior vice president of customer service for Dematic. “They have to have communication skills on the fly, be able to follow up with written communications and have the diplomatic skills to develop an open, honest and candid relationship with the customer.”

As a result of these changes, systems providers, start-ups and lift truck manufacturers are putting more emphasis than ever on recruiting, training and retaining supply chain technicians. They are also spawning industry efforts to develop a national certification for supply chain technician (see p. 4). MHI, the industry association, is partnering with the Manufacturing Skill Standards Council (MSSC) and the National Science Foundation Center for Supply Chain Technology Education to develop a certification for this emerging field. The goals are to define the skill set required and create awareness of the job to attract people to the industry at a time when there is a shortage of skilled, trained technicians.

#### **Beyond the tool belt**

Just how important are supply chain technicians to a systems integration and distribution company? “I think

and not just mechanics,” says Roger Olle, director of technical services for Daifuku North America. Increasingly, they also have some level of post-high school education. “As recently as three years ago, about 30% of our technicians had a technical school or university degree,” Olle adds. “Today it’s about 70%, and we train them extensively on our systems before we send them out to a client site.”

For that reason, a new term is

emerging to describe someone with the combination of special skills to keep complex materials handling systems and equipment operational: supply chain technician.

The new skill set goes beyond familiarity with technology. Like the Safelite technician, supply chain technicians are a central cog in the customer service ecosystem. “The best technicians are a combination of Mr. Goodwrench and Henry Kissinger,”



**As the competition for talent grows, the industry's focus is on recruiting, training and then retaining supply chain technicians.**

the shortage of technicians is one of the critical issues our business, and the industry, faces going forward,” says Mike Romano, CEO of Associated Supply Chain Solutions, one of the largest lift truck dealers in the country and the parent company of the supply chain consulting firm Peach State Integrated Technologies. Romano adds that technicians represent about half of his firm’s employee base and a significant amount of company revenue.

Indeed, the U.S. Bureau of Labor Statistics projects a need for 120,000 new technicians by 2020. Meanwhile, a study conducted in May 2013 by the National Center for Supply Chain Technology Education and the Centers of Excellence Economic and Workforce Development California Community Colleges (COE) estimated that there are some 204,000 supply chain technicians in the field

now, and projects an additional 61,000 new jobs within the next 24 months. Better yet, these are high-paying jobs.

Several drivers are behind this growth, according to Colleen Molko, the center’s executive director including the tremendous increase in e-commerce. Companies continue to automate to manage the cost of labor-intensive each picking, manage the re-shoring phenomenon that is seeing manufacturers build highly automated plants to mitigate higher U.S. labor costs, and address ergonomic and safety issues.

The shortage is exacerbated as the experienced technicians currently in the field retire while the industry is invisible to millennials who represent the potential pool of talent for the next generation of technician. “The biggest challenging is obtaining, training and retaining technicians,” says Jeff Hedges, president of OPEX

Material Handling.

Finally, there simply aren’t the same number of technical programs as there once was because for some time now young people have shunned industrial education. “A lot of community colleges shut down their technical programs over the last 10 years,” says Kieran Ryan, director of field service for Intelligated. “There’s really a void that we’re all trying to fill right now.”

#### **Recruit, train and retain**

As the competition for talent grows, the industry’s focus is on recruiting, training and then retaining supply chain technicians.

For example, Hedges has been able to leverage his parent company’s 40-year history of providing technical service to the mail processing industry, which uses the same mobile robotic technology that is central to OPEX’s automated storage and goods-to-person solution. “We’re able to springboard off the team we already have in place across the country that is trained in maintaining our iBot technology,” Hedges says. “However, as we install more systems, we have to continue to build on that base.”

Meanwhile, the competition for available technicians is growing. “In some respects, our industry is competing with our customers for talent,” says Intelligated’s Ryan. “We’ve had instances where a large retailer has offered our technicians \$5 an hour more than they’re currently making because they can’t find them, and in some rare instances, they’re getting paid more than engineers.”

Ryan adds that Intelligated is

partnering with Columbus State Community College in Ohio to develop talent. “Many of the people we’re bringing in are in their 40s and 50s as a second career,” Ryan says. “They have some technical skills, but more importantly, they’re used to dealing with stress and communicating with customers in a professional setting.”

