Robotics247

SPECIAL FOCUS ISSUE
MAY 2023

Automation for Small and Midsize Enterprises

PEERLESS
CONTENT CREATION

CONTENTS

EDITOR'S NOTE

For decades, only large manufacturers had the expertise, space, and budgets for automation, but new technologies and business models are making robotics more accessible to small and midsize enterprises.

Widespread labor shortages, the reshoring of production, competitive pressures, and government incentives are encouraging smaller businesses to take the plunge and adopt robots. They are proving useful for tasks such as materials handling, piece picking, welding, and cleaning.

In addition, collaborative robots and software are making automation more flexible and easier to use. Artificial intelligence and data analytics offer new levels of control and visibility into operations, regardless of size.

Robotics-as-a-service, based on software-as-a-service models, is another approach that is helping small and medium-sized businesses to afford and use robots.

Ease of use has been a common theme at recent trade shows and conferences, as robotics vendors and integrators hope to address more of the reportedly huge total potential market. As several industry experts have told us, the time to start with robotics is now.

Eugene Demaitre, Editorial Director
Comments? E-mail me at
edemaitre@peerlessmedia.com

EXECUTIVE CONTACTS

Group Publisher/International Sales
Tom Cooney
tcooney@peerlessmedia.com
973-214-6798

President and CEO, Peerless Media
Brian Ceraolo
bceraolo@peerlessmedia.com
508-663-1553

Editorial Director
Eugene Demaitre
edemaitre@peerlessmedia.com
508-380-5457

Associate Editor
Cesareo Contreras
ccontreras@peerlessmedia.com
508-663-1558

SALES

Western Regional Manager
Len Pettek
lpettek@peerlessmedia.com
805-493-8297 office
805-231-9582 Mobile

Midwest/Eastern Regional Manager
Michael Worley
mworley@peerlessmedia.com
508-663-1561

CLIENT SERVICES

Director of Client Services
Mary Ann Scannell
mascannell@peerlessmedia.com
508-663-1560

Director of Marketing
Karen Bligh
kbligh@peerlessmedia.com
508-663-1550

Director Content Management
George Kokoris
gkokoris@peerlessmedia.com
508-663-1555

Director Online Technology
John Brillon
jbrillon@peerlessmedia.com

Webcast Project Manager
Steve Paul
spaul@peerlessmedia.com
617-281-7125

Office Manager
Laurel Peddie
lpeddie@peerlessmedia.com
508-663-1559

Robotics247

Peerless MEDIA

PEERLESS CONTENT CREATION

COVER PHOTO: GETTY IMAGES

MITSUBISHI HC CAPITAL AMERICA

Robot-as-a-Service (RaaS)
Financing

Our platform allows manufacturers to monetize existing as-a-service agreements, or build custom as-a-service solutions.

Bundle all hardware, software, services and warranty into 100% financing.

Mitsubishi HC Capital America is a leader in *equipment-as-a-service* and we can customize financing to fit your needs.

Click
to learn *more*

Money Making *More*

mhccna.com

Small and Medium Sized Enterprises Turn to Automation as Reshoring Efforts Continue

SMEs have a bevy of resources they can take advantage of to invest in automation, from state funding to educational programming.

BY CESAREO CONTRERAS

Patrick Helfrich of Helfrich Brothers Boiler Works gives a tour of the company's factory in Lawrence, Mass. Source: Cesareo Contreras

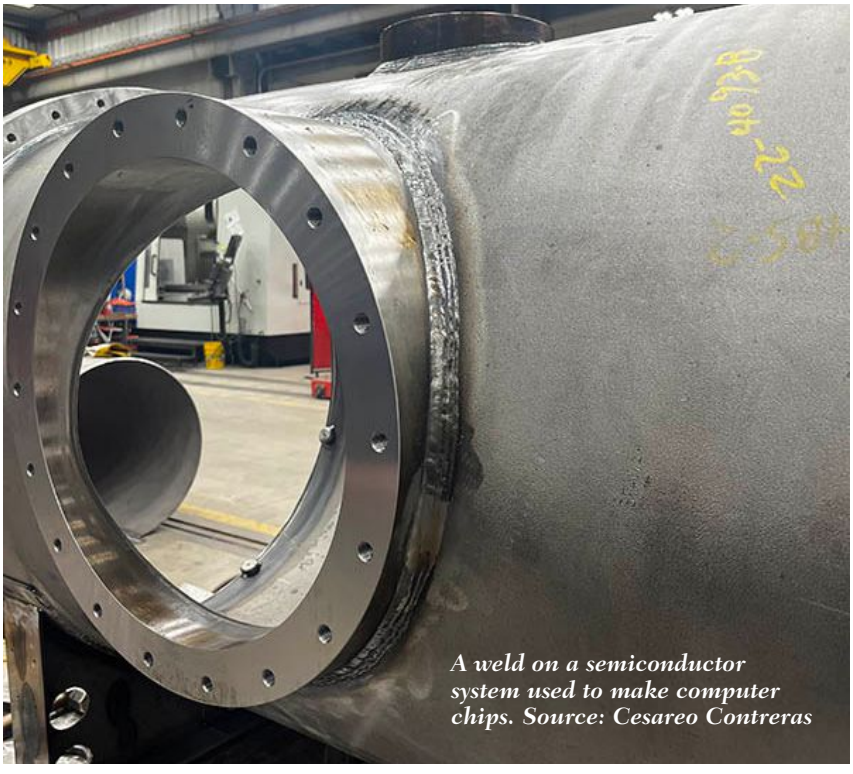
Patrick Helfrich of Helfrich Brothers Boiler Works Inc. is seeing much higher numbers of orders from customers these days. Part of that demand is being driven by reshoring efforts. Customers have experienced firsthand the instability from relying too heavily on the global supply chain and are making efforts to bring production closer to home.

Helfrich Brothers Boiler Works primarily designs and manufactures equipment for waste-to-energy facilities. It also develops systems that semiconductor companies use to make computer chips. Helfrich Brothers is based in Lawrence, Mass., and its staff works out of a 95,000-sq.-ft. steel fabrication and machine shop.

"As manufacturing is coming back to the States,

we're getting more orders than we can handle," said Helfrich, a manufacturing engineer at the company. "We used to build two to three [systems] a month. Now, they want 100 and maybe even 150 a year, so it's quite an increase in production."

The company takes advantage of some semi-automated processes for CNC machining and welding, but it's hoping to invest in a robotic arm or two to help with welding and cutting. Helfrich Brothers Boiler Workers, like many small and medium-sized enterprises, is looking to automation to help increase productivity and throughput and to address labor challenges. And like other smaller companies, it's looking to outside sources to help pay for them.



A weld on a semiconductor system used to make computer chips. Source: Cesareo Contreras

Helfrich looks to state to help fund robot project

Helfrich Brothers Boiler Works is one of many of Massachusetts companies that applied for a Massachusetts Manufacturing Accelerate Program grant (MMAP). The program is funded by the state and is managed by the Massachusetts Center for Advanced Manufacturing (CAM).

Christine Nolan is the director of CAM, which is a division of the Massachusetts Technology Collaborative. She noted that the majority of the 7,000 manufacturers in Massachusetts are small or midsize, and very few of them have robots in their facilities.

"We do our best to support them," she said, highlighting the state's workforce training programs and various grant opportunities.

In January 2022, the state awarded over $2 million to 13 Massachusetts manufacturers.

Federal government invests in advanced manufacturing and robotics

Massachusetts is following the lead of the federal government, which is increasingly investing in programs to help small and medium-size businesses educate themselves and purchase next-generation technologies, including robots.

Larry Sweet is the ARM Institute's new director of engineering. The "ARM" in ARM Institute stands for "Advanced Robotics for Manufacturing." The Pittsburgh-based institute was founded in 2017 and is funded by the U.S. Department of Defense. Part of its mission is to help manufacturers decide which automated systems are the best for them.

In September, the institute received $14.2 million from the U.S. Economic Development Administration government as part of the Build Back Better Act. With that funding, the

institute has established a Robotics Manufacturing Hub for small and medium-sized companies in the Southwestern Pennsylvania region.

The ARM Institute recently announced that it was looking for small and midsized manufacturers in that region to explore using the new center.

"For small and medium-sized businesses, the specific scope of the Build Back Better Program is to take technology that is relatively mature and decide how we match the requirements of what these manufacturers need to do in their factories," said Sweet.

Cobots provide an easy-to-use option for newcomers

Right now, Helfrich Brothers is still debating on the type of robotic system it would like to invest in. The company is considering purchasing a collaborative robot or investing in a more traditional robotic workcell. It's looking to start small.

"It's not like we can invest in all this automation, and then tomorrow we're going," Helfrich said. "We have to start at the kinks in our little manufacturing flow and figure out what we should invest the time and money in to make things work a little better. Then, we just pick away at it over time."

Joe Campbell, senior manager of applications development and strategic marketing at Universal Robots, said small and midsize enterprises (SMEs) have been an important part of UR's cobot business since it started.

"Small companies have totally embraced our whole ease-of-use paradigm," he said. "They figured out how to get automation installed very quickly and start generating payback very quickly."

Campbell referred to a report from the Bureau of Labor Statistics that found that in 2021, there were 292,825 factories in the U.S. About 91% of those companies had fewer than 100 employees.

When it started, UR felt it had a better competitive advantage with SMEs. As opposed to traditional industrial automation, cobots can be installed in more confined spaces, ideal for smaller companies that are just looking to automate one or a few tasks.

"What was appealing to small enterprises we come in and say, 'Look, you guys got this whole machine shop. You don't have to automate the whole thing. Let's take one machine tool. Let's automate that. Better than that, let's put the robot on a cart so you can move it from this machine tool to that machine tool,'" said Campbell.

