Robotics247

SPECIAL FOCUS ISSUE
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How to Make Supply Chains More Robust with Robotics

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CONTENT CREATION

CONTENTS

EDITOR'S NOTE

With a new year comes new reasons to adopt or add automation. We've already seen supply chain disruptions from trade conflict, a global pandemic, and even a ship stuck in the Suez Canal. More recently, industry observers have cited chronic labor shortages and inflationary pressures as reasons for robotics. What will 2023 bring?

The bottom line is that warehouses and factories need to maximize efficiency. We've heard "resilience" as a potential benefit more and more, thanks to scalable fleets of mobile robots and software that can provide greater visibility into operations.

Businesses producing everything from electronics to groceries have moved from evaluating to deploying robots. However, they should still examine their processes, existing workforce, and prospective partners and suppliers with care.

This Special Focus Issue looks at examples of supply chains building flexibility with robotics. It may be early days for reshoring production, but robots and machine learning are increasingly designed to be easy to integrate with enterprise systems — and one another.

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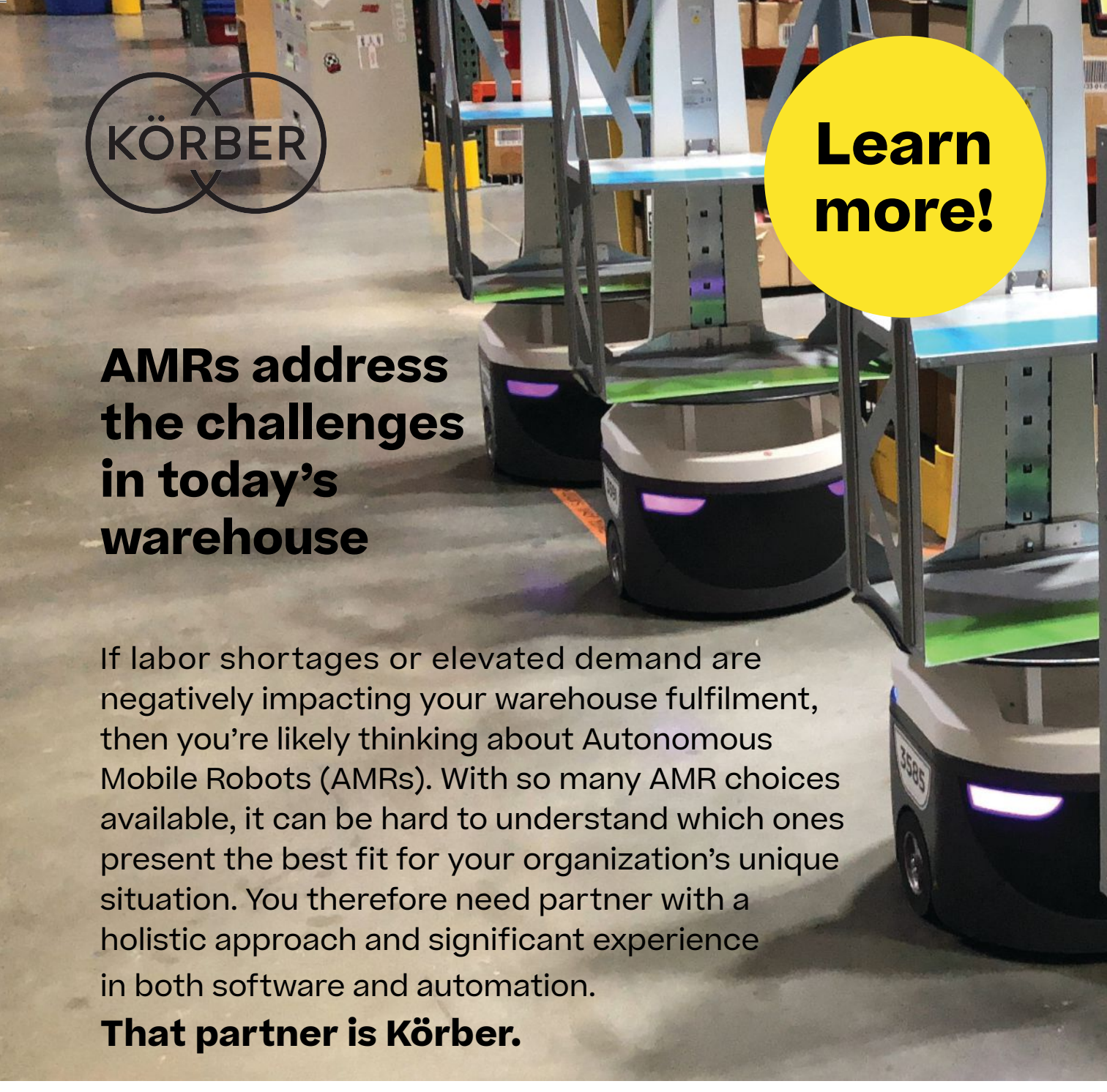

KÖRBER

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AMRs address the challenges in today's warehouse

If labor shortages or elevated demand are negatively impacting your warehouse fulfilment, then you're likely thinking about Autonomous Mobile Robots (AMRs). With so many AMR choices available, it can be hard to understand which ones present the best fit for your organization's unique situation. You therefore need partner with a holistic approach and significant experience in both software and automation.

That partner is Körber.

"We would not be able to keep up with volume, without the addition of the robots."

ISN EXPECT GROWTH

Theron Neese
Chief Supply Chain Officer

Read the case study:
https://tinyurl.com/7msc8dcb

"The Körber and Ariat partnership is focused around teamwork. Especially as one of our core values, we couldn't be happier to have Körber as a partner. They're focused on how we both grow together and how we make each other better and that is invaluable."

ARIAT®

Alyssa Brainard
Project Manager

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Automation Continues to Play a Key Role in Helping Businesses Build Resilient Supply Chains

OSARO offers robotic systems for bagging, induction, and piece picking. Source: OSARO

From AMRs and AGVs to robotic arms and automated storage and retrieval systems, automation is helping to increase flexibility and throughput.

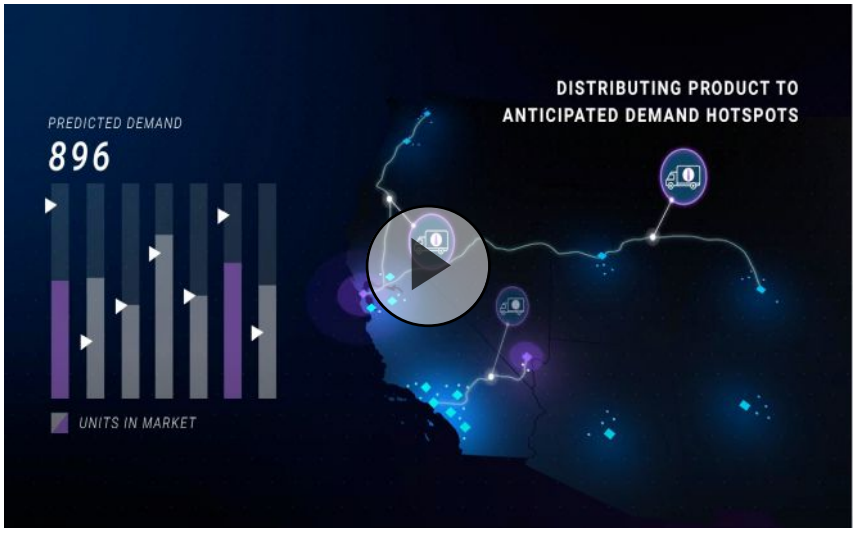
BY CESAREO CONTRERAS

Operators are turning to robotics to help transition away from just-in-time inventory management practices to more flexible supply chain operations.

Part of the move has been driven by the COVID-19 pandemic. With disruptions to the global supply chain, many manufacturers and distributors struggled to find adequate components, particularly in automotive and electronics.

Now, they are looking to have more parts on hand in cases of disruptions and to plan ahead.

Robotics suppliers said they can provide customers with greater tools that allow for more efficient onsite management and



predictive data analytics.

For example, Attabotics claimed that its products can help companies reduce their warehouse space requirements by 85%. The company makes automated storage and retrieval systems (ASRS) that allow customers to better take advantage of vertical space.

"This allows retailers to move their facilities to higher-density urban areas, usually your more expensive real estate, and getting that product closer to the consumer and reducing last-mile shipping," Sean Murphy, director of innovation at Attabotics, told *Robotics 24/7*.

The Attabotics System is made up of Attabots, small shuttle robots that can move bins up 16 in. in height and 100 lb. in payload capacity.

"Attabotics' scalable micro-fulfillment system condenses traditional warehouse aisles into a single, vertical storage structure," the company said in a recent release announcing the newest version of its Attabot. "Inside the structure, robotic shuttles move in three-dimensional space to store and deliver goods to workers on the perimeter that pick, pack, and ship modern commerce orders."

Murphy said Attabotics' system also addresses labor challenges and increases efficiency using software and data. The company has partnered with AltaML and the Alberta Machine Intelligence Institute to better take advantage of AI and machine learning. Using these and Internet of Things (IoT) technologies, the company said it can help customers better track and optimize their inventory.

"The just-in-time method of supply chain suffered the most," Murphy said. "Customers now have to think strategically about what they stock ahead of time."

Customers are increasingly taking "a data-first approach to their supply chains," he added.

Robotics firms partner up to satisfy U.S., global demands

To help meet automation demands as companies move production closer to home, they have formed local partnerships with systems integrators.

Addverb Technologies and McMurray Stern in November announced that they are working together to expand Addverb's market efforts in the U.S. McMurray, a warehouse automation systems contractor, will begin to sell Addverb's range of robots, including the Multi-Pro mother-child pallet shuttle, the Zippy guided sortation robot, the Quadron carton shuttle, and the Dynamo autonomous mobile robot.

Noida, India-based Addverb opened U.S. offices in Irvine, Calif., in September. In addition, the company opened a robotics research and development center in Fremont, Calif.

Luke Lee, Addverb's marketing head of America, told *Robotics 24/7* the company chose to partner with McMurray Stern because of its experience in the industrial automation market and "deep understanding of the storage needs in warehouses."

"We are bringing partners along to leverage their relationships, and they leverage our unique manufacturing capabilities and robots," he said.

SVT Robotics and OSARO

Inc. also recently announced that they had formed a partnership. SVT Robotics makes SOFTBOT, a robotics platform designed to help people install robots in their facilities. OSARO makes robotic piece-picking systems designed for e-commerce markets.

In a release announcing the program, OSARO said it and SVT have worked together to deliver better products to customers.