A number of best practices are emerging.

**Recruitment:** One of the challenges the industry faces is getting in front of potential technicians, given that materials handling hasn’t always been on the radar. “In our industry, there is a shortage of top talent,” says Dematic’s Kotecki. That may call for looking outside of the traditional universe, such as competitors. “The military and community colleges are great breeding grounds for this,” he adds.

Dematic is not alone in that assessment. Romano says that Associated has developed relationships with technical schools that serve as feeders for its organizations. “We will hire a seasoned technician where appropriate, but we try to develop and train our technicians from scratch when possible,” he says.

With North American headquarters near several large military installations in Newport News, Va., Swisslog draws heavily on technical fields in the military. “We get very skilled people out of the Navy nuclear and aviation fields,” says A.K. Schultz, Swisslog’s vice president of customer service. Technicians who have worked on submarines and jet fighters have the combination of mechanical, electrical, sensor and software skills required to maintain a sophisticated materials handling system.

At the same time, the National Center for Supply Chain Technology Education received a grant in

2011 from the National Science Foundation to become a resource for community colleges and technical schools in areas where there is a large warehousing, distribution and manufacturing presence that are looking to launch programs. The center represents a consortium of community colleges providing technical education tailored for the industry includ-

**“The biggest challenge is obtaining, training and retaining technicians.”**

—Jeff Hedges, president, OPEX Material Handling

ing Norco College in Norco, Calif.; Oakton Community College in Des Plaines, Ill.; Sinclair Community College in Dayton, Ohio; and Tacoma Community College in Tacoma, Wash.

**Training:** The most interesting development, and possibly the most significant from the technician of the past, is the emphasis on a technician’s people skills. Intelligrated, for instance, assumes that a new hire has some technical ability. For that reason, new hires begin their training in customer service. “I’ve told new hires that if they can’t present themselves well and communicate with the customer, they can’t get into the door,” says Ryan.

At the same time, in an industry that is booming, many technicians are getting their training through a combination of classroom and on-site, hands-on experience. “We have projects going on around the country,” says Hedges. “Many technicians will get their training in the field, working on installations, go-live projects and maintenance projects.”

**Retaining:** Given the competition for talent, the biggest challenge the industry may face today is a company keeping technicians once they have been trained. “By definition, technicians are a pioneering and nomadic breed,” says Dematic’s Kotecki, meaning that it’s not uncommon for them to move on to greener pastures, especially in a job that can be repetitive.

Kotecki says that Dematic strives to stay on top of the changes in its technicians’ lives and to offer opportunities to move within the company when appropriate. “Some of our top engineers used to carry a tool box,” he says.

Systems integrators and lift truck providers say that at the end of the day, the emphasis on technicians is driven by new customer expectations, as well as the expectations of their customers. “In the past, a technician was a guy who kept something running in a warehouse,” says Kotecki. “Now, the actions of a technician impact the ability of a guy sitting on his couch and ordering something over the Internet to get his order the next day.” □

**Companies mentioned in this article**

- ASSOCIATED SUPPLY CHAIN SOLUTIONS, [associated-solutions.com](http://associated-solutions.com)
- DAIFUKU NORTH AMERICA, [daifukuNA.com](http://daifukuNA.com)
- DEMATIC, [dematic.us](http://dematic.us)
- INTELLIGRATED, [intelligrated.com](http://intelligrated.com)
- MANUFACTURING SKILLS STANDARDS COUNCIL, [msscusa.org](http://msscusa.org)
- MHI, [mhi.org](http://mhi.org)
- NATIONAL CENTER FOR SUPPLY CHAIN TECHNOLOGY EDUCATION, [supplychainteched.org](http://supplychainteched.org)
- OPEX MATERIAL HANDLING, [opex.com](http://opex.com)
- SWISSLOG, [swisslog.com](http://swisslog.com)

## EQUIPMENT

# Lift truck maintenance programs set a new course for efficiency

**New fleet maintenance practices see users and service providers working together to identify and reduce each lift truck's total cost of ownership.**

By Josh Bond, Associate Editor

**A**t first glance, you wouldn't think that a lift truck has much in common with a Boeing 787 Dreamliner. The 787, after all, is the most technologically advanced commercial aircraft ever manufactured and a lift truck is, well, used to move stuff.

