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Robots at GEODIS 20

Kevin Stock, senior vice president of engineering and Alan McDonald, senior director of continuous improvement at GEODIS.

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Robots at GEODIS

The global 3PL turned to mobile collaborative robots to rev up its e-commerce fulfillment operations. One measurable result: a 2x improvement in productivity.

BY BOB TREBILCOCK, EXECUTIVE EDITOR

More than 6.5 million. That's how many units GEODIS, the global third-party logistics (3PL) provider, had picked to a fleet of mobile collaborative robots (Locus Robotics, locusrobotics.com) as of mid-December 2018.

175 and counting. That's the number of cobots GEODIS had deployed across its North American facilities as of that date.

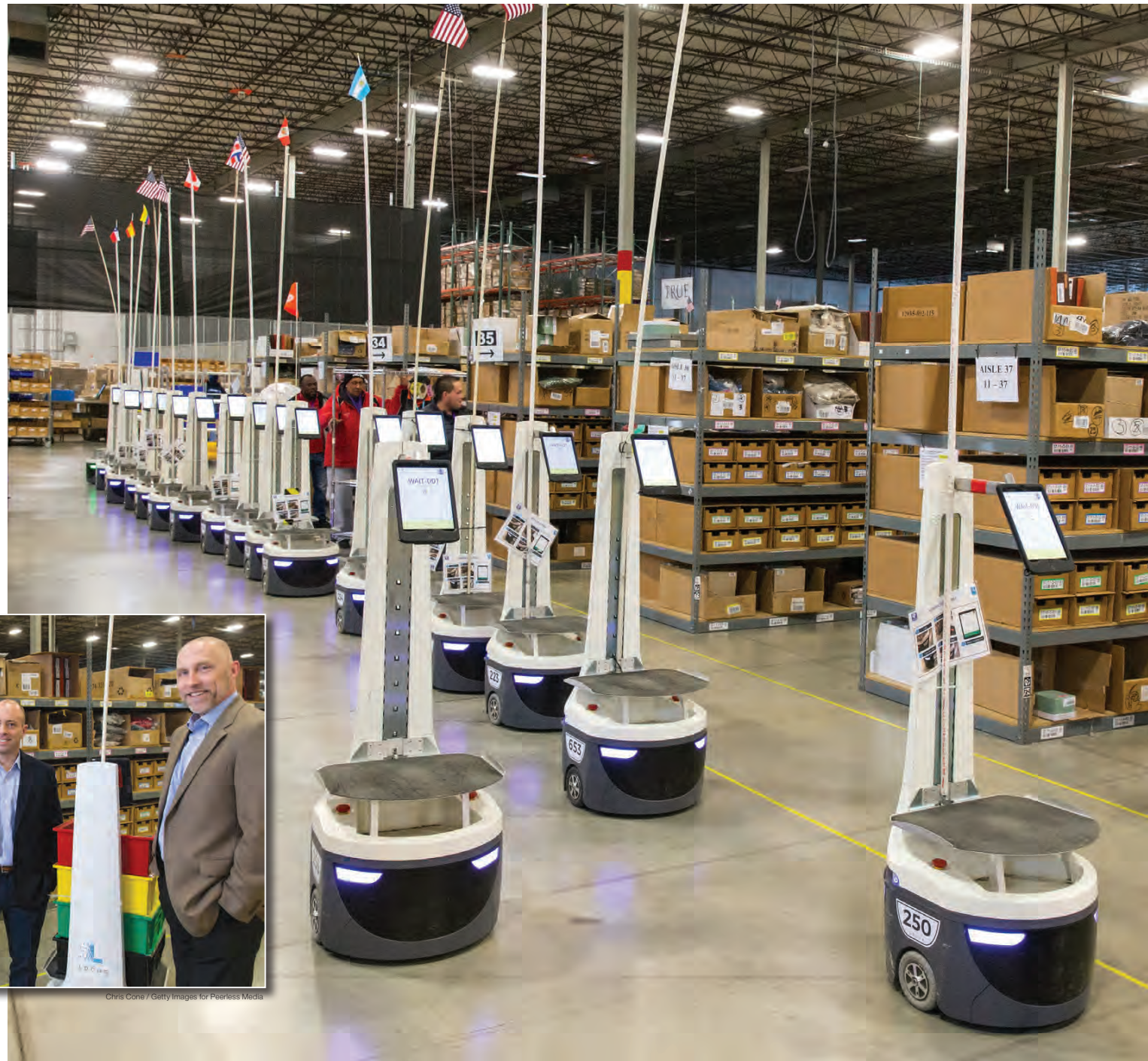
2x. That's the productivity improvements that GEODIS realized since it first deployed a fleet of 21 bots in a facility outside of Indianapolis in January 2018 following a three-month pilot, according to Alan McDonald, senior director of continuous improvement, and Kevin Stock, the senior vice president of engineering.