"That was a real breakthrough," he noted. "They started to see the cobot as a tool just like they have other tools in the shop."

One UR customer, Wiley Davis of Go Fast Campers, purchased a UR cobot to automate parts of his manufacturing process. He was able to figure out how to use the system on his own without a systems integrator, and Davis now has a line of UR5 machine-tending cobots in his facility in Bozeman, Mont.

Davis told *Robotics 24/7* that he decided to forgo working with a systems integrator because he wanted to be able act quickly and configure operations his own way.

"My business was built around the idea of rapidly being able to add new products as the ideas came, which is one of the reasons I deiced to machine my own parts and not outsource them in the first place," he said. "It was around this whole concept of: 'I've got an idea on Friday, and by Wednesday of next week, we can have it on the website selling it.' That concept doesn't mesh very well with an integrator."

Lean integrators play an important role for SMEs

But for some SMEs, systems integrators are essential, and in the past few years, their role has evolved, noted Campbell.

Smaller companies, sometimes called lean integrators, are cropping up offering full-package automated systems targeting a narrow application segment.

He highlighted Versabuilt as an example. The company offers customers CNC automation machines that use Universal Robot cobots.

"They start to blur between an integrator and an OEM," he said. "They'll take an order, and you'll have a robot in your machine shop in a couple of weeks up and running. They've really capitalized on that speed."

Both large enterprises and SMEs value RaaS offerings

Rapid Robotics offers robotic systems through a robotics-as-a-service model (RaaS). It's an enticing business model for SMEs because it allows them to try out a robot in their facilities without having to spend large amount of money on a capital expense.

RaaS is also a risk management tool. If a specific system doesn't work out, a customer can simply end its subscription and try something new.

In an interview with *Robotics 24/7*, Mandy Dwight, vice president of business alliances at Rapid Robotics, outlined how the company works with smaller businesses. Dwight couldn't give the exact number of smaller SMEs that Rapid Robotics works with, but she estimated that the spilt was 60% large enterprises and 40% smaller ones.

A lot of the challenges both type of companies face are similar, she noted. They want to stay competitive, increase flexibility, and address labor concerns. But there is also an initial concern with how robots could fit into the picture.

"I find that with automation, no matter the company size, a lot of them are risk-averse because a lot is on the line if this doesn't succeed," Dwight said.

As with Universal Robots, when Rapid Robotics started, there was a great interest among SMEs. Larger companies are now also seeing the value of the RaaS model, she said.

"We can come in and really be an extension of their automation team, which is essentially the same service we provide to small and medium-sized manufacturers," she said.

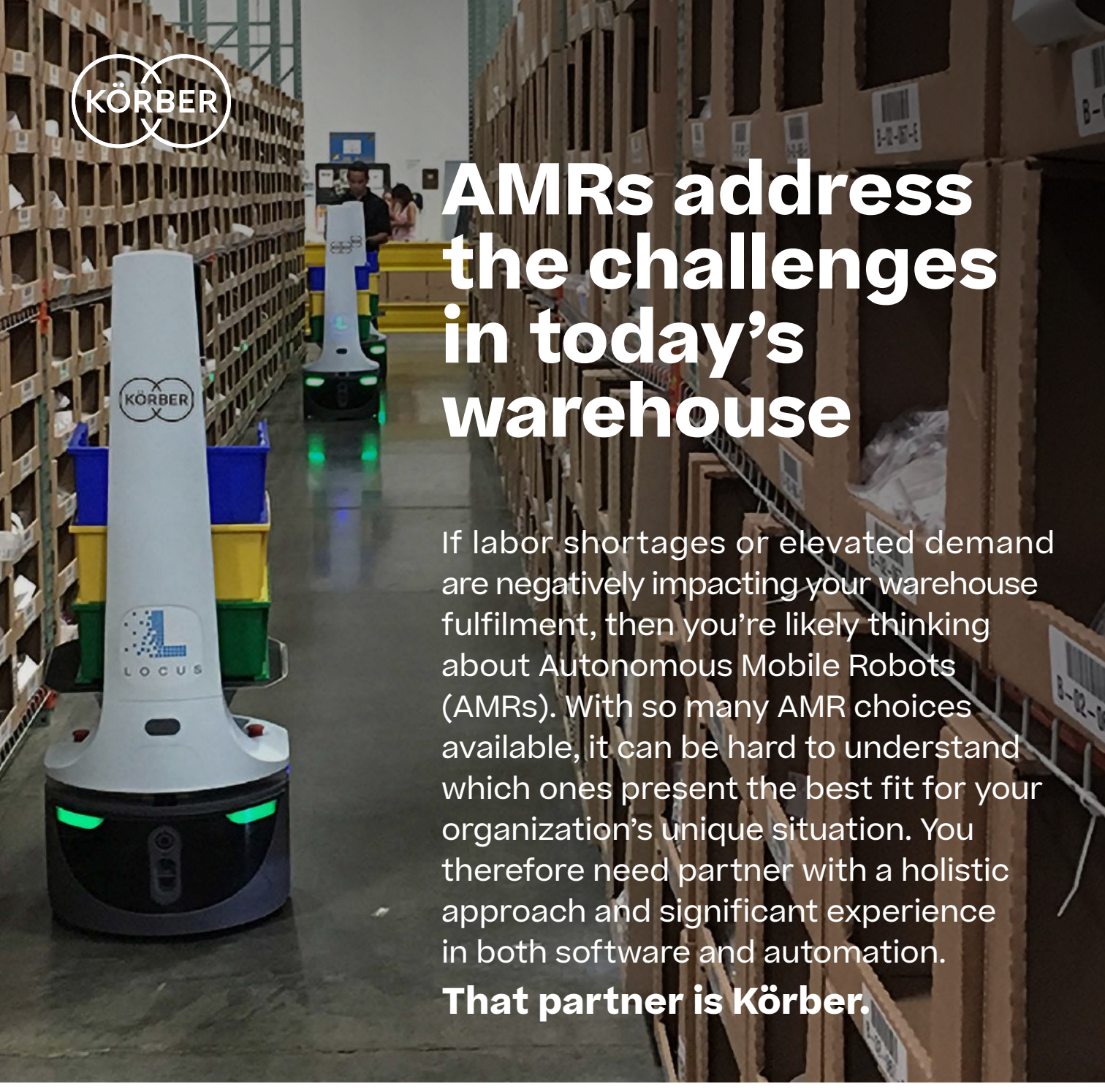
ASRS interest strong among smaller companies

SMEs make up about 25% of AutoStore's business, said Jon Schechter, vice president of North America business development at the Nedre Vats, Norway-based company.

AutoStore offers automated storage and retrieval systems (ASRS). Large enterprises aren't the only companies that have warehouse space concerns. SMEs are also investing in ASRS to better take advantage of the vertical space within their warehouses, he noted. That allows them to have fewer people working on the warehouse floor so they instead do something more impactful, he said.

"On the small end, moving one or two people from the warehouse back to the manufacturing floor is so critical," he said. "The labor savings you get, and the time saved on the warehouse side, can be directly translated into more units produced, which is really meaningful if you are small and medium-sized. We're talking about single-digit headcounts that can be directly translated into more units produced." •

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



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."

Theron Neese
Chief Supply Chain Officer

Read case study >

"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

Read case study >

Ease of Use Features Promise to Democratize Robotics for Smaller Manufacturers

Small and midsize manufacturers can overcome old barriers to robotics adoption now that programming no longer requires a high degree of specialized skills.

BY TOM KEVAN

Many small and midsize manufacturers have been unable to take advantage of automation because of the cost and technical support required to deploy and maintain the systems. Developers are ramping up efforts to introduce ease-of-use features to make robots more accessible to a broader, more transversal pool of users.

Making robots easier to implement and use has helped smaller shops find a home for them on their shop floors.

"Ease of use is not just a 'nice to have' feature," said Joe Campbell, senior manager of applications development and strategic marketing at collaborative robot leader Universal Robots. "It's key to breaking down the traditional cost and complexity barriers to automation adoption."

Ease-of-use technologies, such as lead-through programming, graphical user interfaces, and offline programming, are clearing the way for broader robotics adoption. Source: ABB

Robot designs imitate consumer devices

An examination of the ease-of-use features on the market today reveals that many mimic everyday consumer technology. Robotics companies are applying this approach to both hardware and software.

To see how designers are using familiar technology to break down the barriers to robot adoption, consider how the latest generation of teach pendants democratizes the programming process.

"Tablet-like teach pendants are now similar to iPads and other consumer tablets," said Josh Leath, a senior product manager at Yaskawa Motoman.

The software residing on these devices also mimics consumer offerings, using graphical user interfaces to replace more cumbersome traditional software approaches. Take, for example, ABB's Wizard Easy Programming interface.

"This intuitive graphical user interface allows users new to robot programming to initiate programming actions using a graphical drag-and-drop style block," explained Joshua

Software like the ABB Wizard Easy Programming shown here allows small and midsize manufacturers to bring robots online without specialist skills or knowledge of RAPID code, facilitating the use of robotic automation in production lines. Source: ABB

Alphonse, local business-line manager for electronics U.S. at ABB's Robotics and Discrete Automation Division. "The blocks are laid out in chronological order, with each step identified in easy-to-understand everyday language."

Yaskawa Motoman has simplified robot programming by incorporating offline programming and operating systems that resemble common programming languages and techniques like Python or AutoCad.

The application of ease-of-use design practices doesn't stop here. Leading robot developers like ABB and Universal Robots are using sensor- and AI-enabled hand-guided programming techniques in which the robot literally mimics the human operator.

"At ABB, we have developed lead-through programming, mainly for our collaborative robot line," said Alphonse. "They allow customers to simply move the robot arm manually to the desired location for a pick or place position and record that position with a click of a button. By defining a few basic locations for the robot to know where to operate, our software calculates the optimum path for the robot to move to complete the task."