But take a closer look, and the two have much in common. Both are workhorses expected to run at peak efficiency, with a minimum of downtime, for years and even decades. Both are absolutely essential to the smooth operation of their businesses. Just like a 787, a modern lift truck is outfitted with sophisticated electronics and sensors that monitor and report on the status of key components.

But even more important than the condition of any one plane or lift truck is its position within the fleet. Although fleet management in the warehouse is somewhat less imperative than air traffic control, it is no less important to the operation as a whole.

In both cases, efficient operation depends on visibility into the real-time activity of the entire fleet as well as a precise understanding of costs,

down to each nut and bolt. For lift truck users, this means the total cost of ownership—including fuel, labor and maintenance costs over the useful life of the equipment—is more important than the upfront price.

In fact, equipment maintenance is at least three times as important, since acquisition costs are typically only 25% of a lift truck's total cost over time. Having recognized this, lift truck users and manufacturers have spent recent years creating new business and ownership models for fleet management, parts management and maintenance.

Lift truck users now evaluate a supplier's maintenance capabilities as much as the truck's operating capabilities. "Maintenance is almost always part of the RFP," says Mike Romano, CEO of Associated Supply Chain Solutions, one of the largest distributors of lift trucks in the country. "Maintenance contracts, fleet and parts management services and telematics—the aftermarket—is the way manufacturers and distributors are differentiating themselves in the market."

Lift trucks and jet aircraft share something

else in common: Today's technician requires more skill sets than ever to keep equipment running. "Yesterday's technician was a guy with a wrench," says Neal Hittepole, director of branch aftermarket sales for Crown Equipment Corp. "Today, they are professionals who have gone to school and present themselves in a different way. In addition to their mechanical skills, they have to understand electronics and software and they have to problem-solve."

### **Fleet management and maintenance**

Fleet management is an all-encompassing program intended to optimize total cost of operation of a customer's leased, owned and rented lift trucks. A solid fleet management program looks at the root cause of expenses, establishes preventative instead of reactive maintenance practices, works to right-size the fleet, encompasses operator management and provides the tools to manage administrative costs. At the end of the day, fleet management should create a definitive view of each lift truck's operating cost per hour.

Today, there are two kinds of fleet management, which often overlap. The first involves vehicle financing and maintenance programs offered by lift truck manufacturers with service provided by their network of dealers. The goal of such programs is to gradually transition equipment users away from the chores of fleet management and enable them to focus instead on their core competencies.

The second kind involves data collection equipment affixed to equipment and the related software programs that identify patterns in use and abuse. By monitoring the day-to-day operations of the vehicles and

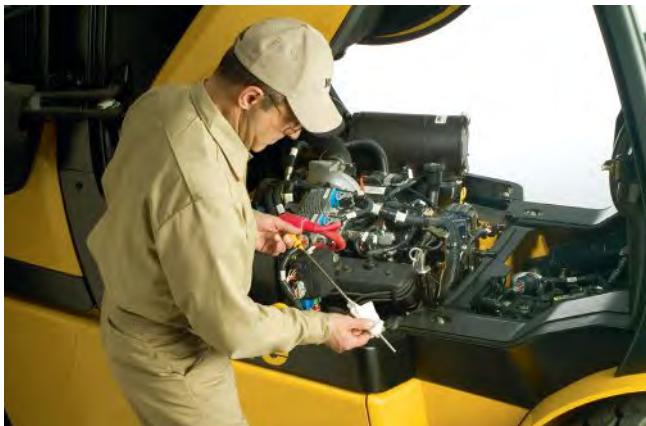


their operators, the goal of such programs is to provide visibility and actionable data to managers so they can address small problems before they become big.

While each supplier tailors their program differently, most offer some variation of the following services:

**Fleet analysis.** This involves a survey of the make, model, age and hours of service for each vehicle in a fleet, along with its intended use. That information provides the baseline to determine the right size of the fleet and whether existing equipment should be retained, retired, redeployed within a facility or replaced.