Those are just some of the numbers that GEODIS believes make a compelling case for mobile collaborative robots in warehouse and distribution environments, like e-commerce, that involve a significant volume of each picks. In GEODIS' case, the number of units picked during peak season

From left: Kevin Stock, senior vice president of engineering and Alan McDonald, senior director of continuous improvement.



Chris Cone / Getty Images for Peerless Media



increased 30% year over year. But it's not just the drive for more productivity that led GEODIS to robotics. Customers are also demanding innovation.

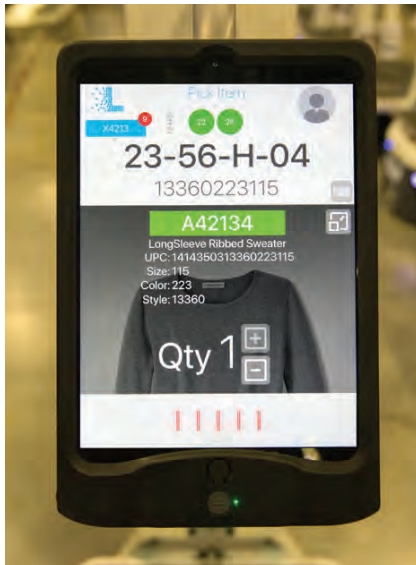
"The market is definitely driving us to new technologies like robotics," notes McDonald. "Our customers are asking us what innovations we are looking at for the future. In fact, not a week goes by that we don't talk to an existing or potential customer who wants to know where we're headed."

Adds Stock: "Delivering on KPIs and costs are considered table stakes for a 3PL. Now, the question is: What else are you bringing to the table?"

For GEODIS, one of the answers to that question is mobile collaborative robots, which also help the global 3PL address the other big issue for warehousing and distribution operators: How do we staff a facility with reliable and productive associates at a time when more and more e-commerce facilities are opening in the same logistics hubs during record low unemployment?

"There is a lot of competition for associates in the areas where we have warehouses, so we have to make them a more desirable place to work," Stock says. "We're installing better breakrooms, better lighting and doing what we can to make the jobs easier to learn and perform successfully. Robotics is part of that."

This is a look at how one of the world's leading 3PLs chose and implemented a mobile collaborative robotics solution



An associate scans a tote to a robot (top). Order selectors receive their picking instructions on a screen (bottom).

that it is now deploying across its footprint.

Investigating robots

With headquarters in Paris, GEODIS is one of the largest 3PLs in the world and generated more than \$9.25 billion in revenue in 2017, the last year for which results are available. The company services 165,000 customers, with 40,500 employees across 120 countries and 70 million square feet of warehouse space. It moves more than 100 million parcels a year.

In the United States, GEODIS leverages 140 facilities on 20 campuses, representing 43 million square feet. It serves six defined verticals, including retail and e-commerce fulfillment, consumer electronics, fast-moving consumer goods, health care, industrial and automotive.

As with other 3PL providers, one of the key trends impacting the business is the growth of e-commerce fulfillment. "It's not pallets and cases anymore," says Stock. "The volume of e-commerce orders is soaring and that means a lot more touches and a lot more people in a very tight labor market."

And, as with other 3PL providers, GEODIS is looking to technology to address those issues in an industry that historically eschewed automation in favor of best conventional warehousing processes. GEODIS has installed automated pick towers, conveyor and sortation systems, and put walls in some of its operations—and it is working on a project to use drones to take inventory in its facilities. But, in its e-commerce picking operations, it still relied heavily on conventional

pick processes such as pick-to-cart enabled by wearable wrist units and a warehouse management system (WMS).