All of these features eliminate the need for deep programming skills and can make robotics more approachable to a wider audience rather than specialized robotics engineers.

Developers turn to open technology

Some robotics designers are also using open software such as the Robot Operating System (ROS). The intent is to make it easier to incorporate these systems into plantwide automation infrastructures.

"By developing increasingly open robotic solutions fully compatible with popular software management systems, PLCs [programmable logic controllers], and related devices, companies such as Comau are opening the door to easy automation," said Mark Anderson, head of robotics and automation products North America at Comau.

"As a result, small to midsize manufacturers can now integrate robots quickly, easily, and economically, both within existing work lines and in new [Industry] 4.0-enabled production systems."

Ease of use becomes a catalyst for change

The simplification of robot programming and operations through the introduction of the easy-to-use features is providing the catalyst for many small and midsize manufacturers to make the leap to incorporating robots into their operations.

One example can be seen in a recent deployment by DeAngelo Marine Exhaust, a midsized manufacturer of custom exhaust systems.

"We are very much a custom shop, where no two exhaust systems are exactly alike," said Justin Montes, CEO of DeAngelo. "Each of these different systems has like parts on them."

"Prior to the cobot, we would throw all the parts on a cart, and our fabricators would have to weld them together," he said. "Everything we do at DeAngelo is

TIG welded by hand at a speed of about 2 to 5 in. per minute."

When the company explored the possibility of deploying a robotic welder, it considered several automated and traditional welding companies and ultimately decided on a unit from Hirebotics. The key factor in the decision was ease of use.

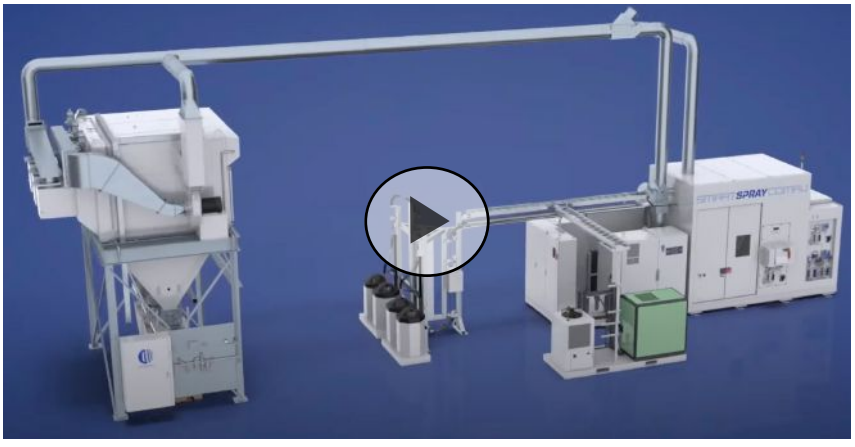
"When we started looking into the technology, we saw just how easy these robots were to operate," recalled Montes. "That was the real game changer for me. From my perspective, it would be a waste of time and money acquiring a robot, only to have it sit unused because it was too hard to operate."

To achieve ease of use, a number of design techniques come into play.

"Hirebotics' cobot runs off an app that you can download on any device," explained Montes. "There's no intimidating computer programs or manuals to get lost in. As for support, if you have any questions, the app has a substantial library of exercises and troubleshooting techniques."

As a result, programming expertise and extensive experience with robotics were not required.

"It used to be that the only companies that could utilize robotics were multibillion-dollar companies that had entire departments of employees, with years of robotics training," said Montes. "With the improvements in robotic technology in recent years, however, that just isn't the case anymore. The ease of use is truly remarkable."



"Within 20 minutes of uncrating our cobot, we were running parts, and with the increased speed of the cobot, we instantly raised our manufacturing capacity, lowered our lead times, and lowered our defect rate," he added. "From a financial perspective, now that the welding is performed by a machine operator rather than a fabricator, our cost per part has plummeted. This puts us in a very advantageous position when it comes to acquiring more business."

Flexibility increases ease of use

"Flexibility" can sometimes be a synonym for ease of use, and the ability to inject greater flexibility into manufacturing is highly valued by small and midsize manufacturers seeking to increase efficiency and quality.

This was precisely what Ajax Metal Forming Solutions—a maker of tight-tolerance metal parts—aimed to do when it turned to Yaskawa Motoman and systems integrator Mechatronic Solutions for a turnkey robotic workcell.

Ajax decided on the dual-workstation ArcWorld LC (Lite Cell) workcell, with a single high-speed AR1440 arc welding robot coupled with a Miller Auto-Continuum 350 power source.

Suitable for welding small to midsize parts in low-mix settings, the configuration features a fixed tooling table in each workstation divided by a partition. This layout enabled Ajax operators to safely prepare one side of the workcell while the robot operates in the other, optimizing efficiency.

"With this workcell, both tooling and end effectors can be changed quickly and easily, which is a huge time-saver," said Antoniy Petkov, process improvement engineer at Ajax Metal Forming Solutions. "The two workstations can be individually tooled to weld different parts or used for sequential operations. That flexibility helps us accommodate more customers and projects." •

Tom Kevan *is a freelance writer/editor specializing in engineering and communications technology.*

Robotics for the Rest of Us: Automation in Small and Midsize Businesses

Robotics is too often thought of as useful only for large manufacturing or logistics environments. But how about for small and medium-sized businesses?

BY JIM ROMEO

In Bradenton, Fla., the owner of the Anna Maria Oyster Bar Landside has two robots that wheel out food to those dining in the restaurant. They are ideal assets for performing a task that people ordinarily perform.

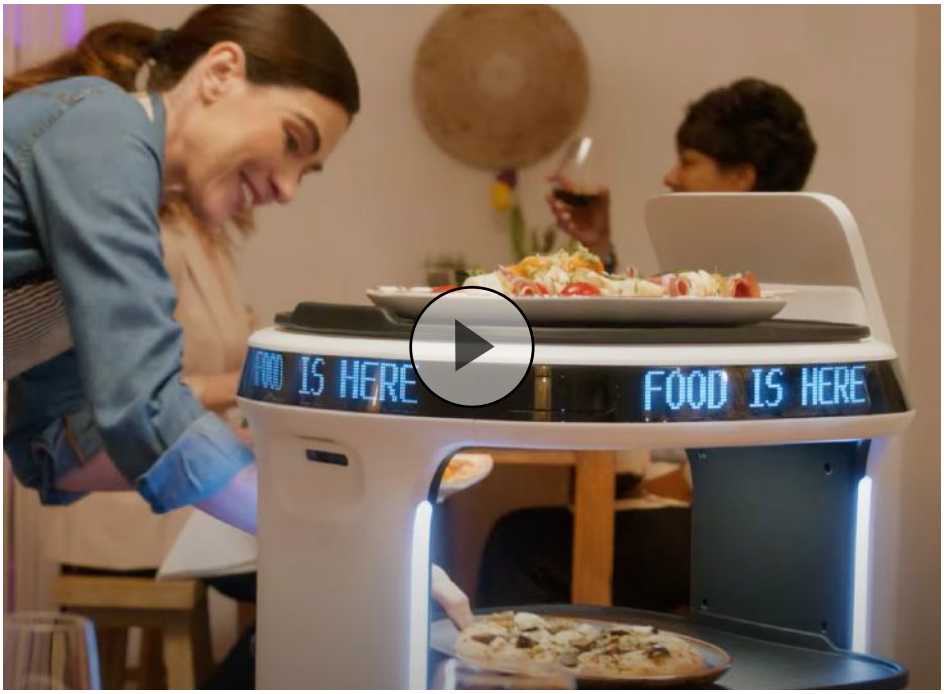
Today, robots can be used in small and medium-sized businesses (SMBs) to perform innumerable tasks from cleaning and sanitizing to sweeping, cutting grass, serving food, fetching parts, and just about anything they can be programmed to do. As service and commercial robots become more affordable, SMBs can now consider different options.

In the case of the Oyster Bar Landside, robots not only help serve customers, but they're also novelties that entertain restuaurant customers. Owner Jim Horne explained to local news that he acquired the first

system, Pearl, in December 2021 from Bear Robotics, which was beta-testing the collaborative mobile robot.

Bear Robotics later upgraded the robot to Pearl 2.0, which can

Servi is designed to assist restaurant and hospitality personnel. Source: Bear Robotics



any bumps in its path. It also has a gyroscope tray for stabilization when it carries food.

The robots work with servers, making it easier for them to do things at their stations before the robot brings out the food. Restaurant guests have even asked the robot to pose for pictures, and Horne has sometimes dressed them up in tropical garb such as hula skirts as a fun way of integrating automation into his restaurant.

Fitting the robots to SMB environments

Small and midsize manufacturers and supply chain operations have more opportunities to benefit from robots than restaurants do.

"There are several ways that Mitsubishi Electric Automation helps first-time adopters," said Patrick Varley, a product marketing manager for mechatronics at Mitsubishi Electric Automation Inc. "In addition to our automation products, including robots, we offer flexible pre-engineered solutions that allow our customers to reduce the time it takes to get a system operational and to reconfigure them, should their business conditions require it."

"Mitsubishi also works with companies specializing in designing and building systems requiring minimal experience to use and reconfigure," he explained. "We also offer a prepaid preventive maintenance program for our robots, including five yearly visits and extending the on-site robot warranty to five years. In addition, we offer several training classes."

As vision, manipulation, and human-machine interaction technologies advance, robotics can address more applications. Many types of robots are available that aren't cost-prohibitive.