**Call center management.** Users with multiple locations or multiple shifts want one phone number that all



**Preventative maintenance can identify small problems before they become big ones.**

their fleet managers can call for service, regardless of where they are located. Especially with a lean fleet, downtime is unacceptable, so the responsiveness of service technicians is critical.

**Consolidated billing.** With this service, the supplier examines the repair orders from all of the dealers

maintaining a fleet, verifies that the pricing is correct and justified, and then presents one bill to the customer.

**Tracking and reporting.**

In addition to providing consolidated billing, fleet management programs also include usage reports covering parts inventory, repair history, avoidable damage and each unit's cost per hour.

**Fleet rental and fleet disposal.** Many fleet managers will also take care of the rental of additional vehicles during peak usage periods and handle the sale or disposal of owned vehicles when it's time to retire

or replace them. Leases can also help establish ideal equipment rotation practices and can be designed with the flexibility to scale fleet size with peaks and valleys in use.

**Fleet management software.** Whether offered by a supplier or a third

## Train keep a rollin'

A unique parts management and maintenance program is reducing the downtime of mobile cranes for Canada's largest rail operator.

We've all heard the old phrase about making the trains run on time. At CN, reliability has become a key enabler of the success of Canada's largest rail operator as it's an increasingly integral link in today's time-sensitive supply chains. Customers trust that their containers will arrive at an intermodal terminal in time to be transferred from a rail car to a truck, or vice versa, to get to the next point in their journey. To make that happen, the mobile cranes that handle containers at CN's network of intermodal terminals have to be available when they're needed.

To minimize downtime and ensure that critical parts are available when they're needed, CN has developed a program with one of its crane providers (Hyster, [hyster.com](http://hyster.com)) and their distributor (Wajax, [wajax.com](http://wajax.com)) to manage critical parts, especially expensive parts with long lead times.

Under the program, CN's suppliers store an inventory of mission-critical parts in quantities sufficient to keep CN in operation. Parts are kept in warehouse locations that allow

for delivery in agreed upon time frames, which could be relatively short to as long as 48 hours. The list of parts under the agreement ranges from components that can be easily swapped out to replacement cranes available on short notice in the event of a serious equipment failure.

In addition, the distributor has assigned a key account manager and a master technician to work directly with CN, while factory engineers have trained CN mechanics to better service the equipment. CN looks to their suppliers' expertise for recommended solutions to address CN's demanding application needs.

Under the new program, the railroad has freed up capital previously invested in expensive, mission-critical parts that aren't used very often or have very long

lead times when and if they fail. CN has access to its suppliers' technical support and know-how when needed, and has established a closer relationship with suppliers who can suggest ways to optimize operations and improve the overall supply chain.



**Parts management and close partnership with service providers are critical to minimizing downtime.**

party, fleet management software not only tracks the operations of a truck, it is also tied into a vehicle's electrical system, providing maintenance personnel with information in real time. Fault codes generated by the truck can be sent by e-mail to a technician's smart phone or computer, along with the serial number of the truck. That allows the technician to do some troubleshooting in advance, and to bring the tools, parts and components for a likely repair to the job site. Moreover, it allows a technician to become more predictive about maintenance.

"The telemetric systems on today's trucks allow one person to monitor a whole fleet," says Pat Huebel, national training and customer service operations manager for Toyota Material Handling U.S.A. "The activity of the truck is being reported back to a terminal in a manger's office, where they can set up alerts so that if there's an error code, it will flash up on the screen before the operator even realizes there is a problem."

**Technicians: Beyond the tool belt**

Just how important are technicians? "We have a saying that we win a customer through the sales function but keeping them is the result of our ability to service the fleet," says Pat DeSutter, vice president of fleet service and aftermarket for Yale Material Handling Corp. "A technician who consistently presents themselves in a professional manner builds a level of trust that you can't replicate just with an account manager calling on the customer."

Like the automated materials handling industry, lift truck manufacturers and distributors are taking proactive steps to attract the next generation of technician. "One of the things we struggle with is making the graduates of tech schools aware of the opportunities in our industry," says Toyota's Huebel. "The skills they're learning in automotive school, for instance, can serve as a good foundation for lift truck maintenance. Pay in our industry is good,

the benefits are good, and there are opportunities to work on the road, work in the shop and work in manufacturing plants and distribution centers." For its part, Toyota is finalizing a technician recruiting video that service managers



**Modern lift truck technicians need a wider skill set than ever before, from mechanical aptitude to technological know-how.**

can take to technical schools and military recruiting events in their areas to bring awareness of the industry.