SVT has joined OSARO's new Partner Alliance program, which the company said it formed to "optimize every stage of a customer's purchasing and deployment process."

Founding members of the program include FANUC America, Pregis, and NSPG Global.

The value of collaboration

"OSARO is currently deploying its OSARO Robotic Bagging Systems in a production environment at Zenni Optical's e-commerce distribution operations in Novato, Calif.," the company said. "Each system includes a FANUC robot arm, a Pregis automated bagging system, and is installed with automation expertise from NPSG Global."

In a column published in *Robotics 24/7*, Matt Kohler, solutions director of applications at Bastian Solutions, explained the benefits of enabling various types of automated systems in a facility to communicate and interact with one another.

"By integrating piece-picking robots with the back end of an ASRS, experienced integrators can turn a goods-to-person (GTP) system into a highly efficient goods-to-robot (GTR) system," he wrote. "This fully automated solution can improve the speed and flexibility of custom order fulfillment while simultaneously reducing the amount of labor associated with order picking."

"In today's environment, this allows end users to allocate their workforce to more value-added services and improve job satisfaction and retention," noted Kohler. •

Cesareo Contreras *is associate editor at* Robotics 24/7.

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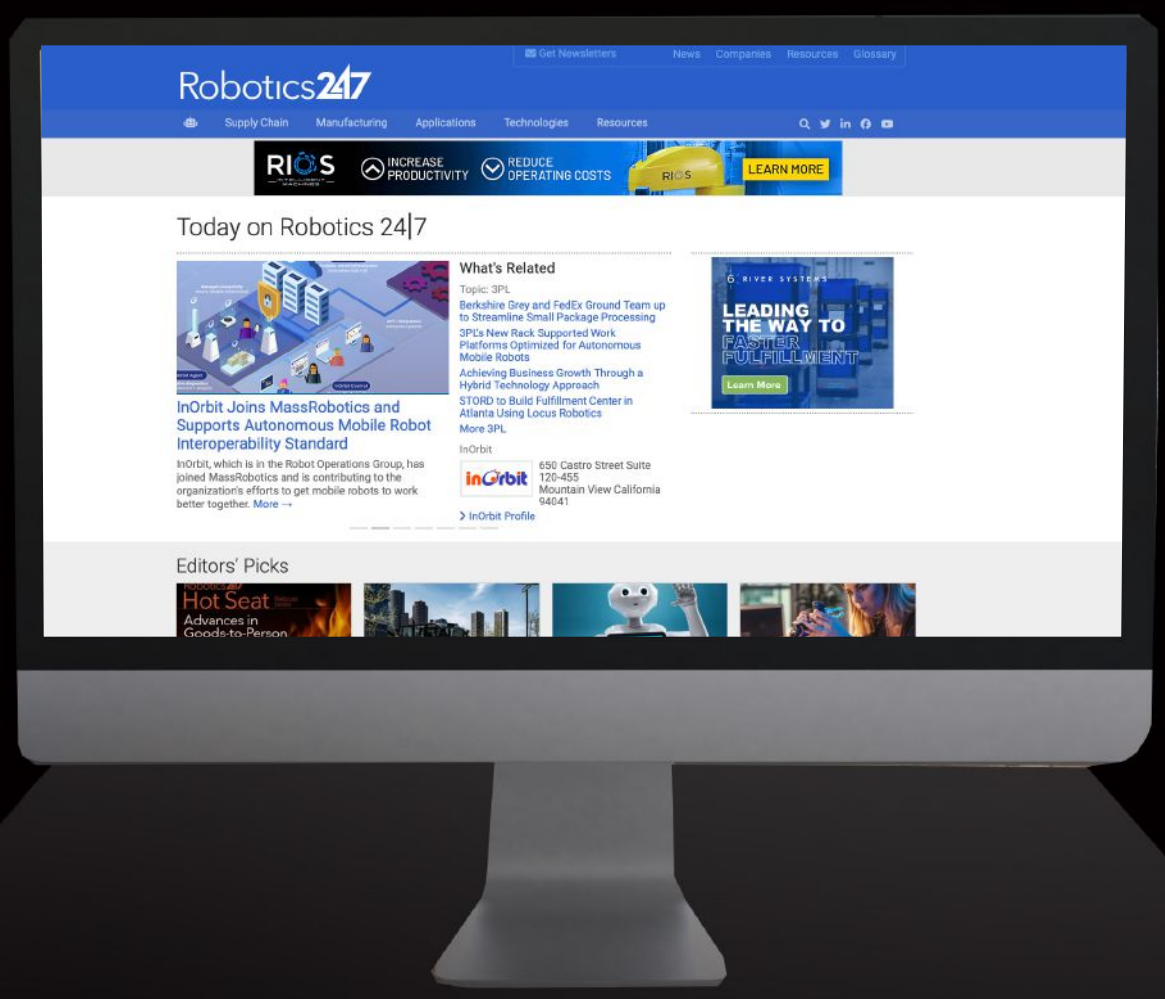

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Logistics Robots and AI Realize Visions of a More Robust Warehouse Ecosystem

Here are examples of how warehouses and distribution centers worked with technology providers to optimize their operations.

BY JIM ROMEO

HAI Robotics provided 100 robots to WINIT's warehouse in the U.K. Source: HAI Robotics

WINIT is a Shanghai-based, cross-border warehouse operator. It has deployed about 100 robots in one of its facilities in Birmingham, U.K. The logistics robots move around the 30,000-sq.-ft. warehouse without any confusion, helping workers pick and sort goods.

The HAIPICK A42 systems from HAI Robotics helped improve the efficiency with which goods are handled by nearly fourfold compared with manual work. The robots handle nearly 50,000 pieces daily, said the company.

Such gains are becoming more common as more warehouses and logistics settings adopt automation. Along with e-commerce fulfillment centers and huge distribution centers, warehouses are busier than ever since the height of the COVID-19 pandemic.

As the tempo of e-commerce increases, so has demand for supply chain efficiency and resilience. This is driving the development of smarter and more capable robots to move goods.

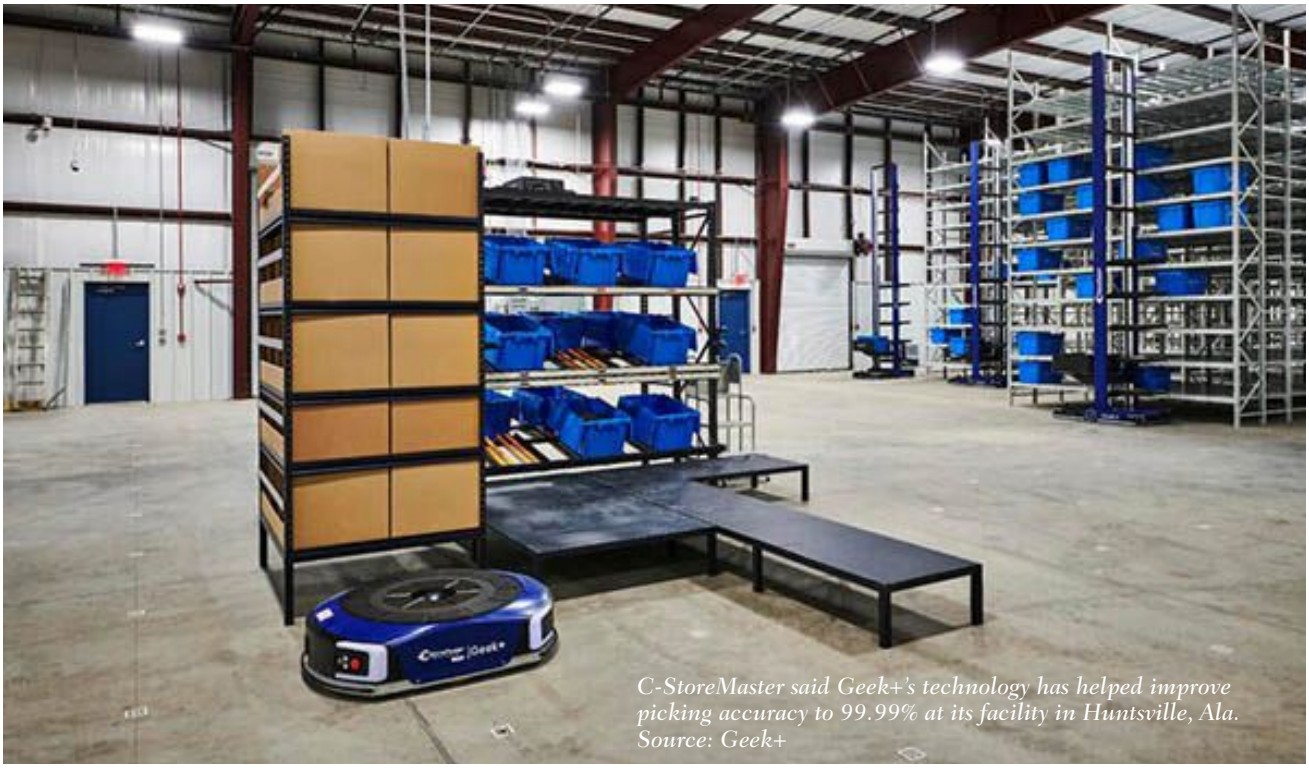
Logistics robot ecosystem builds

While some warehouses have automated, plenty still have not, according to research conducted by M14 Intelligence on the future of robotics in the warehouse.

"More than 80% of the warehouses today have no automation whatsoever," stated the analyst firm in mid-2021. "However, since last decade, about 15% of the warehouses are being mechanized, while only 5% are using sophisticated automation equipment and solutions. This brings immense market opportunities for the companies in the warehousing automation ecosystem."

M14 went on to say that it expected the market for warehouse automation to grow by a factor of 1.5 by 2025 and that it could reach $37.6 billion by 2030. The report calculated the compound annual growth rate (CAGR) between 2021 and 2030 to be about 10%.

"The adoption of autonomous mobile robots (AMRs), technology that eliminates significant nonproductive walking time in warehouses, has progressed from early-stage pilots about four years



C-StoreMaster said Geek+'s technology has helped improve picking accuracy to 99.99% at its facility in Huntsville, Ala. Source: Geek+

ago to multiple at-scale deployments today," noted McKinsey & Co. in an article about omnichannel solutions. "The application of robotics and all its accompanying technology is soaring."

Geek+ robots work in C-StoreMaster warehouse

C-StoreMaster specializes in tobacco and beverage products, servicing more than 4,500 independent convenience stores and over 6,000 chain stores throughout the U.S. The company recently opened a 130,000-sq.-ft. automated distribution center in Huntsville, Ala.