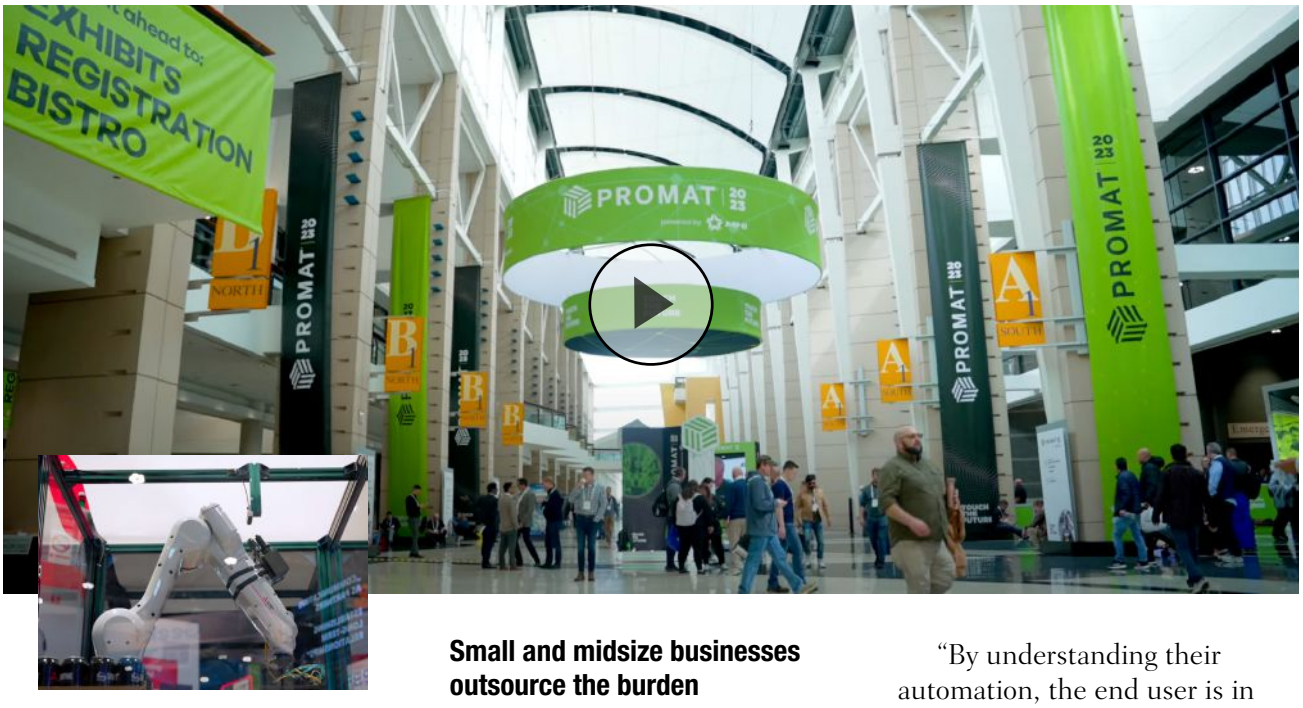
Robots can help small and midsize enterprises (SMEs) supplement their labor forces, meet seasonal demands, and perform repetitive or hazardous tasks that a human would ordinarily perform. With robots delivering goods or sanitizing a workspace, human workers can now be deployed to other, more value-added tasks.

"Small/medium businesses typically need more financial and engineering resources to add and maintain automation easily," noted Varley. "Also, expertise is frequently held by a few key employees with little redundancy. Losing one key person greatly impacts a small/medium business more than a larger one."

RaaS facilitates adoption

Robotics as a service (RaaS) is a model similar to software as-a-service, whereby an organization subscribes to a service by paying a monthly fee but does not have manage and maintain the assets as it would if it owned them.

With RaaS, robots become an operational expense that is



instead paid to someone else, while becoming easier to adopt and scale. This is a useful option for small and midsize businesses, especially as the labor market is strained in many industries.

According to Forrester Research's "Predictions 2023: Automation and Robotics" report, 35% of relevant enterprises plan to integrate physical robotics with mainstream tech. The research firm said that labor shortages are forcing businesses to pursue robot workers to help keep functioning.

Specifically, Forrester predicted that "enterprises that depend on human physical ability will set up robotic centers, explore robots-as-a-service (RaaS) offerings, and begin to blend these specialized technical groups with mainstream technology management."

Small and midsize businesses outsource the burden

"We are working with some third parties regarding financing, leasing, and RaaS," noted Varley. "Also, some OEMs we work with offer robotic solutions on a 'pay-per-use' basis. This is calculated either by runtime or products produced. Even though Mitsubishi Electric Automation does not yet offer these services, we work closely with companies that do."

According to McKinsey & Co., "automation providers that can move toward robotics as a service and act as a single point of contact for maintenance (for both hardware and software) will create a distinctive competitive advantage."

McKinsey & Co.'s research found that 55% of surveyed industrial players would prefer that a systems integrator act as a single point of contact and provide both hardware and software maintenance.

"By understanding their automation, the end user is in the best position to deal with unexpected issues requiring engineering or programming intervention," Varley said. "While this requires training and has a learning curve, it ensures that the end user's priorities are the same as those of the person working on the equipment, since they are one and the same."

"An exception is Mitsubishi Electric Automation's Preventive Maintenance program," he claimed. "Preventive maintenance for all equipment, not just robots, is essential to keeping the automation in top operating condition. Pre-paid/pre-scheduled preventative maintenance allows the end user to fit this critical task into their schedule because it is frequently overlooked." •

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

TOP 10 Robots and Automation Seen at ProMat 2023

From Agility Robotics' humanoid Digit and Boston Dynamics' Stretch truck unloader, there were plenty of noteworthy systems at this year's show in Chicago.

ProMat was held in person for the first time since 2019. Source: Cesareo Contreras

BY EUGENE DEMAITRE AND CESAREO CONTRERAS

CHICAGO – ProMat 2023 was a big hit, according to MHI, which organized the biennial event. With 1,054 exhibitors, about 300 of which were robotics suppliers, even *Robotics 24/7* was hard-pressed to see them all.

Companies at booths and in sessions reported strong attendance, especially on Tuesday and Wednesday of the four-day event. MHI tallied a total of about 50,000 visitors to McCormick Place.

There may have been fewer ground-breaking innovations at this year's ProMat, and the mood was subdued in comparison to MODEX 2022, the first big trade show after the worst of the COVID-19 pandemic. This was likely the result of recent layoffs and the meltdown of Silicon Valley Bank earlier in March.

However, there were still many booths worth seeing, and

we saw prospects from major consumer packaged goods, third-party logistics providers (3PLs), and the world's largest e-commerce retailers on the show floor.

Robots could be seen throughout the 562,000-sq.-ft. exhibition space, from autonomous mobile robots (AMRs) and automated storage and retrieval systems (ASRS) to truck-unloading robots and automated lift trucks.

Customers in warehousing are increasingly turning to automation, and the companies that showcased at ProMat this year demonstrated they are aiming to capitalize on that demand.

Whether you were part of the crowd or are catching up from afar, see to the right (below on mobile) for our top 10 examples of robotics, software, and related technologies at ProMat. (We also cite some examples since there was so much to see.)

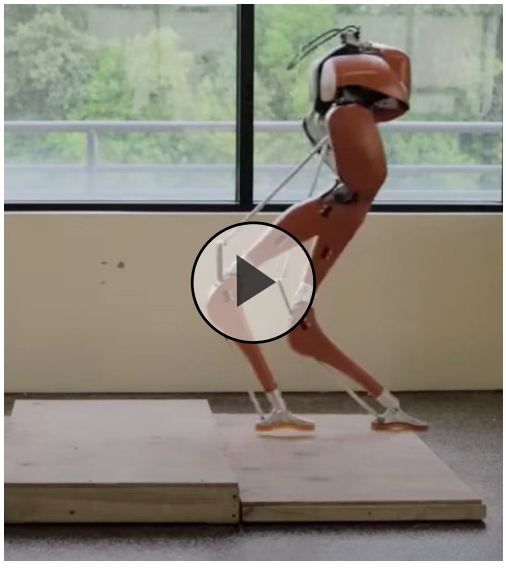
1 Agility Robotics' Digit humanoid

Agility Robotics showcased the latest version of its humanoid robot, Digit, to great fanfare at this year's ProMat. The new robot featured a head with LED eyes and new end-of-arm tools to carry bins. At its booth, Agility demonstrated Digit picking up and carrying totes onto a conveyor belt.

In an interview with *Robotics 24/7*, Agility Robotic Chief Technology Officer Jonathan Hurst said the company added a head to Digit to help workers understand the direction it is going.

"People looked [at the old model] and expected a head," he said. "It's human-centric. It's something that people need to understand. They need to have indications of what the robot is about to do and where it needs to go."

The company also formally announced its Agility Partner Program (APP). Agility is seeking companies to join the program to help it develop Digit's abilities. They will also have access to Digit before it becomes commercially available.



Damion Shelton, CEO of Agility Robotics, told *Robotics 24/7* that the new Digit is currently in its alpha phase. The company plans to complete the beta phase later this year, and it hopes to start shipping to customers in 2025.

2 AmbiSort from Ambi Robotics

Ambi Robotics showcased its AmbiSort A-Series for the first time at a trade show. In a demo, the system carried and sorted packages into U.S. Postal Service mail sacks.

Jeff Mahler, co-founder and chief technology officer at Ambi Robotics, told *Robotics 24/7* that the A-Series system can be used for a range of applications. The robot can sort boxes, polybags, and envelopes from chutes, totes, and bins, according to the company's website.

Earlier this month, the company signed a deal with OSM Worldwide to deploy the AmbiSort A-Series at several of its warehouses across the U.S.

Last year, Ambi Robotics raised $32 million in funding and signed a $23 million deal with global shipping company Pitney Bowes.