Meanwhile, companies like Crown have developed relationships with technical schools with automotive training programs, like the University of Northwest Ohio, where the company sponsors a class in lift truck maintenance. Similarly, DeSutter says that Yale is looking at more strategic alliances with technical schools and community colleges and offers an in-house apprenticeship program to develop new technicians.

What's more, lift truck manufacturers are adapting their training methods to the learning style of the next generation. In fact, the day of memorizing the service manual is over. Training is now done in

the classroom and online. And, as with the materials handling industry, one of the most important skills isn't found in the toolbox but focuses on a technician's people skills. For that reason, new hires often begin their training in customer service. Crown puts its technicians through its customer care training program to learn how to interact with customers, the parts department, the sales department and the rental department before they are given the keys to a customer service van.

Once hired, creating a career path is also a key to a successful technician program. At Associated, for instance, Romano says his organization makes a commitment to offer technicians 40 to 80 hours of training a year to advance their skills, pays for performance, and offers opportunities to advance to supervisory and management roles, such as a team leader or field service leader. "You can advance from an apprentice to a forklift technician to an automated system technician into management," he says.

"There's no question but that our industry needs new technicians," says Toyota's Huebel. "We need to make these young men and women aware of the opportunities we offer, onboard them, train them, and pay them to keep them. They're looking for different challenges than when I entered the industry." □

**Companies mentioned in this article**

- [ASSOCIATED SUPPLY CHAIN SOLUTIONS, associated-solutions.com](http://associated-solutions.com)
- [CROWN EQUIPMENT CORP., crown.com](http://crown.com)
- [TOYOTA MATERIAL HANDLING U.S.A., toyotaforklift.com](http://toyotaforklift.com)
- [YALE MATERIALS HANDLING CORP., yale.com](http://yale.com)

## READER SURVEY

# Maintaining the automated warehouse

***Modern Material Handling's* first-annual Maintenance Study reveals fairly high adoption rates for automated warehouse systems and an ongoing need for quality maintenance support and skilled technicians to manage these setups.**

By **Bridget McCrea**, Contributing Editor

Anyone working in a contemporary warehouse or distribution center understands that technology is advancing at the speed of light. That is especially true as manufacturers and distributors gear up to handle the challenges of complex order fulfillment strategies, earlier and earlier order cutoff times, more value-added services, faster delivery expectations and more returns than ever.

With all that extra handling, it's no surprise that warehouses and DCs alike are equipped with more automated materials handling systems, data collection technologies and software than ever before. That's the good news. The bad news is that all of that automation and technology is not only more complicated to maintain than ever before, it is being implemented at a time when a generation of skilled technicians is about to retire and new technicians are hard to find.

What then is the state of maintenance and tech-

nicians amongst our readers? For *Modern Material Handling's* first-annual Maintenance Study, conducted by Peerless Research Group (PRG) last month, we communicated with 100 leading warehouse and DC professionals representing a variety of industries. Here's a look at the results of the study as well as what our readers have told us about the current levels of automation in their facilities, how they handle the ongoing maintenance of their automated equipment, and the key challenges they face in hiring technicians and/or outsourcing maintenance to third parties.

### **Taking the automated route**

Automated warehouse and DCs comprise a variety of hardware and software components including fixed machinery like automated cranes and conveyors, sortation systems, industrial robots, automated storage and retrieval systems (AS/RS); mobile data



collection technology and devices; and integration and operational control software. Equipped to handle the rigors of today's multi-faceted facilities, these systems help increase efficiencies while reducing the costs of running a largely manual warehouse.

Respondents appear to be embracing the need for more automation within

their warehouses and DCs. According to the survey, a significant percentage of companies are currently using at least some level of automation within their facilities. The survey found that 13.4% of respondents' warehouses/DCs are 75% to 100% automated. Nearly 54% of respondents are either 50% to 75% automated or 25% to 50% auto-

mated, while 29.9% say they still handle processes manually. If the industry continues to experience double-digit growth, expect to see that last number drop over the next few years as more warehouse owners warm up to the idea of automation within their four walls.