The warehouse is outfitted with more than 82 robots from GeekPlus Technology Co., which specializes in smart logistics. Though the robots do much of the work, the new center has created 30 jobs as C-StoreMaster rapidly expands its distribution network.

"To bring the first multi-level shuttle system of its kind in the country to Huntsville is a great accomplishment for our team," stated Sharan Kalva, president of C-StoreMaster. "Innovation has always been at the forefront of our business, and with this new warehouse, C-StoreMaster is set up for success for years to come."

C-StoreMaster partnered with Geek+ to incorporate three automation technologies in its new warehouse, improving picking accuracy to 99.99%. The company has tripled to quadrupled its picking productivity, according to Rick DeFiesta, executive vice president of sales and solutions at Beijing-based Geek+.

In the warehouse design process, C-StoreMaster was vigilant of employees and their routines within the warehouse. The robots needed to eliminate the need to walk long distances or lift heavy goods for order fulfillment.

Freed from having to walk miles per day, workers can now enjoy amenities in the new facility including a workout area, a pool table, a air hockey table, and a track.

AI provides the brains of the operation

Not only are different types of logistics robots with disruptive capabilities coming to market, but they are also being designed to be easier to use. In some cases, supply chain automation is almost self-serve.

The software powering logis-

tics robots increasingly involves complex algorithms to perform very precise tasks. The development of artificial intelligence can be quite challenging, but it can help robotics hardware adapt to unique warehouse environments and functions. After all, no two facilities are identical, even within a brand.

Recently, Cogniteam partnered with 634AI to further develop robotics AI and operational software. Cogniteam's Nimbus is a drag-and-drop platform to develop, analyze, and manage robot fleets in real time.

Nimbus contains a library of algorithms that enable robots to map, navigate, and make decisions autonomously, said the Petah Tikva, Israel-based company. The platform's plug-and-play feature allows operators to auto-configure the AI and expedite the time to using it in AMRs.

634AI, a subsidiary of SIXAI, developed MAESTRO, a proprietary, AI-powered, centralized "control tower" that harmonizes indoor operations. The Kfar Saba, Israel-based company said MAESTRO is part of its information management-as-a-service (IMaaS) offering, which allows for administration of essential operational infrastructure.

By effectively managing the delivery of services and data with AMRs and AI, respectively, warehouse operators can improve their safety and productivity, said 634AI. Cogniteam and 634AI said the combination of their technologies is suitable for logistics applications where the role of robots varies.

Nimbus helps expedite robot operations by supplying an ecosystem for development, deployment, and management with cloud connectivity. It melds well with MAESTRO, which is targeted at transforming industrial spaces, claimed the partners.

The unified and modular offering allows customers to coordinate the operations of anything mobile, said Cogniteam and 634AI. This includes real-time safety alerts for human-driven vehicles or navigating AMR fleets through busy warehouses.

Translating a vision with logistics robots

The addition of logistics robots will be instrumental to the success of many corporate strategies in the near term, particularly for retailers, according to McKinsey.

"Automation capabilities will play an influential role in the future size and scale of omnichannel networks," it said. "To successfully navigate the many choices for automation, retailers must have an informed perspective on where automation can create value, reduce risk, and improve reliability across an increasingly complex network of fulfillment nodes."

"Retailers should then use a three-step process—strategy, design, and implementation—to translate their vision into an optimal automated warehouse," McKinsey said.

"Lights-out" or fully automated warehouses are still a ways off. Developers, integrators, and users should keep the idea of translating their visions into optimal automated warehouses in mind as robots continue to spread and offer more robust operations. •

Jim Romeo *is a freelance writer and contributor to* Robotics 24/7 *based in Chesapeake, Va.*

FORTNA Robotics Head Discusses How Automation Can Help Handle Holiday Demand

Even if warehouses hadn't automated for the recent holiday rush, they should start identifying applications and partners now, says Stephen Dryer.

BY EUGENE DEMAITRE

After Black Friday and Cyber Monday comes the rush for holiday shipping. Automation offers fast and accurate e-commerce order fulfillment. Flexibility and addressing customer needs are key characteristics to look for in warehouse robotics, according to FORTNA.

Atlanta-based FORTNA was recently formed from the merger of materials handling systems integrator MHS Global and warehouse software provider Fortna Inc. The combined company said it offers customers technologies to "optimize operations in the face of continual upheaval."

Stephen Dryer, senior global product manager at FORTNA, discussed with *Robotics 24/7* how automation can help supply chains cope with peak demand.

ASRS and goods-to-person systems are among the options for e-commerce providers to handle peak demand. Source: FORTNA

COVID-19 continues to reshape retail

We saw a spike in e-commerce during the COVID-19 pandemic, but some activity has shifted back to brick-and-mortar retail. How does that affect retailers and warehouse operators?

Dryer: The trend of past 20 years has been toward more online and omnichannel activity; then COVID accelerated everything. I have spoken with many customers that had built their networks for three to five years, but that capacity got consumed within a few months.

Companies have a choice of more automation, expanded facilities, or networking to add capacity. Five to 10 years ago, they could just add

more labor, and three years ago, some customers still thought that labor pressures would subside.

Now, it's well-understood that that's not going to change. Labor is highly scarce. The need for automation is not going away.

Stephen Dryer, FORTNA. Source: LinkedIn

Have trends like reshoring of manufacturing increased, and what do they mean for supply chains?

Dryer: In the immediate term, customers can't follow a just-in-time model anymore. To rely on the warehouse or DC [distribution center] in a tight time frame means more storage capacity.

The micro-fulfillment trend is putting capacity closer to population centers and having a fast way of processing orders to consumers.

The shift from brick and mortar has changed dramatically since COVID. I recently bought a couch, and I went to a store to see and feel it. I went to get rung up, and the associate mentioned a configuration tool on the store's website.

I got on my phone and reconfigured the couch. The site told me to get some parts in store and others shipped. I got them bundled, which took a little longer. This is a good example of merging the online and in-store purchasing experience.

There are still some challenges—it needs to be more omnichannel, more dynamic. Retailers need to invest in software for both the front and back ends to give the same experience.

Competition for workers intensifies

What are the common holiday challenges facing warehouses and distribution centers? Has anything different emerged recently?

Dryer: One big thing I've been seeing is that there's more competition now for warehouse jobs and other jobs in the economy, making it harder to get people to do the seasonal work.

It's typically demanding work—heavy lifting, no temperature control, long hours. Once, you could expect a higher wage, but it's now competing with other service-type jobs that are a bit less taxing and more comfortable.

Now, there's a greater shortage of labor. I saw a sign at a fast-food restaurant that was offering a starting salary similar to that of a DC down the street—it's not sustainable.

Companies have to get more creative with how they hire. If they want to hold onto people, they need to offer more fulfilling work. This drives a greater need for automation.

Once in place, automation becomes a draw for talent, providing a better career path for those who want to develop their skills and widen their horizons.

Distribution centers drive demand

Are there any particular types of automation in high demand in distribution centers this year? Have new products helped with certain applications?

Dryer: We have quite a bit of chaos and randomness in warehouses and DCs that made them harder to automate in the past. Robots couldn't handle that variability.

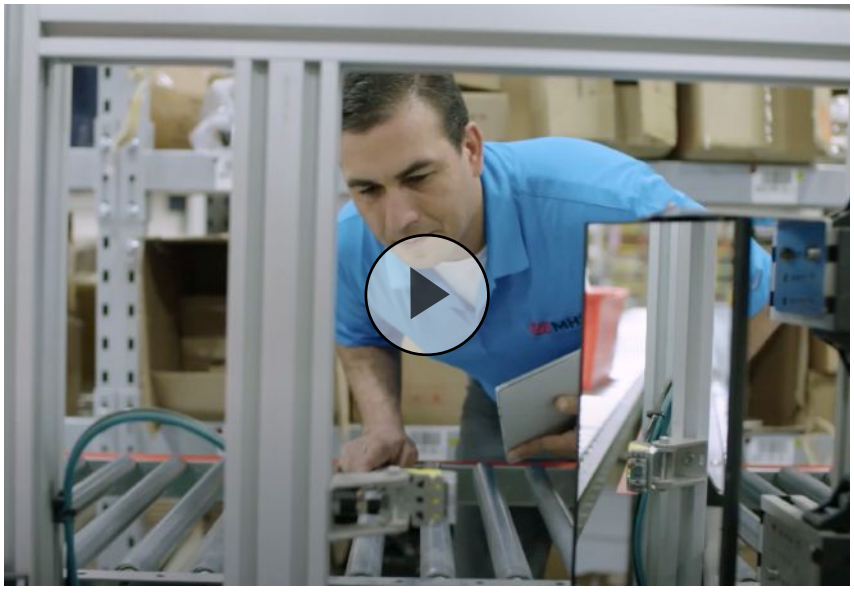
Better machine vision, grasping, manipulation, artificial intelligence and machine learning, and mobility make more possible today.

Some newer products in high demand are robots that fit within a defined task that a person would be doing. This includes collaborative robots and autonomous mobile robots [AMRs].

[At FORTNA], we're very familiar with induction onto sorting systems. Robots designed to fit in the same physical footprint as space people occupy today can help with ROI [return on investment] and the thought process of customers. They don't have to rebuild a facility or rethink workflows.

Induction is a task that's good by definition for robots. It's highly repetitive, mundane, takes four to eight hours, and doesn't require temperature control.

On the mobile robotics front, there has been a



large uptick over an extended period. "Low-hanging fruit" includes long-haul transport, point-to-point materials handling, ASRS, directed picking, and some goods-to-person [G2P] automation.

What is something that many warehouse operators don't yet know about the potential of robotics? Are there common misconceptions? What can go wrong?

Dryer: [At FORTNA], we think putting in a robot as a point solution is a bad approach. Rather than an island of automation, it should instead be considered as part of integrated solution, with upstream and downstream processes and coordination with other workflows in facilities.

To be successful, think of the bigger picture. As for educating the market, not all robotics applications have gotten through Gartner's "trough of disillusionment," but mobile robots are at the "slope of enlightenment."

While robots are ready for prime time, the market may not know they've arrived. For example, companies may not know about robotic induction or have had bad experiences in the past. This represents a challenge that robotics providers must overcome.

Another thing to keep in mind is that the latest robots are not traditional pieces of automation. They're not "set and forget." If they're bought as pure capex [capital expenditure], it's a massive missed opportunity. Robotics as a service [RaaS] is a more iterative approach and more of an opex [operational expenditure] play.

Software is the true enabler here. With machine learning opportunities, every time an advanced robot interacts with its environment, it should be getting smarter. You need a feedback loop to get the most out of automation.