In addition, Covariant highlighted Covariant Brain, its universal AI for picking. In an interview with *Robotics 24/7*, Ally Lynch, head of marketing at Covariant, said the company sees the platform as its key differentiator.

"We are an AI-first technology company," she said. "We have one brain that goes across all our use cases."

Lynch noted that Covariant's systems can be used for robotic putwalls, induction, goods-to-person picking, kitting, and depalletization.

In addition, Plus One Robot-

ics demonstrated its parcel-handling technology, which includes "Human-in-the-Loop" remote supervisor software. Like some other exhibitors, it offered a virtual reality experience.

3 PickPal mobile robots from Tompkins Robotics

Tompkins Robotics introduced new AMRs at ProMat 2023. The Raleigh, N.C.-based company showcased two robots from the new PickPal Series: the standard PickPal, which can carry 60 kg (130 lb.), and the PickPal+, which has a payload capacity of 100 kg (220 lb.).

Tompkins Robotics CEO and President Mike Futch told *Robotics 24/7* that the company launched the new series to accommodate customers that are not large enough to justify investing in its tSort system.

"You need to do 5,000 sorts an hour to buy a sorter system like that," he noted. "If you wanted to do lower volumes—think of a 3PL [third-party logistics provider] or a footwear and apparel company—we didn't have a good way to offer a product to that base of the world."

Futch said the new AMRs complement Tompkins Robotics' existing tSort system. As a company gets larger and needs a system that can handle more sorts than what an AMR can offer, the tSort system will be an option, he said.

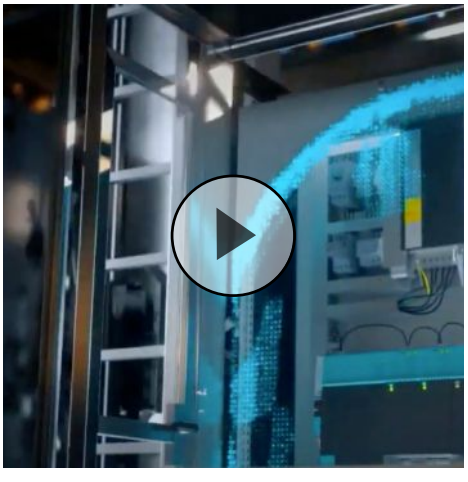
The company is offering the products through a robotics-as-a-service (RaaS) model and plans to launch additional models in the near future.

Other companies showing off mobile robots included Locus Robotics, which showed its new LocusOne automation platform. Vecna Robotics highlighted its Pivotal Command Center and several of its AMRs. Seegrid announced interoperability between its Palion Lift and Palion Tow Tractor.

4 Siemens shows AI and vision for picking, vendor-neutral SIMOVE toolkit

Mobile robots and automated storage took up much of the show floor at ProMat 2023. However, other technologies, from conventional conveyors and fleet management software to vision-guided picking, were also on display.

Siemens showed how its AI and vision systems are adding visibility and precision into intralogisics operations. The company said its AGVs, ASRS, and distributed drives can optimize materials movement.



With its SIMOVE toolkit for centralized, vendor-neutral management, Siemens also explained how digitization and digital twins can lead to greater efficiencies.

Vanderlande displayed and discussed robotic item picking in a goods-to-picker overflow. The robot is integrated with a tote exchange shuttle at a rate of 600 per

hour, said Lotte Willems, director of product management at Vanderlande.

"Customers are still asking for manual fallback for goods-to-picking stations, whether it's for holiday flex or to ease into automation," she told *Robotics 24/7*. "With split orders, most go to the robot, and some that are harder to sort go to manual picking."

Vanderlande has partnered with RightHand Robotics for its vision-guided picking system and Universal Robots for its cobot arms.

Also at McCormick Place were vision-guided picking systems from Plus One Robotics and RIOS.

5 Pickle Robot truck-unloading robot

While there were only one or two truck-unloading robots at MODEX 2022, there were at least four at ProMat 2023. They promised to relieve worker strain in different ways.

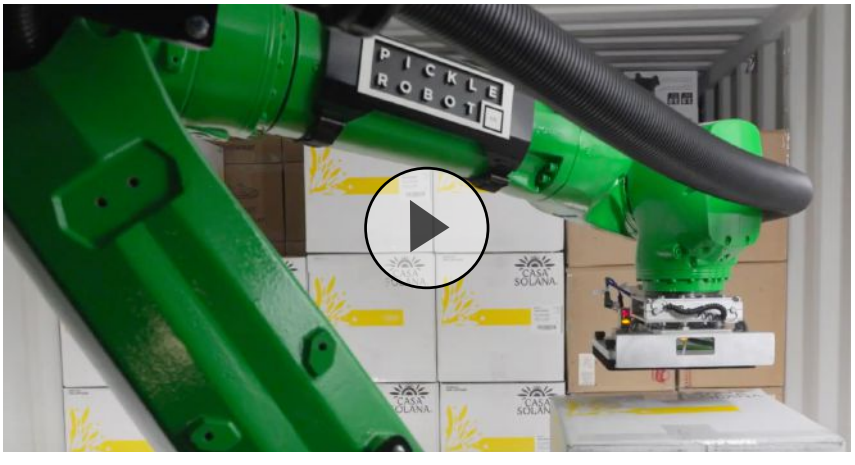
Pickle Robot's public debut of its system included a KUKA arm, sensors, and a custom foam suction gripper that could pick a 60 lb. box from its face. Unlike some other demonstrations, it used full boxes.

The robot could advance on its own on the loading dock and into a trailer, explained Peter Blair, vice president of marketing and sales at Pickle Robot.

"All it needs is power and an internet connection – no integration required," he said. "It's already working at a site in Las Vegas where temperatures reach 115 degrees [Fahrenheit] and where you don't want people."

While Pickle Robot's system can pick one box at a time, the company is working on multipick and smaller systems, Blair said. It is also considering palletizing, he said.

Other noteworthy robots at ProMat included Boston Dynamics' Stretch, which used suction cups; Mujin's TruckBot, which pulled boxes from below; the aforementioned Pickle Robot, and Bastian Solutions' ULTRA BLUE, which loads trailers.



6 Yale automated lift trucks

Continuing a trend from MODEX 2022, multiple forklift providers showed autonomous or semi-automated lift trucks at ProMat 2023. They addressed increasing demand for dense storage amid space constraints and labor shortages.

During its press conference at ProMat, Yale Materials Handling explained how demographic shifts

are creating demand for automation. By 2030, 60% of the world's population will live in urban areas, and e-commerce could reach 30% of global retail, noted the company.

Warehouse space will grow from 25 billion sq. ft. in 2020 to 30 billion sq. ft. by 2025, and every 1 million sq. ft. requires about 100 lift trucks, said Yale. As a result, the shortage of operators will grow from 30 million now to 85 million globally by 2030.

Yale said its three-pronged strategy includes customer-driven design, technology "to solve tough problems," and distribution via independent dealers.

During a session on lift

trucks, Nic Temple, director of robotics and automation at Yale, said the company expects that robots will be 50% of its business in the next few years.

"Warehouses need to decrease operating expenses, reduce unplanned downtime, and deploy labor more strategically," he said.

The steps to a successful deployment of a robotic fleet include conducting a site audit, defining the application with the customer, collecting data, creating a firm plan, and validating the return on investment, Temple noted.

What makes a robot fleet effective is the integration of end effectors, natural feature navigation, and working with the customer to define the application, he said.

---

7 FusionPort from AutoStore

An increasing number of robots at ProMat promised to flexibly place and retrieve boxes or totes from high racking and to move in narrow aisles. At the same time, ASRS providers such as AutoStore had a strong presence with more fixed automation.

AutoStore's updated FusionPort workstations allow vision-guided bulk picking, said David Clear, vice president of business development at the Nedre Vats, Norway-based company. It enables both pick-to-replenishment and consumer-facing PickUpPort stations for order fulfillment.

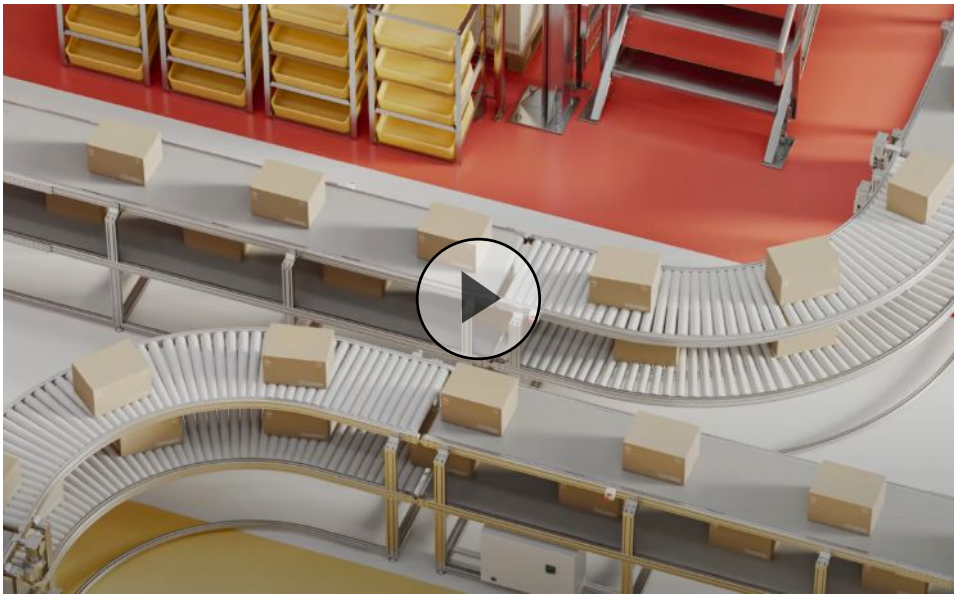
ASRS and micro-fulfillment centers offer retailers and e-commerce providers a solution to scarce and expensive real estate for new facilities, he said.