And while automated warehouse systems provide clear benefits to those companies that use them, they also present some unique challenges. Ongoing maintenance, for example, is a requirement that must be supported by a knowledgeable in-house or outsourced team of skilled technicians. That's because the systems themselves are becoming harder to maintain and finding the technical ability to maintain them is a challenge, according to 40.5% of the survey respondents. About 58% say they have a difficult time finding the technical skills needed to maintain their systems. Roughly 20% of companies would like to have a technician from a third-party provider reside at their facilities and manage the maintenance for them.

One way *Modern's* readers are managing ongoing maintenance of their automated equipment is through service agreements with their solution providers. According to the survey, 56.3% of companies currently have maintenance service contracts with their vendors and 43.8% do

not. Those that do have such contracts in place should be well positioned to have their equipment and software maintained over time without the need for robust, in-house technical expertise.

### **Expertise wanted**

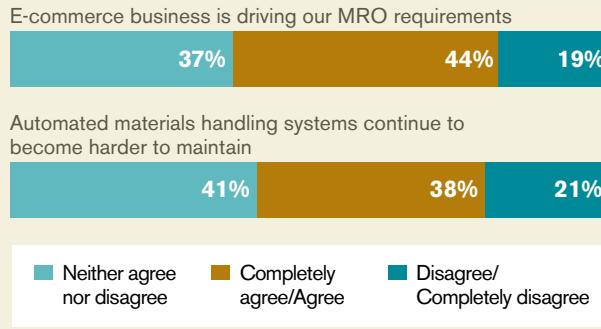
As omni-channel fulfillment continues to evolve, companies are investing in

more technology to help support their e-commerce and related distribution channels. In fact, 35.8% of survey respondents say that their MRO requirements are being driven by their business' e-commerce efforts.

To most effectively manage the maintenance of the automated systems that support those e-commerce efforts, 46.3% rely on internal staff members while 34.7% use a "hybrid" approach that involves handling some maintenance tasks internally and outsourcing others. Additionally, 17.9% of respondents outsource maintenance completely. Tasks performed by those outsourcing firms include maintenance of automated systems (conveyors, lifts, etc.) (56.3%), lift truck fleet maintenance (39.6%), off-site systems monitoring (16.7%), and maintenance tasks for the entire facility (12.5%).

Regardless of who they're using to maintain the automated systems in their warehouses/DCs, respondents would prefer those systems are maintained internally (49.5%), on a hybrid basis (31.6%), or outsourced to a third party (17.9%). When evaluating maintenance and service providers, the key criteria used includes timely service (82.3%), technician skill level

**Please indicate your level of agreement with each of the following statements**



Source: Peerless Research Group

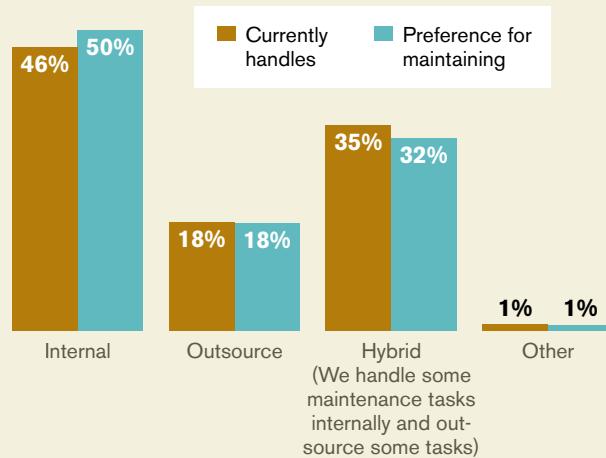
(76%), expertise across all makes/models of equipment (45.8%), and company reputation (44.8%). Other con-

siderations include the use of quality products, the breadth of maintenance program/service offerings and the size of the service group.

According to the survey respondents, it's very important for maintenance service companies to provide competent technicians, preventive maintenance, inspections, technician training and training for operators. Ranking slightly lower on the must-have list were competencies like upgrades and retrofits, remote monitoring technology, and OEM parts. In reviewing various open positions currently posted online for automated warehouse technicians, companies also expect skills like advanced knowledge of electrical, electronic and mechanical technology; experience in using test equipment (such as graphic sequencers, oscilloscopes, voltmeters and logic testers); experience in troubleshooting electrical, electronic, pneumatic and mechanical malfunctions; and a knowledge of mini-computers.