In early 2017, the 3PL concluded that conventional was no longer sustainable, according to McDonald. That spring, GEODIS put together an innovation team to investigate new technologies. Important criteria included: the capital investment required, was it user friendly and easy to operate, was it scalable and finally, was it mobile—if necessary, how easily could GEODIS move a solution from one facility to another?

That April, the new team went to ProMat 2017 to see what the industry had to offer. "We were deliberate about who we spoke to," McDonald says, "and after we narrowed the solutions we were interested in down to collaborative robots, we narrowed that down to a few providers."

Over the course of the summer, the innovation team visited sites where cobots were up and running; they visited company headquarters to learn more about the various providers and their cultures; and asked the potential providers to develop a business case. The fact that this is a new technology, and that many of the providers are startups, made the evaluation a different process than if GEODIS had been looking at a conventional, established automation solution.

"You not only want the right solution, you want the right provider," says McDonald. "Vendors visited our site to demonstrate what they could do. More importantly, when we visited them on their home turf, we wanted to know what was on their road map. It was great that they could do something now, but we wanted to know what were their plans for the future. What was in development that they could tell us about?"

Here, an associate uses a wrist-mounted scanner to confirm a pick.



An order selector scans an item to one of the order totes.

we not only liked their software, but there was a good cultural match between our companies, and they had the same vision as we did. The fact that they had experience in operations helped."

Rolling out a solution

Implementing a new technology, especially one for which there isn't a lot of use cases to learn from, is often a multi-step process. That was the case for GEODIS, although the technology proved itself fairly quickly.

It began with a planned three-month pilot program using 21 cobots in an Indianapolis e-commerce fulfillment center. They developed a process to batch pick single line orders to a tote that would then be sorted out at packing. "Once we selected a supplier, we did a deep dive, starting in October 2017," says McDonald. "We compared pick rates to the existing cluster pick-to-cart process we were using in that operation." Additionally, there was some software development for the interface between the GEODIS WMS and the robotic control system, along with some modifications to the pack operation.



GEODIS quickly learned that in addition to productivity improvements, soft benefits needed to be factored into the decision. For one, the training time to get an associate up and running with a cobot was quicker than learning how to pick to cart. They were easy to operate. Today, the cobots can communicate in the four languages most common to the facility: English, Spanish, Burmese and Chin, which is a language spoken predominantly in Myanmar. For another, associates liked working with the cobots, which they were encouraged to name during the pilot.

“If you watch some of our videos online, our operators say they often talk to the bots,” McDonald says. “So, while productivity was an important metric, we also considered the engagement of employees and the fact that we could make a mundane task more interesting. That leads to better retention.”

Another soft benefit that could not be counted out: customer satisfaction. “When our customers ask us what we’re doing with technology, we can point to the robots,” McDonald says.

In early January 2018, GEODIS formally transitioned from pilot to go live. During that period, communication



Once all the items for totes have been picked, the robot returns to an induction area.

our operators knew that a bot was not going to pick the product, so this was about enabling our people to be more productive while making their jobs easier. It wasn’t about replacing people.”

At the facility level, there have been ongoing learnings over the last year, as GEODIS works with the cobots. “It’s very easy to learn to pick to the bots. It’s longer to learn how to operate them,” says McDonald. “The more you work with them, the more you learn about what kind of robot-to-operator ratio you need based on the volume of orders.” At present, GEODIS uses between three and six bots per associate, depending on the volume and density of orders to be picked in a given day.

In addition to productivity improvements and customer satisfaction, cobots are easy to implement compared to other technologies. A new robot can be received, unpacked and in operation in a matter of hours. Similarly, an associate—or an office employee helping out on the floor during peak—can be picking very quickly. Finally, for the distribution team, it’s exciting to be

was important: It was important that the whole team, and not just order selectors, understand their jobs were not threatened. “We held meetings for all of our operators, whether they would interface with a robot or not,” says Stock. “The important word was: collaborative. We made sure

The new business model

Automation-as-a-service is one of the emerging business models in the materials handling automation space. In this model, a solution provider owns, maintains and in some cases, even operates, the equipment or an entire automated warehouse for a fee. The cost is often on a per-pallet, per-case or per-pick basis.