Integrator Swisslog has seen an uptick in AutoStore orders, said Sean Wallingford, the company's CEO for the Americas. "3PLs are getting more strategic in a fixed labor environment," he said.

Among the challengers to ASRS vendors was Exotec. Its Skypod goods-to-person (G2P) system uses standard racking and can send orders to a manual picking station or a FANUC robot arm. The company produces its own Skypath conveyor line and the integrated Deepsky software.

"Our system is easy to extend, can handle three standardized totes, and integrates with warehouse management systems [WMS] and warehouse execution systems [WCS], said Stanislas Norman, managing director for North America at Exotec.

"It can buffer orders overnight for human pickers," he told *Robotics 24/7* at ProMat. "This show has been very busy, and we've exceeded our target leads by 30%. In two days, we're close to last year's MODEX numbers."



Suzhou, China-based Mushiny also uses mobile robots, AI management software, and standardized shelving as it expands into the North American market.

"We can support picking from 600 bins per hour," said Ming Liu, founder and CEO of Mushiny.

"Our multinational customers have confidence in our projects," added CIO Tony Huang. "That trust is our differentiator."

8 CoEvolution launches multi-robot orchestration

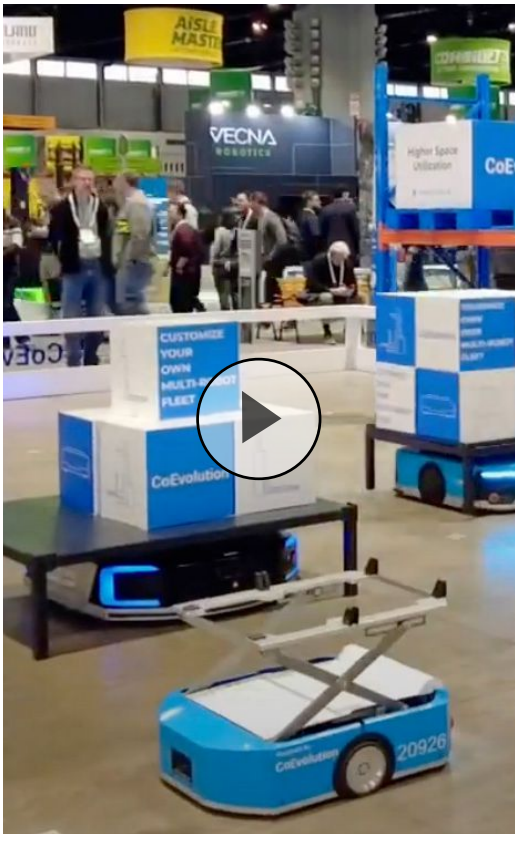
Integration between strategic partners, mobile platforms and robot arms, and automation and enterprise systems was a significant theme at this year's ProMat. The balance between proprietary software and open standards is still being worked out, however.

CoEvolution promoted its multi-robot orchestration with its U.S. launch at ProMat. Michael Wong, chief operating officer at CoEvolution, described the company's software as enabling "high-fidelity simulation and fleet orchestration."

"Traditional implementations are siloed," he told *Robotics 24/7*. "Our software provides one view rather than multiple robot integrations. Our platform is pre-integrated with WMS, ERP, and MES."

Agilox has more than 800 robots running its software, which doesn't rely on the Robot Operating System (ROS), said Daniel Zindl, director of products at the company.

"We have full control over the whole hardware and software stack, and our fastest-growing team is software engineering," he said. "Our system works with fleet managers, so there's no single point of failure."



"Being decentralized is a big point of differentiation for us," he added. "But for the best performance and reliability, it's best to have one vendor be responsible."

Robotics integrator and machine builder ONExia said it uses customers' existing infrastructure to update multiple workstations at once if a box size or SKU changes.

"You can't customize everything," acknowledged Tim Pelesky, marketing and sales enablement at ONExia. "We can cost-effectively increase capacity for high-mix, low-volume because we have one human-machine interface for case erecting, palletizing, and packaging."

Other companies integrating their systems included FANUC and Locus Robotics, as well as Honeywell and OTTO Motors.

9 Swisslog brings ACPaQ palletizing system to the U.S.

Swisslog's ACPaQ system for mixed-case palletizing has already been in use in Europe, noted Sean Wallingford, the company's CEO for the Americas.

"While Europe has been ahead of North America because of space constraints, this automation provides an opportunity for that to flip," he told *Robotics 24/7*. "It's fully integrated, with a robotic arm, a vision system, and a conveyor. Our portfolio is optimized for where the industry is going."

Swisslog also exhibited the latest version of its CarryPick mobile robot at ProMat.

"With our parent company KUKA, this AMR can help companies automate as they go," Wallingford said. "It hits the sweet spot of labor and productivity for manufacturing and fulfillment."

Mobile Industrial Robots (MiR) claimed that it will have the largest autonomous mobile robot (AMR) portfolio once it fully integrates fellow Teradyne unit AutoGuide. The products include a pallet jack, and the company also announced its MiR Insights cloud-based software tool for fleet analysis. MiR is focusing on specific markets for its AMRs.

"Our product line includes proven technologies, and we're focusing on larger customers in automotive, electronics, and consumer goods markets," said Jane

Heffner, the new sales director for the U.S. at Mobile Industrial Robots. "We are seeing reshoring of production, such as Intel in Columbus, Ohio, because of government incentives."

Zebra Technologies' display emulated distribution center operations, from receiving to putaway, depalletizing, and fulfillment. It combined its voice technology with mobile robots from its acquisition of Fetch Robotics in 2021.

In addition, Honeywell Intelligrated showed its Smart Flexible Depalletizer.

10

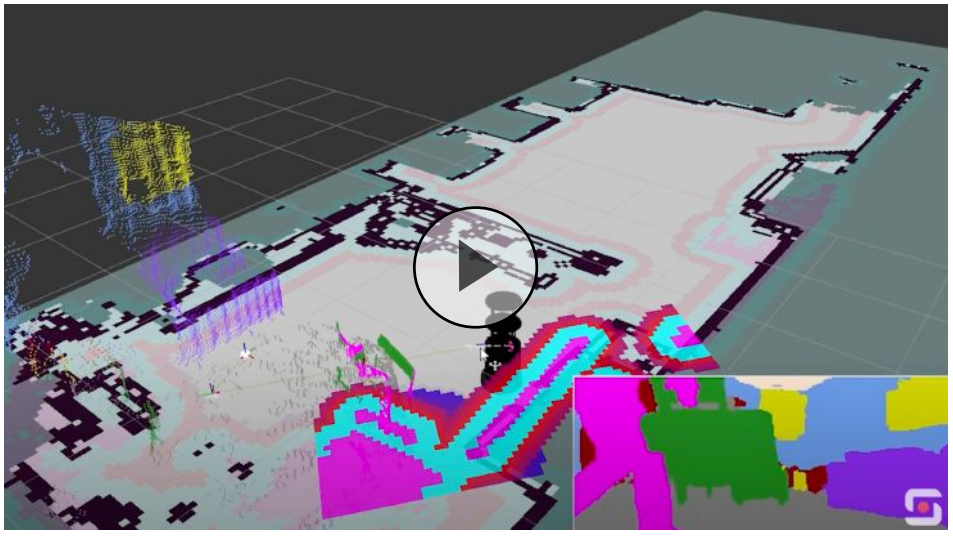
SLAMcore updates mobile robot maps in real time

Getting mobile robots to sense and avoid obstacles is one thing, but getting them to understand their surroundings and be interoperable across suppliers is another. SLAMcore demonstrated simultaneous localization and mapping (SLAM) on NVIDIA's Jetson platform with an Intel RealSense camera at ProMat.

"We provide the SDK [software development kit] and use existing compute on the device with a Linux distribution," said Owen Nicholson, CEO of SLAMcore. "We've been tracking manual forklifts with visual SLAM."

"A lot of AMRs already have cameras for obstacle avoidance, and you can just drop in our software on affordable hardware," he explained. "It runs ROS 2, and it can update maps and digital twins in real time."

"This situational awareness fits the hierarchy of robot needs, from robot to fleet to warehouse," Nicholson told *Robotics 24/7*. "With XR [augmented and virtual reality], and operator can see what the robot sees."



What about emerging interoperability standards?

"They're essential to solve in the future, but they can't solve everything," said Daniel Zindl, director of products at Agilox. "We want to be a one-stop shop, but we can't solve everything. We are part of [German automakers'] VDA 5050 and communicated with MassRobotics regarding standards for the U.S. market." •

RightHand Robotics Picks Up Partners and Recognition, Expects Maturing Demand in 2023

RightHand Robotics, which was named 'Robotics Company of the Year' at the NEVY Awards, shares how robotics is still rising to meet demand.

BY EUGENE DEMAITRE

Autonomous shuttles and mobile robots can move items in a factory or distribution center, but fast and accurate picking is necessary to fulfill growing volumes of orders. RightHand Robotics Inc. has combined its RightPick 3 picking system, machine learning, and RightCare service to address that need.

The New England Venture Capital Association (NEVCA) recently named Somerville, Mass.-based RightHand the "Robotics Company of the Year" at its 10th annual NEVY Awards. Yaro Tenzer, co-founder and CEO of RightHand, thanked NEVCA and MassRobotics for nurturing innovative startups in the Massachusetts robotics cluster.

Vince Martinelli, head of product and marketing at RightHand Robotics, spoke with *Robotics 24/7* about the company's partnerships, the need to consider both humans and automation, and his outlook for 2023.