Of course, once in place these technicians also need to have access to parts and support to manage their own repair and maintenance

**How are you currently handling your maintenance of automated systems?**



Source: Peerless Research Group

**National certification ahead?**

There's a movement underway to develop a national standard, which was viewed as a good move by a majority of respondents: 58% of respondents would like to see a national certification for supply chain technicians who are trained to maintain automated systems, while 41.9% have no interest in such a program. Already in use across various sectors of the supply chain management field, such programs typically enhance technical knowledge and skill sets in a standardized, cohesive manner.

As automated systems become more prevalent in today's

warehouses, expect to see a growing number of companies either rolling out new or shoring up existing internal technician training programs or turning to third-party providers for help in this area. On track to become increasingly complex and multi-faceted in the future, these systems won't get any easier to maintain over the long run. To offset this challenge, companies should assess their current need levels, determine the best approach (in-house, outsource or hybrid) and put a plan into action to address their current and future warehouse automation maintenance needs.



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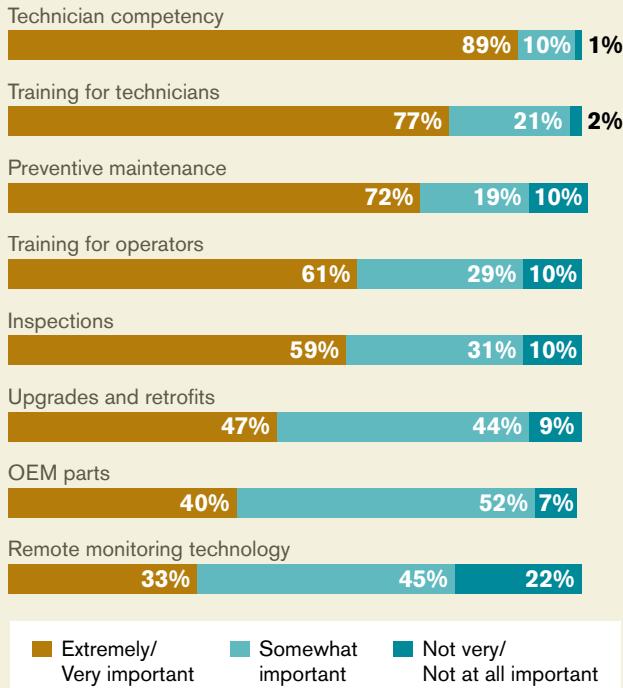
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### How important is it for a maintenance service company provide

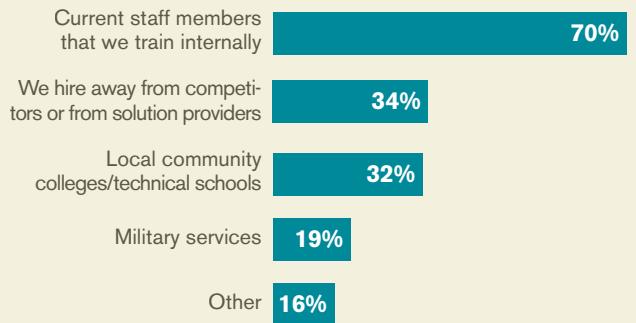


Source: Peerless Research Group

### How difficult would you say it is to find technicians qualified to maintain complex systems?



### Where do you currently find technicians?



Source: Peerless Research Group

efforts. When obtaining and accessing spare parts, survey respondents typically turn to their distributors (67.4%), systems suppliers (56.8%), OEMs (56.8%), or other providers (11.6%).

#### Training technicians

When it comes to finding technicians who are qualified to maintain complex systems, 54.2% of companies participating in the survey say the undertaking is either “extremely difficult” or “very difficult.” Another 31.9% say the task is “somewhat difficult,” while 13.9% are not challenged in this area.

