How robots are transforming Amazon warehouse jobs — for better and worse

Amazon is leading a robotics race that will have a seismic impact on the warehouse industry, which employs more than 1.1 million Americans today.

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At the centre of the debate on how robots are transforming the industry is Amazon, a company that employees hundreds of thousands of employees in its massive warehouse network, which is also a company whose investment in robots and other automation technologies means it could one day be a huge job eliminator, too. In 2012, Amazon spent $775 million to purchase a young robotics company called Kiva Systems that gave it ownership over a new breed of mobile robots that could carry shelves of products from worker to worker, reading barcodes on the ground for directions along the way. But it also gave Amazon the technical foundation on which it could build new versions of warehouse robotics for years to come, setting the stage for a potential future where the only people inside Amazon’s facilities are those employed to maintain and fix their robotic replacements.

Today, Amazon has more than 200,000 mobile robots working inside its warehouse network, alongside hundreds of thousands of human workers. This robot army has helped the company fulfill its ever-increasing promises of speedy deliveries to Amazon Prime customers. “They defined the expectations for the modern consumer,” said Scott Gravelle, the founder and CEO of Attabotics, a warehouse automation startup.

And those expectations of fast, free delivery driven by Amazon have led to a boom in the retail warehouse industry, with entrepreneurs like Gravelle and startups like Attabotics attempting to build smarter and cheaper robotic solutions to help both traditional retailers and younger e-commerce operations keep up with a behemoth like Amazon. This robotics race — led by Amazon — will have a seismic impact on the warehouse industry, which employs more than 1.1 million Americans today. And the rise of these artificially intelligent robots means there’s likely a day coming when these warehouse robots will be capable of replacing just about every human task, and human worker.

“The thing that really makes us unique as human beings is our ability to solve problems,” Martin Ford, author of *The Rise of Robots*, told me this summer for [an episode of the *Land of the Giants: The Rise of Amazon* podcast](https://www.stitcher.com/podcast/vox/land-of-the-giants/e/63177590). “Machine learning and related technologies are for the first time allowing machines to do that and to compete with that capability. That’s really kind of a game-changer.” In the meantime, robots have the potential to eliminate some of the most menial warehouse labor, as evidenced by the Amazon robots that now transport products across massive warehouses in place of workers who used to be forced to walk the equivalent of 10 or more miles a day. That sounds like a good thing, but new research indicates these robots may be increasing worker injury rates, even though they’re taking on some of the hard labor.

If you’ve heard stories of Amazon warehouse workers walking 10 to 20 miles a day on hard concrete floors, well, they’re true. But in newer warehouses outfitted with robots, much of that walking has been eliminated. “Walking 12 miles a day on a concrete floor to pick these orders. ... If you’re not 20 years old, you’re a broken person at the end of the week,” said Marc Wulfraat, founder and president of the supply chain consultancy MWPVL International.

An Amazon spokesperson said these new technologies help the company store up to 40 percent more inventory in their warehouses, and that they make employees’ jobs easier. The spokesperson also said in an email that the health and safety of Amazon employees is a top priority, and listed several initiatives to try to back that up. She also said Amazon is more aggressive than others in the industry when it comes to documenting injuries, insinuating that’s why Amazon injury rates may be higher than industry norms.

Still, experts who study the robotics industry and its impact on workers fear that the squeezing of human workers is a feature — not a bug — of this period bridging workplaces to a fully-automated future.

“The kind of efficiency that Amazon has to have in order to operate the way it operates now and also to do what it wants to do in the future. ... They’ve got to get more and more efficient,” Ford, the author, said. “Now as long as people are still part of the loop, what that means is that the whole system has to effectively come under more and more algorithmic control.”

He continued: “So in a sense, if you’re one of these workers in that environment, you’re truly just going to be kind of a cog in the machine. You’re gonna be sort of a plug-in neural network as a human being that is performing some tasks that right now the robots can’t.”

A picture containing indoor

Description automatically generatedMen work at a distribution station in the 855,000-square-foot Amazon fulfillment center in Staten Island, on February 5, 2019. *Johannes EiseleI/AFP/Getty Images*