RaaS and customer expectations

Speaking of RaaS, what do you mean—leasing, renting, etc.?

Dryer: RaaS can be configured in different ways. First and foremost, it could just be the software or vision portion of a solution. This is more of a SaaS, or software-as-a-service, play, in my opinion.

Alternatively, it could be the entire robot in an as-a-service model. It might be a mix of some capex and opex to minimize initial cash outflow and give visibility into ongoing costs. If you combine the full service of robots including replacement under a single fee, that is what I consider true RaaS.

Beyond this, there are opportunities for truly aligning business outcomes for both supplier and end user by pricing for productivity. That's ideal for maintaining uptime and meeting the increasing volume demands that are being placed on end users' networks.

How interested are your customers in RaaS? What capabilities are they looking for?

Dryer: We still see more of a preference for capex, but it's shifting to RaaS and moving performance enhancements out.

Among the common terms in service-level agreements is the rate of intervention or expectations for human-machine interaction. However smart they may be, robots won't be able to solve all problems, and there will be edge cases. We try to build in as much exception-handling intelligence as possible.

For example, for sorter induction, we do things

like pick confirmation. By checking orientation and oversize items, there's an opportunity to make a correction before the next stage.

In the same way, there are limitations due to physics. We've implemented reject mechanisms to remove items outside what the robot can handle. They're routed to manual workstations in a way that doesn't slow down the operation.

Last is human intervention, which we try to minimize even further by giving remote access to robots. With remote access, technicians can often give robots a nudge in the right direction, allowing them to get back to autonomous operation.

If all that fails, an alarm is thrown, and a person on site must help. We set up our solutions so exceptions are handled in the best possible ways.

AMRs offer scalability and are proven in distribution centers, according to FORTNA. Source: FORTNA

Looking ahead to flexibility, FORTNA goals

With supply chain challenges, interest has risen in micro-fulfillment centers and bringing inventory closer to consumers. How can robots enable this?

Dryer: Robots are integral. Using mobile robots integrated with lifts for case and tote storage and retrieval on traditional racking—this approach is very open-ended and flexible. It allows for scaling, and there's no single point of failure. It's ideal for customers that don't want to make massive upfront investment but want to scale.

There's also picking with configured ASRS and micro-fulfillment systems, combined with other automation for fulfillment out to the shipping operation. There are a lot of opportunities in that whole workflow to automate.

Operators should also think about what's appropriate to automate from Day 1, which is different from two to three years down the line. What's the minimum level of automation that makes sense upfront? Then design for growth.

While things are working decently as of today, natural, economic, or geopolitical crises are never far away. Therefore, supply chains cannot be allowed to continue to be brittle.

As the new robotics lead at FORTNA, what are some of your goals?

Dryer: My goal to articulate the value of robotics. Many operations are manual today, but there are lots of low-hanging fruit that can make a short-term impact for lots of our customers.

Beyond that, I'm focusing on answering difficult challenges in the market, such as labor challenges, with solutions that enable more efficient, more flexible operations. In the long term, the dream of every product manager in robotics is a completely lights-out operation. It's a ways off, and there are a lot of steps between now and then.

The marriage between MHS and Fortna is working well. MHS brings a lot of product capabilities and experience on the parcel side. Fortna has great software, distribution, and fulfillment experience and scale. This puts the combined entity in a good position to grow in North America and other geographies.

THL [Thomas H. Lee Partners L.P.] and the Abu Dhabi Investment Authority [ADIA] have a

strong desire to invest in and build our product portfolio—robotics is a big part of that, along with software and enabling technologies.

Prepare now for next season, returns

When should warehouses and DCs begin peak season preparation? What can they do in the shorter term? And what requires more time?

Dryer: It has to start with the initial system design. It should be done with someone with deep experience in solutioning, what systems need over their lifespans, planned out over years. It's important to find a partner and get going.

We've got COVID in our collective memories, but more challenges are looming on the horizon. Supply chains need to build in flexibility with robots and decrease reliance on manual processes.

Facilities should also leave room for more robots in the future. While lots of applications are beyond robot capabilities now, there should be placeholders for future automation.

There are a lot of areas—such as receiving and shipping—where consideration could be given to pulling a person out and putting a robot in, doing things differently in terms of layout. In the shorter term, we can do an evaluation of customer operations and develop solutions to suit.

How much can robots help with returns?

Dryer: That problem is not getting any smaller. Most facilities make money by getting product out the door, but some business models are set up with the intent that customers will send back a significant portion.

We've worked on that problem. Our approach is to use a combination of mobile robots and routing software. We've made progress on that front, developing systems for fluid loaded trailers.

They include conveyors inducting items into the building, diverting to mobile robots that move at the pace of what's being received, and moving items to workstations for processing.

In this example, there's no hardened conveyance between receiving and returns processing, providing a great deal of flexibility in how items are routed. There's also no single point of failure. The system can handle disruptions, which is ideal for larger items or high-value electronics.

This is not groundbreaking; it's just putting together existing tech into new workflows and orchestrating the moving parts with best-in-class software and machine control. •

Eugene Demaitre *is editorial director of* Robotics 24/7.

Hawesko and IWL Build Agile Omnichannel Fulfillment With Mobile Robots From Korber

A leading German wine retailer met growing customer requirements by implementing robotics to optimize picking performance and C-parts handling

BY ROBOTICS 24/7 STAFF

The Hawesko Group claimed that it is Germany's largest trading house for high-quality wines and champagnes. It needed to respond to significant e-commerce growth and customer expectations for a seamless digital and physical shopping experience. The company and its Internationale Wein-Logistik GmbH, or IWL, logistics subsidiary are investing in the optimization of their intralogistics processes.

In the next eight months, Körber plans to implement a scalable system including autonomous mobile robots (AMRs) that is fully harmonized with IWL's warehouse management system (WMS). The goal is to improve the agility and flexibility of processes at IWL's center in Tornesch, Germany.

"The preference for online retail has steadily increased over the past decades, forcing companies to invest more heavily in e-commerce than in brick-and-mortar retail," explained Michael Brandl. He is executive vice president for European, Middle Eastern, and African (EMEA) operations software at Körber Business Area Supply Chain.

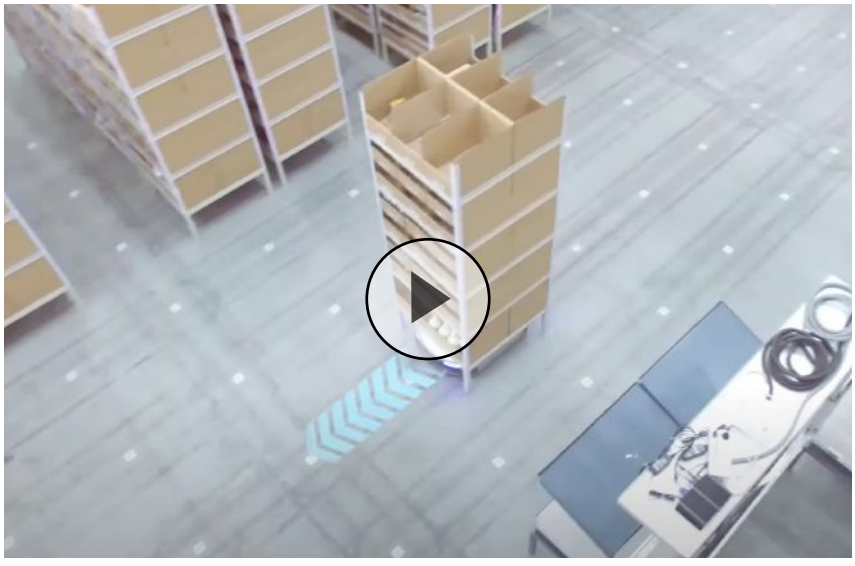
Korber has combined supply chain software and robotics by bringing together a total of 35 AMRs, 440 racks, and five workstations for IWL.
Source: Korber Supply Chain

"Following the pandemic-induced record year of 2020 with online sales of between €80 billion and €88 billion [$84.3 billion to $92.7 billion U.S.] in Germany, this trend is set to continue, according to a projection by the Center of Research in Retailing," Brandl said. "Sales of at least €120 billion [$126.5 billion] are expected in German online retail by 2024."

Hawesko needs to move volume of wine

The Hawesko Group achieved sales of €681 million ($717.8 million) and earnings before interest and taxes (EBIT) of €53 million ($55.8 million) in 2021. The company employs around 1,200 people across the retail (Jacques' and Wein & Co.), business-to-business (Wein Wolf, Abayan, and Grand Cru Select) and e-commerce (HAWESKO, Vinos, and WirWinzer) segments.

The shares of Hawesko Holding SE are listed on the prime



standard segment of the Frankfurt Stock Exchange in addition to the Hanseatic Stock Exchange in Hamburg. In Tornesch, IWL handles around 25 million bottles of wine and 600,000 gift packages each year.

Due to the expected growth in e-commerce, the logistics service provider opted for technology that will support further company growth and efficient handling of short-term, seasonal fluctuations at the same time.

Körber integrates robots, software for IWL

As supply chains grow more complex by the day, Körber said it provides a "broad range of proven, end-to-end supply chain solutions fitting any business size, strategy, or appetite for growth." The Hamburg, Germany-based company said its portfolio includes software, automation, mail and parcel systems, voice technology, robotics, and materials handling systems – plus the expertise to tie it all together.

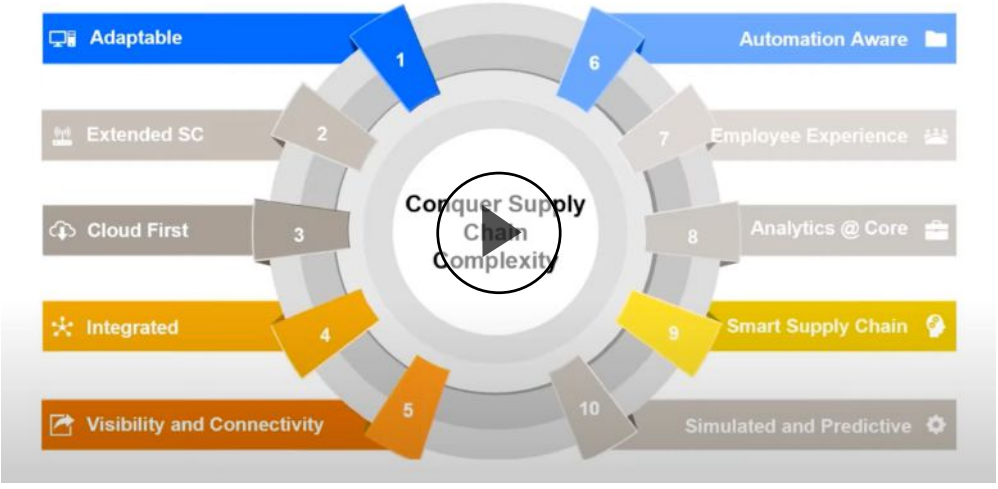
Körber Supply Chain's deployment for Hawesko and IWL combined supply chain software and robotics by bringing together a total of 35 AMRs, 440 racks, and five workstations. To optimize fulfillment at the end of the second expansion stage, Körber is integrating 21 AMRs from trusted partner Geek+, along with the Körber Unified Control System (UCS).