That includes robotics. Typically two or three options are available, similar to the lift truck industry. They include a purchase option; purchase and rental option, where you purchase a baseline fleet and then rent additional robots on an as needed basis, such as peak and a robot-as-a-service model in which you pay a price based on how the robot is operated, such as a cost per pick.

In this instance, GEODIS chose the service model, which is less capital intensive than a purchase option. “It’s a very competitive market right now, and we spoke to multiple providers who were offering a robotics-as-a-service model,” says Alan McDonald, GEODIS senior director of continuous improvement. “I think they all know they need to make it as easy as they can for people to adopt the technology.”



on the leading edge of an emerging technology.

"There is a perception that I think is accurate that GEODIS is on the front line

of this technology," says McDonald. "If we were to wait until the technology matures to adopt it, we'd be behind the curve."

Adds Stock: "We want to be on the

cutting edge, and as a result, we're creating new opportunities for our business, and for the people who work for us." ■

Putting robots to work

Mobile collaborative robots have increased productivity and throughput at GEODIS' Indianapolis e-fulfillment center.

G EODIS is one of a handful of third-party logistics (3PLs) providers that have embraced mobile collaborative robots to improve throughput and productivity and create a better working environment for their employees. Here's how they're deployed.

At the present, GEODIS is using the cobots only in the picking process. Picking begins when a wave of orders is created in the proprietary warehouse

management system (WMS). To the WMS, a robot is the equivalent of another associate, so the wave is created as if the tasks would be assigned to an associate. The wave is batching single-line orders.

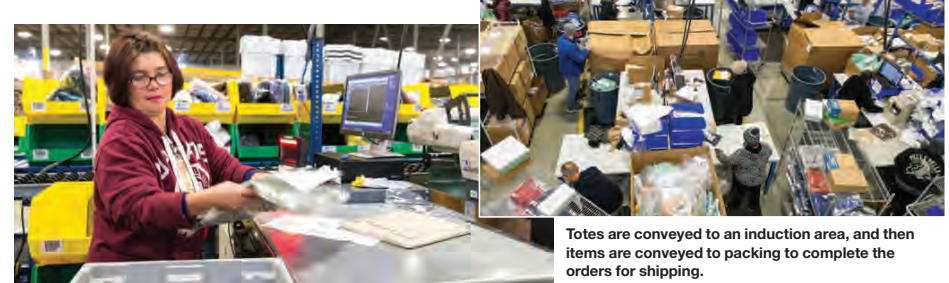
Once the wave is complete, orders are routed to the robot control system through an interface. The robot control system knows the location of associates and cobots on the floor and begins to send orders to the floor in a manner

GEODIS Indianapolis, Ind.

SIZE: 250,000 square feet
PRODUCTS: Apparel and fashion
STOCK KEEPING UNITS: 30,000
THROUGHPUT: 20,000 units per day
SHIFTS: 1 shift per day/7 days a week

System suppliers

MOBILE COLLABORATIVE ROBOTS: Locus
CONVEYOR AND SORTATION: Hytrol
WMS: GEODIS proprietary



Totes are conveyed to an induction area, and then items are conveyed to packing to complete the orders for shipping.

designed to maximize efficiency while minimizing traffic. Depending on the number of orders to fill for the day, the location of inventory and density of the picks, the system will assign three to six cobots to an associate.

Once a robot receives an assignment from the robotic control system, it travels to the pick location. An associate in that area then walks over to complete

the assignment and picks the required number of units to the tote. Associates wear a Bluetooth-enabled identification badge that communicates with the cobot. That allows the unit to keep track of and report feedback on the associate's performance. The associate receives picking instructions on a display screen and confirms the pick on a scanner underneath the display. When

the pick is complete, the associate receives the recommended location for the next available cobot.

Meanwhile, the cobot returns to an induction station where another associate removes the tote and inducts it on a conveyor to packing. The associate then scans a new tote to the cobot, which travels to the next pick location to start the process all over again. ■