RightPick 3 works in pharmaceutical fulfillment, among other sectors. Source: RightHand Robotics

RightPick and automated storage

What are some of RightHand Robotics' accomplishments from 2022? How do you work with automated storage and retrieval systems (ASRS)?

Martinelli: Last spring, we announced key partnerships with Element Logic, Vanderlande, and a couple of AutoStore partners. We've seen growth and the extension of piece picking with AutoStore's ASRS.

A new customer was Apotea, a Swedish e-commerce pioneer. It started in 1997 with high-value, low unit-volume prescriptions and took the pharmacy online. Today, it has $500 million in revenue and an 80% CAGR [compound annual growth rate] over 10 years.

The European company built a highly automated warehouse, but it didn't want 1 million sq. ft. Sure, Walmart acquired Alert Innova-

tion in October, but ASRS is like an erector set—it can be put up pretty quickly.

With AutoStore and RightPick for inbound receiving and outbound order fulfillment, apo.com's new 220,000-sq.-ft. facility can operate 24/7 and ship €1.5 billion [$1.6 billion U.S.] worth of product a year.

We're building a network to support the growth of businesses. They don't have to be an Amazon or a Walmart.

What are some of the advantages of automation for smaller companies?

Martinelli: In a smaller company, there are fewer layers to sell through. If the CEO decides, it happens. Larger companies plan buildings over three to 10 years.

RightHand, partners promise to ease robot adoption

How have your partnerships helped widen robotics adoption?

Martinelli: For example, our partnership with Element Logic brings design, installation, and support to 12 countries. Our guys support them with training.

These things take time, but we're starting to see the fruit of these investments. Companies don't have the wherewithal to stitch together conveyors, picking systems, and ASRS themselves, so it's helpful if someone brings the whole thing.

What are some areas where you're seeing demand for RightPick and other technologies?

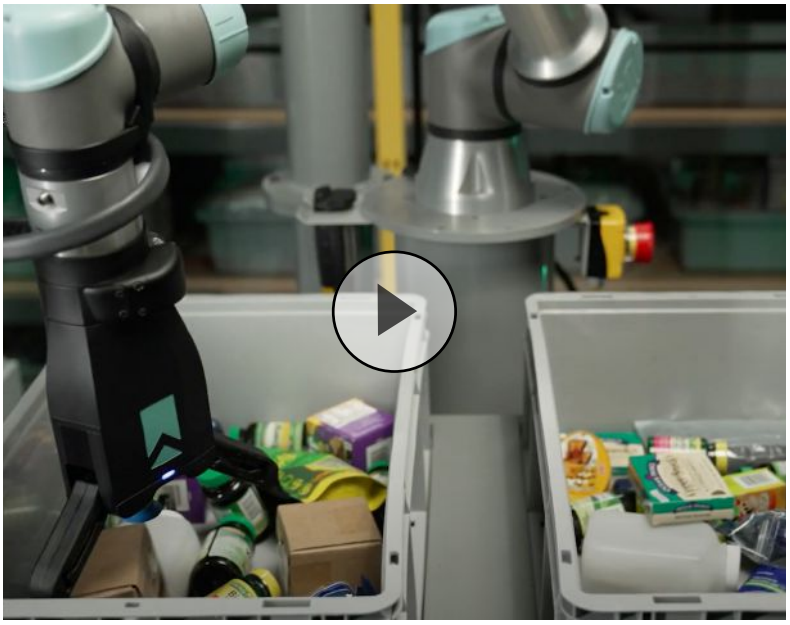
Martinelli: We recently published a white paper on why picking robots are good for healthcare and pharmaceuticals. People need supplies year-round, and there's less seasonality than in retail.

It can be challenging to find the right payback for automation. RightPick can handle those item sets well, and it fits with Vanderlande totes.

Labor shortages still drive interest in robotics

While growth in e-commerce has slowed since the height of the COVID-19 pandemic, we heard a lot about labor shortages last year. Do you expect that to continue?

Martinelli: We've discussed the growth in e-commerce sales and labor challenges. Businesses need labor to keep scaling up.



COVID changed labor markets, with the "great resignation," boomers retiring, and immigration restrictions getting tougher. As Joe Campbell at Universal Robots has noted, even if you took all the people who are unemployed, you still couldn't fill the millions of open positions in manufacturing.

Would reshoring of production to the U.S. help or worsen that situation?

Martinelli: It's complicated. Supply chains could shorten, which is nice, but there's still a need for manufacturing talent in the U.S.

Another challenge is that nobody really wants to stand at an ASRS. They'll start to feel more like consumer products for what Gartner called the "gaming generation."

What are some of the human-centric aspects of working with automation?

Martinelli: It's not just a short-term problem of labor shortages, bussing workers longer and longer distances, or wages not being sustainable. Robots must be designed for the right processes and the people working with them.

The whole industry is coming up the learning curve of how to engage the gamer generation. We're seeing signs of larger companies thinking of using as much automation as is reasonable. It's also helping to bridge the gap in Gartner's "hype cycle."

Expect more robots, less hype in 2023

What industrial and commercial robotics trends do you expect this year?

Martinelli: One theme is that 2023 will be the most exciting time for robots in warehouses, as well as the beginning of a "boring" era. Picking robots are going to be designed into systems and buildings more often.

Integrators won't have to show one robot before an operator will buy 10; they'll just offer a package of 10 with some manual stations.

Projects won't get big public announcements. Robotics is still exciting for operators and integrators, but the outside world looks at university research and shiny proofs of concept.

The cadence of success stories will pick up, and the market is hitting an inflection point where end customers will expect picking robots in the mix.

What are some ongoing challenges?

Martinelli: Market penetration is still low. Smaller firms may need only one or two robots, but the cost point and functionality make it hard to succeed.

Companies targeting SMEs [small and midsize enterprises] have a tough model. They have to sell to a lot to smaller shops to make money.

We see robotics as a service [RaaS] helping with machine tending in manufacturing, where the item sets are simpler than in retail.

We've worked with Universal Robots' arms in palletizing and depalletizing, and we also work with robots picking consumer products, like cans and bottles. There's still plenty of room to for robots to meet e-commerce, warehouse, and retail demand. •

Qviro Announces 2023 Best Industrial Robotics and Vision Award Winners

Qviro's Spring Awards 2023 celebrates top performers in the industry.

BY *ROBOTICS 24/7* STAFF

Qviro announced its Spring Awards for industrial robotics and vision systems. These awards reflect how end users leverage the trusted systems to improve business efficiencies, noted the Genk, Belgium-based review platform for industrial technology. Qviro said it ranks the world's best industrial technology companies based on authentic, timely reviews from real users.

Universal Robots executives with Qviro awards at Automatica 2022. Source: Qviro

"At Qviro, we believe in true transparency and fairness in the evaluation process, and we're excited to recognize those who have gone above and beyond," stated Jorg Hendrikx, co-founder of Qviro, in a press release.

"We want to express our gratitude to our community for taking the time to write reviews about the products they have used," added Sven De Donder, co-founder of Qviro. "Their hands-on experience and feedback help peers choose the best technology for their needs."

Qviro, which raised €1 million ($1.1 million U.S.) in August 2022, claimed that it is "revolutionizing the procurement process of industrial technology such as robots and machines through digitization." The startup explained that its Qviro.com review platform provides factories and engineers with insights and customer feedback to make informed purchasing decisions.

In addition, Qviro offers vendors market intelligence and data to help them better understand their potential customers. As a software-as-a-service (SaaS) provider, the company said it is dedicated to "providing exceptional customer experiences and innovative solutions that drive growth and progress in the industry."

Qviro awards badges

This year, Qviro has awarded badges in the following categories: Market Leader, Loved by Users, High Potential, Meet Requirements, Value for Money, Easy to Use, and Great Support. The company said it plans to announce the winners via its social media channels, and each recipient will receive a digital badge as recognition of its success.

After months of anticipation, Qviro has released the official list of winners for each category of this year's awards:

Cobots

Universal Robots
Easy to Use, Value for Money, Loved by Users, Great Support, Meet Requirements, Market Leader

ABB
Easy to Use, Value for Money, Loved by Users, Great Support, Meet Requirements, Market Leader

Kinova
Easy to Use, Value for Money, Loved by Users, Great Support, Meet Requirements, High Potential

Doosan
Easy to Use, Value for Money, Great Support, Meet Requirements, High Potential

Franka Emika
Easy to Use, Value for Money, Loved by Users, Great Support, Meet Requirements, High Potential

Yaskawa
Easy to Use, Value for Money, Loved by Users, Great Support, Meet Requirements, High PotentialEnd-of-arm tools

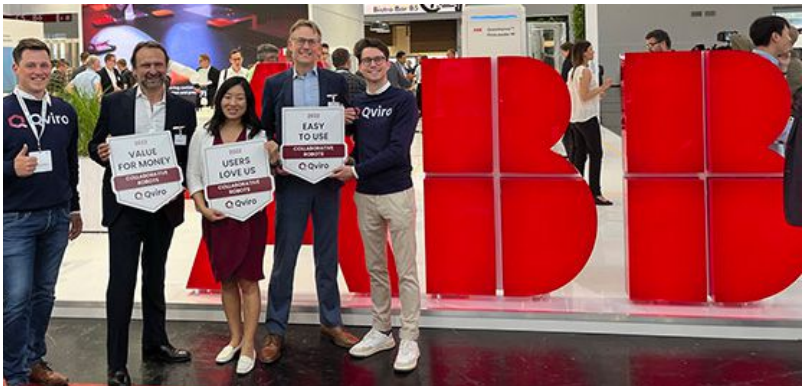
Bota Systems
Easy to Use, Value for Money, Loved by Users, Great Support, Meet Requirements

Grippers

qbrobotics
Easy to Use, Value for Money, Loved by Users, Great Support, Meet Requirements

SCHUNK
Easy to Use, Value for Money, Loved by Users, Great Support, Meet Requirements

Robotiq
Easy to Use, Great Support, Meet Requirements



ABB's team displays Qviro awards at Automatica 2022. Source: Qviro

OnRobot
Easy to Use, Value for Money, Loved by Users, Great Support, Meet Requirements

Industrial (articulated) robots

ABB
Easy to Use, Value for Money, Great Support, Meet Requirements

FANUC
Easy to Use, Value for Money, Loved by Users, Great Support, Meet Requirements

2D vision systems

Cognex
Loved by Users, Great Support, Meet Requirements

3D Vision Systems

Intel (Easy to Use, Value for Money, Loved by Users, Great Support, Meet Requirements)

Robot software

Willow Garage
Easy to Use, Value for Money, Loved by Users, Great Support, Meet Requirements

Open Robotics
Easy to Use, Value for Money, Loved by Users, Meet Requirements

Innovation essential to Industry 4.0

Qviro said its commitment to listening to its customers and using their feedback to drive innovation and growth is essential in Industry 4.0, where technology is continuously evolving. Reviews play a critical role in helping companies stay ahead of the curve, it added.