Through this combination of WMS, AMRs, pick-by-light systems, and the UCS, the company said the efficiency and quality of IWL's logistics processes will significantly improve. The integrated system can also bring the performance of C-parts logistics up to the level of A- and B-parts, said Körber. Picking performance alone is more than doubled, it added.

"The potential of C-parts logistics is often underestimated because the focus is on A and B parts," noted Brandl. "Yet C-parts now have a strategic importance for customer experience and retention, as well as the entire process from ordering to delivery."

With this launch, IWL is building on its previous successes. Since 2006, the company has relied on a logistics ecosystem based on the K.Motion WMS.

"Körber's innovative supply chain solutions run on a unique platform that allows us to quickly adapt our distribution processes, support the buying process, and provide a seamless omnichannel experience for our customers," said Frederick Paulsen, head of IT at IWL. •



Tecsys Partners With SVT Robotics to Deliver Warehouse Management and Robotics Integration

Tecsys said its Elite software will include plug-and-play automation connectivity to make it easier to automate warehouses.

BY ROBOTICS 24/7 STAFF

Tecsys Inc. last month said that it has partnered with SVT Robotics Inc. to develop and launch an "out-of-the-box" integrated connection between its Elite supply chain software and SVT's SOFTBOT platform. The company said the integration will provide its customers faster deployment and lower complexity without the need for lengthy custom code development often involved in multi-system automation and robotics deployments.

"A company's automation strategy and equipment should be tailored to their specific use case, never throttled by the software, and that is exactly what this SVT partnership makes possible through rapid integration," stated Peter Brereton, president and CEO of Tecsys.

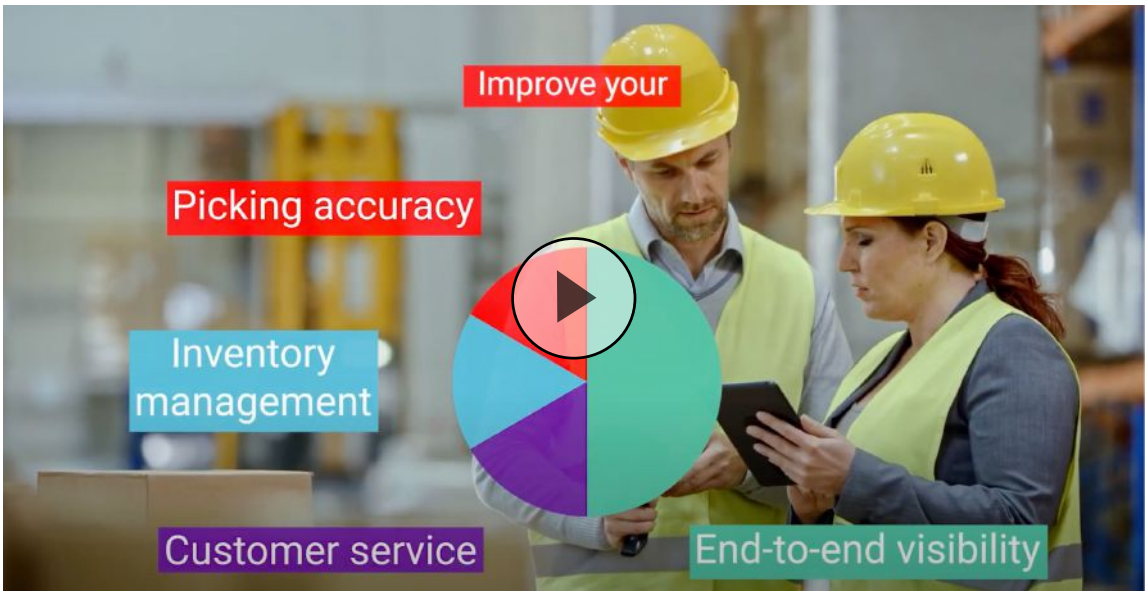
"We want to give Tecsys customers native plug-and-play robotics integration capabilities today and into the future as this warehouse automation market evolves so that they will be ready to deploy the technologies they need to remain competitive," he added. "SVT's SOFTBOT Platform will enable flexibility and freedom in a quickly developing industry."

SVT Robotics' SOFTBOT now integrates with Tecsys' WMS to facilitate warehouse automation. Source: SVT Robotics

Montreal-based Tecsys provides supply chain management software for complex, highly regulated, and high-volume industries including healthcare and e-commerce. The company offers systems for warehouse management, distribution and transportation management, supply management at point of use, order management and fulfillment, as well as financial management and analytics.

Tecsys and SVT Robotics team to accelerate adoption

Bringing automation into a warehouse should begin with a needs



assessment and design plan, which then informs the selection of hardware to meet those needs, asserted Tecsys. While some software vendors operate as automation resellers for a limited set of systems, Tecsys said its partnership with SVT empowers supply chain organizations to assess, design, and integrate across a wide spectrum of automation options.

The result is a warehouse operation powered by end-to-end warehouse management system (WMS) functionality and easily automated workflows using today's most innovative technologies, said the companies.

"Automation is becoming more important to power supply chains of the future, so it's critical those technologies are connected to a solid WMS with core warehouse management functionality," said A.K. Schultz, founder and CEO of SVT Robotics. "The pre-built integration that Tecsys and SVT are developing connects to top-tier automation from leading providers, enabling Tecsys customers to customize and then rapidly deploy the specific automation they need today."

SVT Robotics provides enterprise software for robot deployments in the warehousing and manufacturing industries. The Norfolk, Va.-based company said its SOFTBOT platform to integrate robots, automation, and Internet of Things (IoT) devices in just days or weeks.

SVT has partnerships with automation providers including 6 River Systems, Fetch Robotics (now part of Zebra Technologies), Locus Robotics, Mobile Industrial Robots, OMRON, and OTTO Motors. •

OMRON Opens New Automation Center in Singapore, Uses Open Robotics' RMF Interoperability Standard

OMRON has opened five other automation centers in Asia-Pacific

BY ROBOTICS 24/7 STAFF

OMRON has opened a new automation center that will cater to the logistics industry in Singapore, South-East Asia, and Oceania. The center will use Open Robotics' Robotics Middleware Framework, or RMF, and will have interoperability with "complex and heterogenous multi-robot systems."

"This is an important step toward enabling stronger and seamless human-machine collaboration, where mobile robots, using natural or existing infrastructure, perform autonomous movement of goods (handling, moving, and storing warehouse assets) as they work alongside humans," the company said.

OMRON working to address Asia-Pacific needs

Kyoto, Japan-based OMRON said it will work with its industry partners in robotics and automation in the new center to address some of the biggest logistics challenges facing Asia-Pacific, including labor scarcity, limited space, and supply chain disruptions. The company said it will leverage its technology to help the area stay resilient.

"The move indicates a big leap for OMRON towards realising our vision of "Enriching the Future for People, Industries and the Globe by innovative-Automation" through expanding the presence and reach of OMRON automation centers in niche but growing industries," said Junta Tsujinaga, OMRON managing executive officer.

"Our long-term vision—Shaping the Future 2030 (SF 2030)—takes into account the dynamic, diversified, and complex world of manufacturing led by Industry 4.0 and digitization," he

OMRON's AMR lineup. Source: OMRON

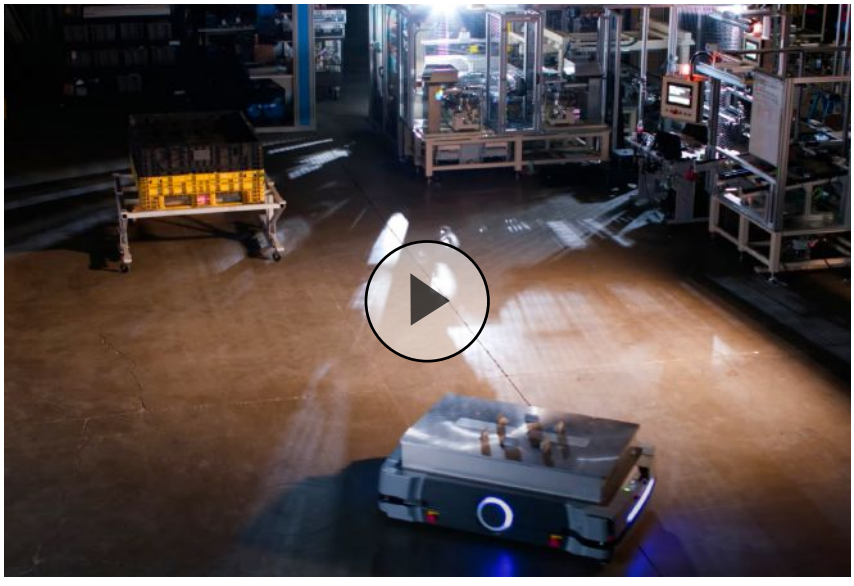
added. "With the region's diverse knowledge and maturity levels in automation, we believe that our unique capabilities based on human-machine harmony and collaborations with like-minded organisations will enable the evolution of technologies to realise the transformation of the logistics industry to Logistics 4.0 and more warehouses being automated."

New center features cobots and AMRs

The center will be used for fulfillment and feature collaborative robots and mobile robots that will be used for 3D-vision-guided pick and palletize solutions.

The Singapore center has multiple robots. Source: OMRON

"The logistics industry across Singapore and many more countries of Asia Pacific continues to experience unprecedented growth despite many challenges," said



Don Teng, manager of OMRON Asia Pacific. "I believe that a dynamic and resilient supply chain is one of the most important requisites for the region to stay globally competitive and future-ready," Teng continued.

"OMRON Automation Center Singapore for Logistics will enable players in Asia Pacific to test, develop, and deploy innovative automation solutions to revolutionise workflows and streamline operations, that will act as a big driver to their future growth," Teng added.

With the launch of the new center, OMRON also announced that it working the ROS-I Consortium to "facilitate the incubation and development of capabilities and applications that leverage the Robotics Middleware Framework." The consortium is managed by A*STAR's ARTC(2).