Consider, for example, the California winery that posted a job for an “automated warehouse technician” on LinkedIn this past January. Lengthy and detailed, the firm’s list of “must haves” included a BS degree in electrical engineering or computer engineering to “monitor and improve the production processes, quality and

product flow in our warehouse, with the goal to make the overall production efficiency as high as possible.” Top job responsibilities included assisting with documentation of all existing as well as new installations concerning electrical, product lifecycle and plant improvements; maintaining all mechanical repairs and upkeep of the cart elevator system; improving older controls equipment and providing “hands-on” commissioning of all new machinery (the list didn’t end there, but those were the major points).

As evidenced by this single job post, the tasks being put in front of today’s automated warehouse technicians are varied and complicated. According to our survey, most companies (69.5%) are filling these positions by training their internal, existing staff members. Another 33.7% are hiring workers away from competitors or solutions providers, while 31.6% rely on local community

colleges and technical schools to round out their technician ranks. Another 19% of companies hire through the various branches of the military and 15.8% use “other” sources.

Given these challenges, you would think that warehouse and DC operators would put a premium on training. However, internal training is a mixed bag when it comes to keeping technicians up to date on the latest and greatest developments in automated warehouse technology. When asked whether they have formal training programs in place for the technicians who work on their automated warehouse systems, 54.3% of respondents say they do while 45.7% do not. We can surmise that the latter group probably comprises most of the respondents who say they either outsource maintenance to a third party and/or rely on their solutions providers’ ongoing maintenance agreements. □

# TECHNICIAN SPOTLIGHT

Brian Lentz

## Swisslog

**TITLE:** Senior field service engineer

**LOCATION:** Newport News, Va.

**EXPERIENCE:** Eight years as a field service technician

**PRIMARY FOCUS:** Providing electrical and mechanical support for Swisslog installations around North America.

**Modern: How did you first get interested in this field?**

**Lentz:** I was trained as a nuclear electrician in the Navy, stationed in Norfolk on the USS Enterprise. When it was time to leave the Navy, I knew I wanted to do something similar that would allow me to work with my hands and be challenging. I went to a job fair in the area, and Swisslog was high on my list because automation seemed interesting and it was a local company.

**Modern: You've been in the job for eight years. Tell us a little about how your role has evolved.**

**Lentz:** When I first started out, my title was field service engineer, but what that really meant was that I was a road warrior and away from home most of the time. During the first six months, I traveled back and forth between a few sites where we were in the construction and commissioning phase. I did a lot of electrical work and testing, but the biggest part of the job was working with the controls engineers who got the system up and running. I really didn't know a lot about automation, so this was my on-the-job training. Once those sites were up and



running and I'd learned about the systems, I was on my own, working at customer sites. In that role, we'd help them address any issues, train their mechanics to maintain the systems and train their operators to run them. Some of the other tasks would be a system audit, sometimes it was changes or retrofits or preventative maintenance. A few months ago, I moved into a non-traveling role as the lead electro-mechanical engineer on our STAR team, which actively monitors all of our systems around North America from a central control room in the Newport News office. I focus on training employees to solve electrical and mechanical issues remotely, and with working with our training department to develop the curriculum for new hires.

**Modern: Is there a career path to being a technician?**

**Lentz:** There are many different paths. We still have technicians who are road warriors after several years because that's what they enjoy.

We've had others transfer to a software or programmable logic controller (PLC) engineer role or some kind of management position. One of the key things is that almost every installation is a little different and each uses some proprietary things. It is important to have experience from the customer's viewpoint.

**Modern: How important are customer relationship skills to being a technician today?**

**Lentz:** It's equal to or more important than the technical side. You can be the smartest guy in the room, but if you can't get along with the customer, they're not going to come back.

What's more, a critical skill is the ability to do troubleshooting over the phone, without actually seeing the equipment. That, too, is part of keeping the customer happy.

**Modern: What's the best thing about the job?**

**Lentz:** There are great benefits, and there's a variety to the job. The people are great to work with. You'll have the opportunity to work with a variety of equipment and solutions, and do something different almost every day.

**Modern: Our industry is facing a real technician shortage. Now that you're in the field, what would you say to that student in tech school, community college or the military who is thinking about what to do next?**

**Lentz:** This is not an easy field. It is faced paced and you're going to be required to learn a lot of information very quickly. But, if you can cut it, it's very rewarding. □

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