Robotics WILL RESHAPE DISTRIBUTION CENTERS AND WAREHOUSES

IT'S JUST THE BEGINNING

BY HOWARD COLEMAN

This past summer while visiting a wholesale distributor's distribution center (DC), I watched receiving personnel spend an afternoon unloading boxes from a tractor-trailer in near 100-degree heat. This is even before the "stuff" is put away on the shelf. From the looks on their faces they were not happy, and you had to feel some empathy for the difficulty of the task and what was still to be done.

It suddenly occurred to me that instead of just thinking about how to design DC/warehouse space around robots, robots are now being built that are able to operate more on our terms, in our spaces, in our environments.

The situation I was observing amplified how robotics are now being designed to handle the tough and often-menial and accident-prone tasks at warehouses.

Robotics and particularly other forms of automation are not new to logistics. We have conveyor belts, scanners, and other innovations that have helped automate and accelerate, for some decades now, the distribution industry's obsession for speed. But the pace of investment and change – fueled by the pandemic-era e-commerce boom, a tight labor market and a fragile supply chain – has really taken off in recent years. Most experts say robotics will change how warehouses are operated and designed. Some say "it's a golden era we're entering into."

Actually, the seeds of the surge in warehouse robotics were planted during the 2008 recession, when carmakers, which depend heavily on robotics, dealt with a significant and prolonged downturn. But unlike repetitive assembly line manufacturing, warehouses demand a significant degree of flexibility. Only recently have systems like visioning and artificial intelligence become cheaper and powerful enough to sort the tens of thousands of different products streaming through a DC/warehouse.

This technological leap is part of a larger embrace of robotics. In fact, the robotics industry saw a 28% jump in purchases from 2020 to 2021, according to the Association for Advancing Automation. The technology is becoming more affordable and filtering down through the distribution industry, beyond the big players like Walmart and Amazon. It's predicted that robotics and automation investment for year-end 2022 will demonstrate a 25% increase.

WHAT'S THE APPEAL?

Distribution giants like Amazon, Walmart, and others that saw logistics as ripe for innovation, have helped supercharge distribution's turn toward automation. Meanwhile, other organizations – both large and small – with a large "labor content" have a different perspective: Robotics help make many jobs more secure and safer, while also functioning as a cost-saving measure. Focused on reducing aspects of human labor for decades, industrial distribution can achieve that objective without having to necessarily cut headcounts in a tight labor market.

Adoption of robotics in DCs and warehouses will increase 50% or more in the next five years, according to surveys taken by the Materials Handling Institute. The goal is the "mechanical orchestration" of workflow, in which a team of autonomous mobile robots (AMRs), steered by sophisticated software and artificial intelligence, can move pallets, cartons, and piece-pick products in a seamless environment – all in collaboration with the appropriate positioning of warehouse associates. And this includes just about all the typical warehouse functionalities, from receiving and put-away to picking, order staging, and shipping, as well as myriad other product

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transport requirements typical of DCs and warehouses.

You know, Netflix was the only company that could figure out streaming video, until suddenly it wasn't. Likewise, I see an emerging middle class of robotics users in the distribution industry. Other companies, of all sizes, will start to catch up.

There's increased demand for "goods-to-person" robots offered by firms like Zebra/Fetch, Locus Robotics, 6 River Systems and OrangeGrey. These so-called cobots, which can look like a bin-carrying Segway, move back and forth among workers throughout the facility, significantly reducing the "walking" for warehouse associates. With these robots also bringing cheaper and quicker ways to be deployed, some robotics providers have even introduced "robots as a service" business models, leasing machines to warehouse operators and thereby reducing initial capital costs.

MOVING FORWARD

Automation is one major lever that companies can pull. Robots won't replace workers in the near term, but rather make them more efficient and productive. Humans will be "crew chiefs," commanding and maintaining teams of robots. Robots can also help with your worker recruitment while closing the generation gap among warehouse workers.

Quality of experience for the work force is going to rise because instead of constantly walking and doing rote manual things, individuals will learn how to manage the robot to keep it up and running. Robotics will create a career path and a more sophisticated skill set while ensuring the evolution of jobs does not leave longtime workers behind.

Some experts believe that "lights out" warehouses — run by robots around the clock without requiring air conditioning or lighting – will arrive in three or four years. I'm not really sure about that timeframe at all; rather, I need to see more companies in the distribution industry seeing the advantages in increasing efficiency and reducing costs and worker accidents – amounting to a proven potential for a "two times" increase in throughput – reducing that "cost per transaction."

Frankly, I do worry for those owners and senior operations managers who don't pay attention to this fast-moving trend over the near term. Why? Because even today, a lot of DCs and warehouses are just "racks, carts and a clipboard." They're just not going to be able to keep up with the service demands and cost factors to remain competitive. IS


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