OMRON partner with A*STAR for RMF development

"The partnership also aims to develop common standards for robotics and automation that can be applied globally leveraging OMRON's custom mobile robot solutions and use the center as a test-bedding facility to model the RMF in logistics," the company said.

"We look forward to working closely with OMRON in leading the adoption of the framework in the logistics industry, while encouraging implementation at scale for the industry and other cross-sectorial applications," said Dr Wong Chow Cher, assistant chief executive, ARTC, A*STAR.

This is OMRON's second automation center in Singapore, sixth in Asia-Pacific, and thirty-eighth worldwide. •

FORTNA Emerges From MHS Global and Fortna Merger for Materials Handling Automation, Integration

FORTNA claimed that it is a global leader in "transformative omnichannel and parcel distribution solutions."

BY ROBOTICS 24/7 STAFF

FORTNA said its software, services, and tools can optimize distribution operations. Source: FORTNA

In April, MHS Global, a materials handling automation provider and systems integrator, and Fortna Inc., a warehouse distribution software provider, announced their intention to merge. The combined entity later said it will be known henceforth as FORTNA.

The former MHS and Fortna said they combine decades of experience in the design, development, and delivery of omnichannel and parcel distribution solutions. The Atlanta-based company claimed that it gives customers "a uniquely versatile end-to-end path forward to optimize operations in the face of continual upheaval."

FORTNA said it has the scale and capabilities to help customers and partners meet increasing consumer demands as they face continued supply chain disruptions and other challenges. The company claimed that it works with leading brands to "transform omnichannel and parcel-distribution operations."

FORTNA brand represents supply chain resilience

"The decision to retain the legacy Fortna name was the result of careful consideration," stated Rob McKeel, CEO of FORTNA. "We chose the name FORTNA not only for the great reputation the name already has in the market, but [also] because of the strength and resilience embedded within it."

"The notion of fortitude, of resilience and strength—it speaks to what our customers need in today's climate and what they can expect from our partnership – the ability to weather the ever-changing market conditions and come out thriving," he added.

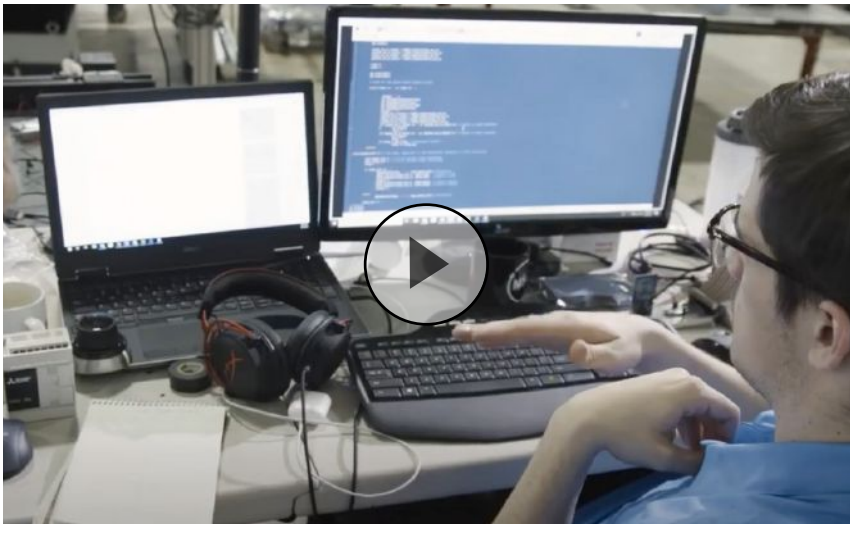
FORTNA said it designs and delivers systems, powered by intelligent software, to optimize fast, accurate, and cost-effective order fulfillment and last-mile delivery. The company said its staff, innovative approach, and proprietary algorithms and tools can ensure optimal operations design and material and data flow.

Automation part of combined capabilities

In addition, FORTNA offers network strategy, distribution center design and implementation, materials handling automation, robotics, and a suite of lifecycle services.

"At the end of the day, our customers need to know they are ready for anything," said McKeel. "That means operations that run at the speed of change—and the intelligence to anticipate what is next. We are thrilled to be able to provide the ability for our customers to create scalable, cost-efficient operations through automation."

Customers will increasingly see the new FORTNA brand as it is rolled out globally over the coming weeks and months, said the company. It said customers will be able to improve performance thanks to the combined capabilities of two industry-leading omnichannel and parcel distribution solutions providers. •



Gap Inc. Includes Automation in New Texas Facility to Execute on E-Commerce Strategy

Gap Inc. opened its new facility in Longview, Texas, in August 2022. Source: Gap Inc.

Gap's new Customer Experience Center will serve customers in the Southwest and provide another node for distribution.

BY BOB TREBILCOCK

In late August, Gap Inc. opened its newest Customer Experience Center in Longview, Texas. The 850,000-sq.-ft. distribution center is dedicated to e-fulfillment for Old Navy in the Southwest and is part of Gap's continued focus on enhancing the quality of its customer service.

Earlier last summer, the San Francisco-based retailer expanded operations at its facility in Fishkill, N.Y. It added automated receiving, multi-level pick modules, enhanced returns-processing capabilities, and more.

The Texas facility brings the number of U.S. e-commerce fulfillment centers to seven, plus an additional distribution center in Canada. They include facilities in Fresno, Calif.; Columbus, Ohio; and two in Gallatin, Tenn.

Modern Materials Handling (a sibling site to *Robotics 24/7*) previously covered Gap's approach to the holiday rush and ongoing focus on supply chain resilience.

Gap includes robots in new facility

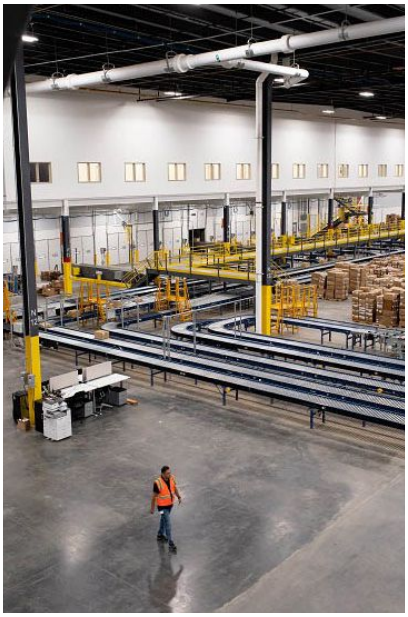
At the grand opening, Kevin Kuntz, head of supply chain at Gap Inc., noted that the Longview facility will have the capacity to process an additional 1 million units per day, or roughly 250,000 to 280,000 orders, for a total of more than 4 million units per day during this year's peak season.

In a later interview, he said the facility includes technologies that have long been part of Gap Inc.'s stack, including mini-loads and shuttles for automated storage, Kindred.ai robotic putwalls used to aggregate multi-line orders, and robotic storage and retrieval from Exotec to optimize returns handling.

Kuntz added that the retailer recently completed a pilot with Boston Dynamics' Stretch robot for automated trailer unloading in Fishkill and has ordered its first two units to be deployed in Gallatin. "We're going to start with trailer unloading," he said.

Adoption inches to dark facilities

Now, two units in one facility may not sound like a lot. But Gap Inc. started with just a few Kindred.ai robotic putwalls in Gallatin during the 2017 holiday season. Less than five years later, there are more than 240 units at work in multiple facilities across its network.



The new Texas facility builds on processes and technologies the retailer has honed across its network.
Source: Gap Inc.

Similarly, Gap launched Exotec in Gallatin and is now deploying that technology across its network. Kuntz expects to follow a similar playbook with the Boston Dynamics technology.

While retail distribution centers will likely still rely on people for years to come, Gap's growing portfolio of robotics "is inching us closer to a 'dark' environment," Kuntz said.

Innovation takes time, dedication

Why is Gap Inc. successful at adopting new technologies when other companies often struggle to innovate? Kuntz's first answer was that innovation isn't always a home run.

"People hear about the things that work," he said. "They don't hear that we pilot a lot of things that don't work."

Still, Kuntz said, the key to success is quickly identifying whether a technology can be integrated into the flow; creating a team that believes in the technologies that do move forward; and then having the organizational patience to move slow, learn, and improve.

"When we put in our first shuttles from TGW, it wasn't easy because we were going from 100% human control to managing 44 shuttles," he said. "The first three months weren't easy, but our organization is really good at change management, and we were able to adapt the management of our flow to meet the need."

Gap's experience with robotics also illustrates how this space is evolving. Kuntz noted that the first foray with Kindred involved fixed robots that did one thing. For now, Exotec's robots are being used to process returns. However, the technology is mobile and could be applied to other processes.

Mobile robots offer greater flexibility than fixed, rigid systems. While Gap is just getting started with Boston Dynamics for trailer unloading, Stretch is also mobile.

"Today, we're going to use them for inbound, but in the fu-

ture, it might be outbound," said Kuntz. "The processes aren't that different."

Texas center to offer platform and logistics services

The new Texas facility will serve as an important node to service the Southwestern U.S. as Gap Inc. continues to work on its on-time delivery, especially during peak.

"We call our facilities 'customer experience centers' for a reason," Kuntz said. "We're working on bringing our delivery times down, especially during peak season."

And while the facility was built for Old Navy, other brands may be introduced into the mix if the need arises.

Along with filling a gap in Gap's distribution strategy, the facility also adds a distribution node for GPS Platform Services. The company plans to share with retailers the expertise and capabilities it has developed over the decades.

The Texas center also adds another fulfillment node for the new Logistics-as-a-Service program that Gap will begin offering to other retailers, especially smaller brands and startups. GPS Platform Services by Gap Inc. will offer e-commerce and business-to-business services, storage and warehousing, parcel shipping and returns processing and post-purchase experience.

It is part of a trend identified by Accenture and American Eagle Outfitters in *Supply Chain Management Review* (another *Robotics 24/7* sibling site).

"We will use our existing network, intermingling with our own freight and our own building," Kuntz explained. "We can offer a single node if they're a smaller retailer, or we can offer multiple nodes and move orders for multiple brands if they want to do that. We already service four huge Gap Inc. brands and segregate and segment that data."

