

# ROBOTS HAVING BIG IMPACT ON INDIANA – AND NATIONAL – SUPPLY CHAIN OPERATIONS

By Adam H. Berry and Anthony Schoettle

It's no secret robotic automation is increasingly being used in warehouse and distribution center operations.

But it is surprising how quickly this trend is taking root and how prevalent it is becoming.

A new study by global research firm Gartner projects that more than three out of every four warehouses and distribution centers will use some type of robotic automation by 2027.

This is of particular interest to the Hoosier state given its reputation as a major national warehouse, distribution and logistics hub.

The Gartner study found that many organizations are already using mobile robots and plan to expand their fleets over the next three years. Smart mobile robot adoption is expected to easily outpace the adoption of another fast-moving technology – drones – within supply chains over the next three years, the study notes.

“By 2027, over 75% of companies will have adopted some form of cyber-physical automation within their warehouse operations,” states Dwight Klappich, vice president and fellow in Gartner’s supply chain practice. “Labor shortages and challenges retaining talent, coupled with technology advances such as machine learning and (artificial intelligence), will continue to drive adoption of smart robots.”

Gartner’s studies this year have rated several technologies as “transformational,” including machine learning, which is expected to hit mainstream adoption within the next five years. Additionally, many technologies with “high” impact will also mature within the next few years, creating an accelerated market for increasingly capable smart, autonomous and mobile robots and drones, Klappich says.

Robots can vary significantly in size, functionality, mobility, dexterity, artificial intelligence and cost, from robotic process automation to flying vehicles with powerful image and data capturing capabilities. Increasingly, autonomous robots are

programmed with artificial intelligence to recognize and learn from their surroundings and make decisions independently.

No longer the stuff of science fiction, autonomous robots are already bringing innovation to the supply chain and delivering significant value, chiefly because they can help improve speed and accuracy of routine operations – particularly in warehousing and manufacturing, add efficiency through side-by-side work with humans and reduce the risk of employee injury in dangerous environments, according to a recent report published by global consulting firm Deloitte.

As companies expand their use of robotics, most will eventually have a mixed

delivering cost savings and productivity benefits.”

The Deloitte study says that autonomous robots are helping define the supply chain of the future by helping companies decrease long-term costs; provide labor and utilization stability; increase worker productivity; reduce error rate; reduce frequency of inventory checks; optimize picking, sorting and storing times; and increase access to difficult or dangerous locations.

While industry experts insist robots are not intended to replace humans in the warehouse and distribution sector, they are no doubt becoming more human-like in some of their capabilities. For example,



Telamon Corporation has leveraged a Manufacturing Readiness Grant, administered by the state and nonprofit Conexus Indiana, to deploy collaborative robots for assembly line automation in its Carmel facility. *photo by Conexus Indiana of Telamon Corporation*

bag of robots from different vendors performing various tasks, which will require standardized software that will allow those robots to work together. The demand for software that will reduce the costs and onboarding time of these growing fleets of robots is on the rise, Klappich adds.

“In the past year, we’ve seen increased interest in smart robots and (robot integration) platforms as companies are looking to further improve logistic operations, support automation and augment humans in various jobs,” Klappich notes. “Rapidly emerging and evolving technologies ... will enable organizations to leverage heterogeneous fleets of mobile robots to assist with more complex activities,

improvements in haptic sensors – those relating to the sense of touch – will allow robots to grasp objects ranging from fragile eggshells to multi-surfaced metal assembly parts without changes in programming or robotic components.

The Deloitte study adds that robots can perform lower value, mundane tasks so people can work on more complicated, collaborative jobs that can’t be automated.

The benefits of using robots in the supply chain, industry experts say, are expanding as autonomous robots become capable of working independently around the clock with more consistent levels of quality and productivity, performing tasks that humans cannot, should not or do not want to do.