"The Spring Awards represent the voice of those who have already experienced the products, and the award badges serve as a trust label for purchasing industrial equipment," said the company.

Zavion Herron, a robotics engineer at Marson International, praised Qviro's website and review system. "The fact that I can look at reviews from people like me that are using the product on a daily basis is incredible," he said.

Qviro invited all industry professionals, academics, and enthusiasts to join in the celebration of the Spring Awards by following its social media channels. •

Kawasaki Partners with NEURA Robotics to Release New Cobot Line

Kawasaki will showcase the robots this summer in Germany as part of the Automatica trade show and conference.

BY *ROBOTICS 24/7* STAFF

Left to right: The CL103N, the CL105N, the CL108N, and the CL 110N. Source: Kawasaki Robotics

Kawasaki Robotics recently introduced a new series of robot arms as part of a collaboration with NEURA Robotics. The CL Series is made up of four new robot arms offering payloads and reaches of 3kg/590mm (6.6 lb./23 in.), 5kg/800mm (11 lb./ 31 in.), 8kg/1300mm (17 lb./51. in.) and 10kg/1000mm (22 lb./39.3 in.), respectively.

This is Kawasaki's first true cobot arm line, but it has been offering collaborative dual-arm SCARA robots through its duAro line for quite some time. The Tokyo-based company will show the public the cobots for the first time at Automatica in Munich, Germany, which runs from June 27 to 30.

In a release announcing the new series, Metzingen, Germany-based NEURA did not specify how it worked with Kawasaki, but it noted that each robot will include a sign that reads "powered by NEURA." The robots were developed in Germany and will be manufactured there. Kawasaki's EMEA headquarters is in Neuss, Germany.

"With the introduction of the CL series and a wide range of payloads and reaches, Kawasaki Robotics presents an innovative and dynamic approach to collaborative robotics, supported by the collaboration with Neura Robotics," the companies said in a release. "The partnership between these two companies aims to redefine the existing understanding of cobots in the industry and usher in a new era of collaborative automation."

More on NEURA

Founded in 2019, NEURA develops its own cobot arms, mobile robots, and autonomous guided vehicles. In November, the company shared details of its new humanoid robot. The company said its mission is "to expand the cognitive capabilities of robots and make breakthrough advances in a variety of areas to bring robots and humans closer together."

The companies touted the new cobots' 24-bit encoders, IP66 protection, and proprietary safety architecture.

"With an industry-leading speed of 200°/s and repeatability of ± 0.02 mm, all CL Series models offer the highest precision," they said. "They are the ideal choice for automating simple and repetitive tasks to save costs and maximize revenue."

The global collaborative robot market is expected to expand at a compound annual growth rate (CAGR) of 32.0%, from 2023 to 2030, according to Grand View Research. In 2022, it was valued at $1.23 billion. •

Businesses Adopt Robots Without an Automation Strategy

Only one out of every 10 robot installations are based on an automation strategy, leading to missed opportunities.

BY SØREN PAP-TOLSTRUP, GAIN & CO.

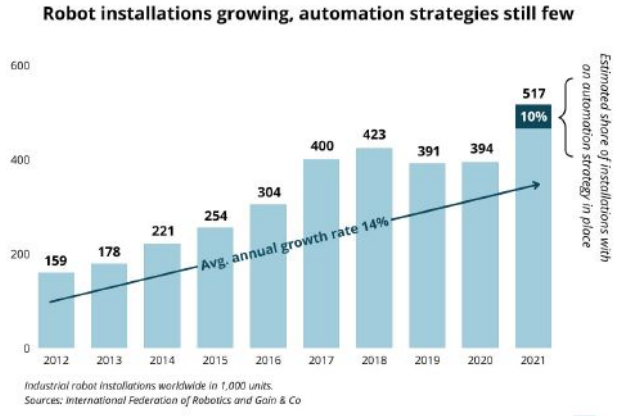
Robot adoption is at a historical high. Businesses from not just the automotive sector but a range of new industries are embracing the opportunities that robot and automation technologies have to offer. This is largely driven by a series of macro forces, including labor shortages, that are shaking up manufacturing supply chains globally, speeding up the inevitable trend of automating manual labor.

The sudden increase in robot adoption has happened over a short span of years, leaving businesses little time to adapt. Few businesses yet fully understand how to leverage robot technology and maximize its value over the long term. The lack of automation strategies in these businesses is a clear sign of that. Our analysts estimate that roughly nine out of 10 robot investments are made without a documented automation strategy in place.

A complete strategy guides businesses on both the why and how of automation. Many businesses have a declared interest in automation but, aside for a small minority, they have not yet translated these intentions into executable plans.

This is a common pattern for new technology adoption. The first-time businesses implement a new technology, it is often sporadic and unplanned. Then, as end-users and suppliers mature, focus shifts to the purpose of the technology, getting aligned with business goals and increasing efficiency – in other words, the things a strategy helps accomplish.

When this transition happens over a very short period of time, as in this case, businesses struggle with adapting their organization to the changes – which often slows down adoption beyond the first investments.



Yearly robot installations increased by 225% worldwide during 2012-21. Source: Gain & Co.

Signs that automation strategies are lacking

Automation strategies generally provide companies with a clear plan on what to automate that is aligned with the goals of the business. The strategy also helps set meaningful automation performance targets and defines success.

Consequently, without a strategy, businesses are unable to properly evaluate the outcome of automation projects and understand if they delivered on their promise. This knowledge is required to scale automation successfully beyond the first few pilot projects.

The way deals are structured in the automation market today show clear signs of missing strategies. Some prevalent signs include:

1 Lacking prioritization of automation efforts

Without a strategy, automation is often implemented sporadically without a company-wide understanding of which efforts should be prioritized and why. This makes it difficult for management to know which investments provide the most value for money and are most likely to succeed. Scaling automation investments without a strategy

further increases the risk of failure.

Some companies are beginning to have a structured process for mapping out automation opportunities on a facility or company-level, though it is still the exception rather than the rule. Such a process often includes evaluating and scoring the benefits and risks of each automation opportunity and weighing them against the company goals.

2 No evaluation of technology maturity

Robot technology is evolving fast. Robots and automation can be used for almost anything today, with some estimating that about 60% of tasks in the manufacturing sector can be automated. At this speed, there is a high likelihood that businesses have outdated knowledge about the capabilities of current technologies. Few businesses have processes in place to update their knowledge and evaluate the technology maturity before investing in automation.

This increases the risk of either underestimating what the technology is capable of, thereby missing out on valuable investments; or overestimating its capability, hence investing in immature technology that is unreliable and does not meet the desired targets for throughput, etc.

3 Missing automation goals

It is still relatively uncommon to see automation projects accompanied by clear, documented goals aligned with the overall business strategy. Without these goals, businesses often lack a shared understanding of the purpose of automation. A side effect of this is delayed automation projects caused by a misalignment between business units on the overall scope of automation.

The misalignment often shows in project specifications where these goals are not explicitly communicated to automation vendors along with the associated performance targets of the equipment to be purchased.

As a consequence, there are no objective criteria to evaluate what solutions best meet the needs of the business and upon which to base investment decisions. Ultimately, without clear targets, there is no way of knowing if the automation investment was successful or not.

4 Seller-centric solution proposals

The automation market is for the most part dominated by seller-centric solution proposals, that mostly specify what the automation solution is and not what it does for the customer. With the absence of clear goals and targets from the customer, the conversation with suppliers often becomes centered around the technical specifications of the solution in the language of the seller. This shifts the burden of proving the value of each solution away from the seller and onto the customer instead.

Many businesses, especially those that are new to automation, do not have the required level of technical expertise to adequately assess and compare how each solution stacks up to their needs.

This increases the risk of getting a negative return on investment due to suboptimal performance of the solution. Making business goals and performance targets the centerpiece of the requirements turns the conversation around and forces suppliers to address them in their proposals.

5 Unknown business value of automation

The rapid increase in robotics and automation has left businesses with little time to evaluate the outcome of their investments and adjust accordingly. This knowledge is critical to scale automation successfully—i.e., profitably—within a company.

Without it, businesses struggle with moving past the initial pilot projects and making automation a widespread success, simply because the financial risk becomes too great. One of the key reasons is the absence of objective metrics tied to company goals that allows the business to evaluate the outcome of their automation investments.

The signals mentioned above are commonly seen in a growing market of emerging technologies. It is expected that the initial euphoria over a new technology will—over time—be replaced by a more systematic approach guided by a strategy. •

Søren Pap-Tolstrup *is the CEO of Gain & Co., independent advisors on robotics and automation.*