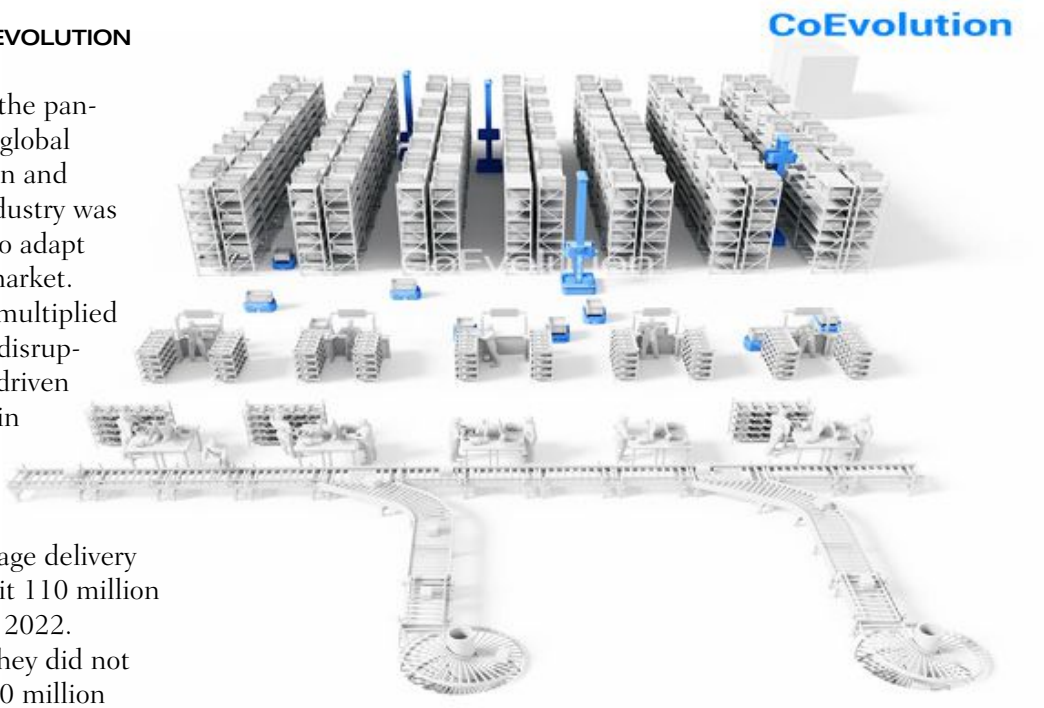
"We think it'll be game-changing for some of these brands that are struggling with fulfillment," he added. "Who better than someone that already owns and understands retail fulfillment? It's a unique opportunity." •

***Bob Trebilcock**, editorial director at* Modern Materials Handling, *has covered materials handling, technology, logistics and supply chain topics for nearly 30 years.*

How Smart Software Can Reduce Logistics Challenges in Robotics

There are benefits to connecting mobile robots through orchestration.

BY LIJUN ZHU, COEVOLUTION



Even before the pandemic, the global supply chain and logistics industry was struggling to adapt to a fast-changing market. COVID-19 merely multiplied the chaos. Current disruption is in large part driven by runaway growth in package delivery.

According to FedEx, the U.S. domestic package delivery market is likely to hit 110 million packages per day in 2022.

Pre-pandemic, they did not expect to exceed 100 million daily packages until 2026. A huge amount of this growth is driven by e-commerce; data from Statista shows that U.S. e-commerce retail revenue will grow from $768 billion in 2021 to $1.3 trillion in 2025.

Mobile robots are one way for logistics companies to deal with this growth challenge, especially in the face of a seemingly never-ending labor shortage. That's because the mobile robot market has "matured" in the sense that mobile robots are now cheap, capable, and reliable, meaning that mobile robot sales are rocketing.

Research from market insights firm Interact Analysis showed that global mobile robot market revenues grew by 20% in 2020. That year, at the height of the pandemic, nearly 60,000 mobile robots were shipped – an increase of over 25% on 2019.

The problem for warehouses is that most mobile robot set-ups are designed to do a limited set of tasks in a warehouse and, as warehouses add more robots, they are reaching the limits of possible efficiencies with current technology. What is needed is a way to seamlessly integrate robots from different vendors into a unified solution.

The birth of intelligent logistics solutions companies

This need has created a new breed of company: I call them *intelligent logistics solutions* companies. These companies create software that orchestrates fleets of different kinds of robot, getting them to work together in a warehouse even though they use different operating systems, and also using artificial intelligence and machine learning to react swiftly to changing demand

without the need for human intervention.

Such solutions offer high value for logistics managers because they use less warehouse space, allow scarce workers to be redeployed into higher value work, and – crucially – enable the system to automatically adapt to sudden changes.

My e-commerce journey began at Amazon in the U.S., where I used my skills in mathematics to optimize supply chains. It was while working at Amazon that I realized shipping is the biggest cost for many online retailers. I also realized that most of the continuous improvements were coming from the hardware side. What was lacking was the sophisticated software to make different hardware work together more efficiently.

Advanced software allows automation flexibility of a type that has never been possible until now. One option it enables is the integration of mobile robots from different vendors, meaning that full workflow automation solutions suddenly become feasible. This allows logistics companies to choose robots from any vendor. The most sophisticated intelligent logistics software uses a double-layered solution.

The first layer

The first layer is a robot control system (RCS) that can communicate with multiple types of robot and can therefore orchestrate fleets of them to work efficiently and cooperatively. It's a simple concept, but it's technically hard to do. One of the big problems is the unforeseen situations that arise in warehouses. How will the RCS respond if a robot finds its way blocked by something that has fallen off a shelf, for example?

It's crucial to design systems to be aware of the gritty details that arise in the real world. The key is not only to anticipate and plan for unforeseen situations, but also not to over-complicate. The result should be a robust system that keeps functioning smoothly regardless of what happens. Models should be based on a bunch of assumptions, and have flexibility so that, if one or two assumptions break down, the system still works.

The second layer

The second layer is made up of tailored solutions for warehouses in different industry sectors, such as cosmetics or consumer packaged goods. Companies usually have their own warehouse management system (WMS) which has bespoke functionality tailored to the customer.

The data from such WMSs can be harnessed to adapt the robot control solution to meet specific customer needs. It's not about changing the customer's system. It's about tailoring the robot control solution for individual companies, and it involves the software provider spending lots of time working with warehouse staff.

A future vision

I believe there will be enormous demand for logistics software that can orchestrate robots from different vendors. In fact, one of the main things holding the industry back right now isn't a technical barrier, it's simply a lack of awareness in the market about what this technology can do. •

***Lijun Zhu**, CEO, founded Co-Evolution, a provider of intelligent logistics solutions, in 2019.*

Reshoring Is at Risk from Global 'Education Gap' in Automation, Finds ABB Survey

Eight in 10 education professionals say that robots and automation will shape employment over the next 10 years.

BY ROBOTICS 24/7 STAFF

ABB Robotics is investing in education to enable reshoring of production to the U.S. and Europe. Source: ABB

With trade conflicts, the COVID-19 pandemic, and ongoing supply chain and labor challenges, North American and European enterprises have considered reshoring or near-shoring operations to build resilience. However, a significant "education gap" exists in the skills needed for reshoring and automation to succeed, according to a global ABB survey.

"The world is constantly evolving—businesses are shifting existing structures and adopting new technologies to future-proof their operations for a variety of challenges and uncertainties, with robotic automation playing a key role," said Sami Atiya, president of ABB Robotics & Discrete Automation.

"We need significant investment in continuous education to prepare our existing and future workforce to thrive in an age of robotics and automation, important not only to prepare for the widespread shifts we are seeing, but to create prosperous societies going forward," he added.

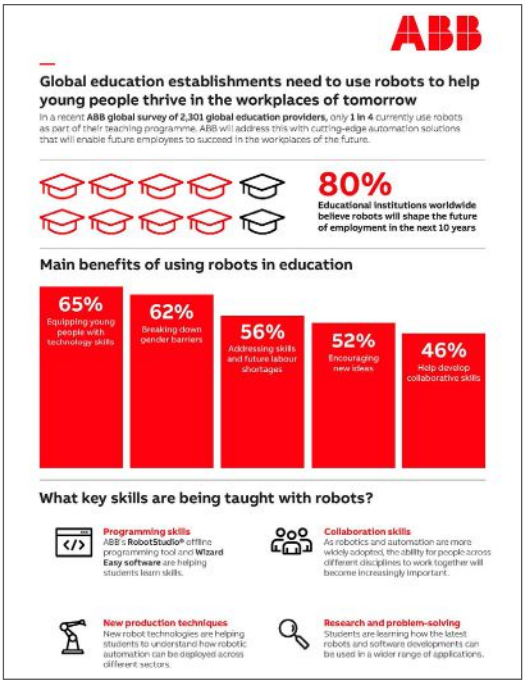
ABB Robotics & Discrete Automation is a unit of Zurich-based ABB that provides robots, industrial automation, and digital services to industries including automotive, electronics, and logistics. The company said it has shipped more than 500,000 systems to customers of all sizes as it supports their transition to the connected and collaborative factory of the future. ABB Robotics employs more than 11,000 people at over 100 locations in more than 53 countries.

Execs expect more reshoring, surveys find

ABB conducted supply chain and education surveys last year. Its survey of business leaders revealed that 74% of European and 70% of U.S. businesses are planning to reshore or or near-shore operations in response to labor shortages, the need for a more sustainable global footprint, and global uncertainty.

The majority of these businesses viewed automation as the enabler of operational shifts, with 75% of European and 62% of U.S. businesses surveyed planning to invest in robotics and automation in the next three years, said ABB.

Despite reshoring and grow-



Click on infographic to enlarge. Source: ABB

ing demand for automation, ABB said its 2022 global education survey found a significant gap in the education and training needed to ensure the skills necessary for work in increasingly connected and automated workplaces.

Of the global education professionals surveyed, 80% said they believe robotics and automation will shape the future of employment in the next 10 years, while only one in four education institutions currently use robots as part of their teaching programs.

ABB invests in education programs

To help bridge the skills gap, ABB has bolstered its global Robotics and Automation education program with new training centers, including its €100 million ($100.16 million U.S.) global innovation and training campus in Austria. The new site, along with other new regional training centers in the U.K., Berlin, and Brazil, expands ABB's training facilities to over 40 sites globally.

The sites each year educate more than 30,000 students from schools, colleges, and universities, as well as apprentices and workers, said ABB. The company added that they complement its existing educational offering, which consists of software packages, its Wizard Easy programming, the RobotStudio and RobotStudio AR Viewer App.

ABB also offers hardware in the form of collaborative robot cells and application packages. Through more than 100 global partnerships with schools and universities, ABB generates curriculum materials with education providers to help educate future generations and prepare them for reshoring and the jobs of tomorrow.

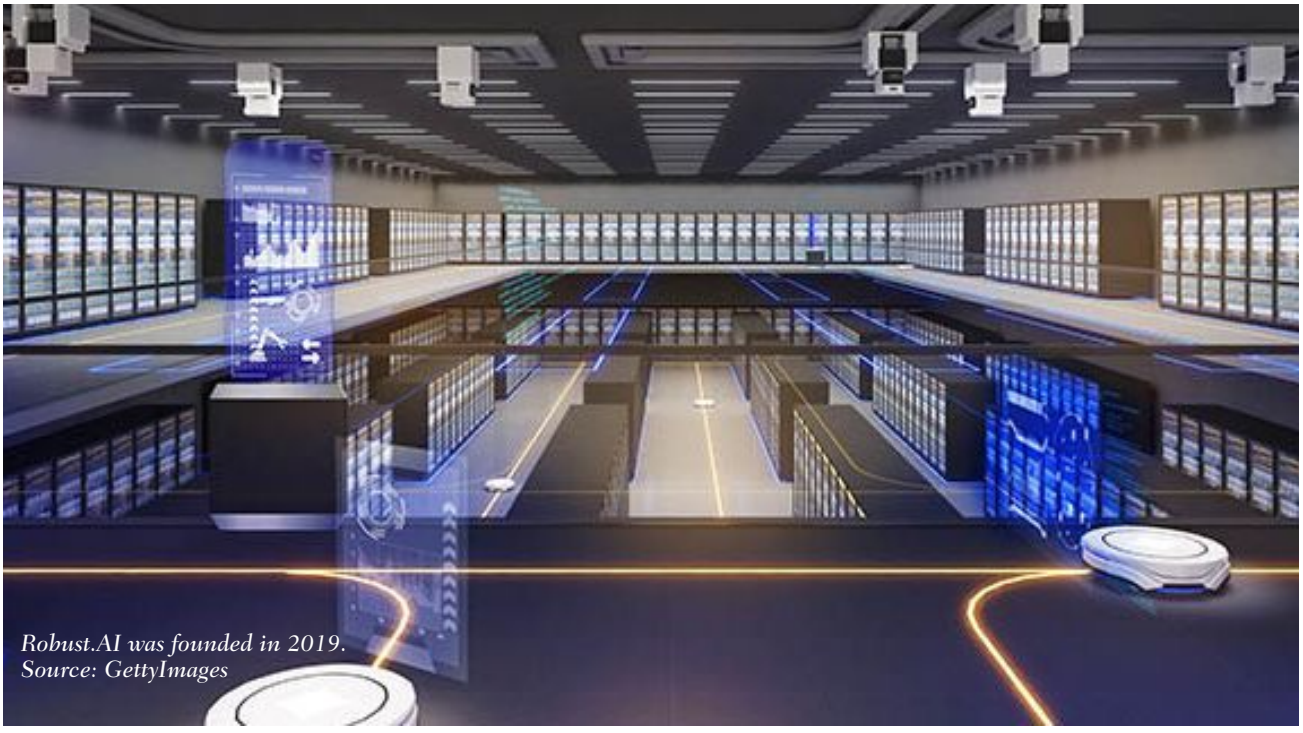
"Change needs to happen now," stated Atiya. "As companies turn to robotic automation to offset labor shortages, improve efficiency, and increase resilience, workers need the skillsets to use automation to perform their jobs and augment their own roles."

"Businesses need to join forces, cooperating with educational institutions and governments to ensure that society is prepared for jobs of the future," he added. "Only through this can we fully utilize flexible automation and unlock value from the ongoing re-industrialization."

ABB offered more information on its educational offerings, examples of projects using its robots and software, and a whitepaper explaining how teaching automation can help shape tomorrow's workforce at its education portal page. •

Robust.AI Unveils Software Suite Grace & Hardware Product Carter

The company developed a concept AMR while building out its software suite.



Robust.AI was founded in 2019. Source: GettyImages

BY ROBOTICS 24/7 STAFF

Robust.AI has unveiled is first software suite and hardware product concept. The company's software suite is called Grace. Its hardware product concept is called Carter. Together, Carter and Grace combine artificial intelligence, robotics, and human-centered design, the company said.

These technologies will be applied to the warehousing industry where more than 80% of warehouses operate without any automation, while labor shortages continue to wreak havoc on the global supply chain, according to Robust.AI.

The San Carlos, Calif.-based company was founded in 2019. Its tagline is "We make robots work for people." Grace is a software suite that enables dynamic coordination between people and robots in any warehouse with any workflow, the company said. The software can map out work between people and robots, allowing it to distribute and adapt as necessary.

Software designed to make robots more aware

Robust.AI said it provides situational awareness that makes robots capable in spaces

where people move and work, including semantic and people perception as well as mapping and localization using cameras, the company added.

Warehouse managers will be able to customize workflows, integrations, and behavior for an entire fleet of robots in minutes, through a no-code interface.

"We're excited about partnering with the right teams to bring Grace and Carter to warehouses and other industries where we can improve how robots work with people," Robust.AI said.

Robust.AI delves into hardware concept design

During the development of Grace, Robust.AI said it recognized that current autonomous mobile robots (AMR) are slow to build, deploy, and adopt for many applications. This insight led to the development of Robust.AI's first hardware product, Carter, a collaborative mobile robot.

Carter provides flexible automation for material handling in warehouses and beyond, Robust.AI said. The robot works around people without requiring the environment to change, allowing for fluent coordination, while increasing worker engagement and productivity, the company said.

Robust.AI also updated its executive team. Anthony Jules is moving into the role of CEO, where he'll build on his decades of experience of leading teams at companies including Sapient and Redwood Robotics.

Leila Takayama has joined the company as vice president of human-robot interaction and design. Kavitha Velusamy is senior vice president of engineering. Velusamy has shipped a number of industry defining products, including the Amazon Echo and Cisco's first Telepresence System.

In addition, John Moretti has joined as head of product, bringing expertise and experience from his work at Dishcraft Robotics and Wonder Workshop.

Robust.AI is currently speaking with potential hardware partners for the development of Carter and with early customers for the product. •

ARM Institute Awarded American Rescue Act Grants to Help U.S. Manufacturing Be More Resilient

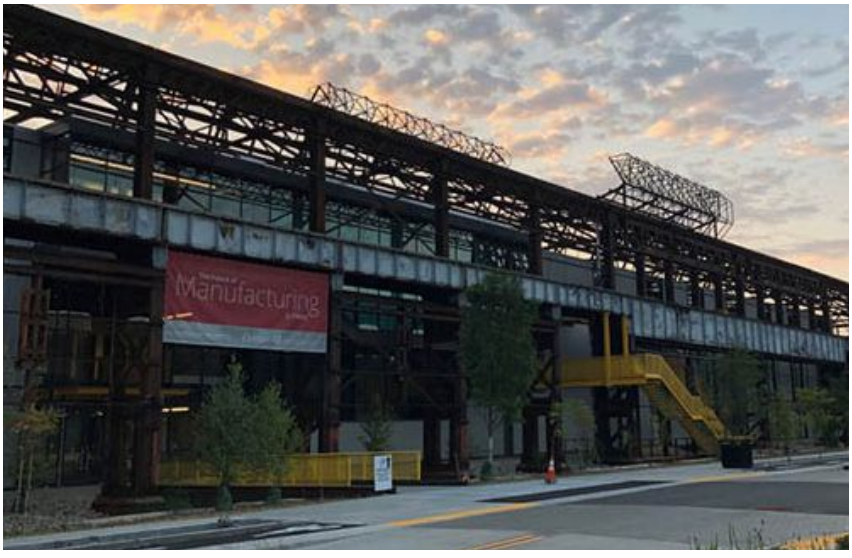
The ARM Institute said it is among the projects that will use federal funding to improve manufacturing opportunities and pandemic preparedness.

BY ROBOTICS 24/7 STAFF

The Advanced Robotics for Manufacturing, or ARM Institute, recently announced that two of its initiatives are among 13 pandemic-response projects to receive funding from the National Institute of Standards and Technology. The ARM Institute will lead one project and participate in another led by partner institute Advanced Functional Fabrics of America Inc.

"The ARM Institute's leadership and involvement on these projects demonstrates the importance of the Manufacturing USA Network and Manufacturing Innovation Institutes to our nation's resiliency," stated Arnie Kravitz, chief innovation officer at the ARM Institute.

"We were able to rapidly collaborate with our fellow Institutes and member organizations to propose high-impact projects that will enable a stronger national manufacturing infrastructure to navigate the current COVID-19 pandemic and mitigate future pandemics and similar crises," he said.



ARM Institute headquarters at Hazelwood Green's Mill 19 in Pittsburgh. Source: ARM Institute

Founded in 2017, the ARM Institute is a public-private consortium with more than 300 members across industry, academia, and government. The Pittsburgh-based organization said it is working to make robotics, autonomy, and artificial intelligence more accessible to U.S. manufacturers large and small. It also supports efforts to train and empower the manufacturing workforce, strengthen the U.S. economy and global competitiveness, and elevate national security and resilience.

ARM Institute lists projects and partners

The National Institute of Standards and Technology (NIST) is part of the U.S. Department of Commerce. The ARM Institute said the two projects received funding for "high-impact" research, development, and testbeds for pandemic response.

The "Robotics and Automa-

tion Decision Framework for Agility and Resilience" (RADAR) project will receive $4.9 million in total funding. This project is intended to enable small and midsized manufacturers to systematically evaluate the cost-to-benefit ratio of integrating robotics and automation into manufacturing processes to support coronavirus response.

The ARM Institute is leading the RADAR project and working with Secure America Institute, Georgia Tech, GE, TMAC, Morgan State University, and Deloitte.

Advanced Functional Fabrics of America (AFFOA) in Cambridge, Mass., is leading the second project, which will get $11.1 million in total funding. The project that seeks to enable manufacturing automation and supply chain diversification, as well as to address the environmental impact of personal protective equipment (PPE).

More than 12 partner organizations will work on this project, including the ARM Institute and members Bluewater Defense, Henderson Sewing, Carnegie Mellon University, Siemens, and Sewbo.

NIST looks to create economic opportunities

"Rebuilding our manufacturing economy is an essential component to strengthening our communities and creating opportunity for all Americans," said Commerce Secretary Gina Raimondo in a press release from NIST. "The breadth and variety of these awards shows that manufacturing can be an economic driver in every community."

"From creating an advanced manufacturing testbed in Appalachia, to building clean, reliable power in Native American communities, these grants are essential to creating manufacturing jobs and skills in every corner of America," she said.

The complete funding package, which was provided by NIST through the American Rescue Act, supports 13 projects at eight institutes in the Manufacturing USA network, working with more 80 partners, including leading research universities, nonprofits, and small and large manufacturers. •