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Technology

New robots in the workplace: Job creators or job terminators?

By Cecilia Kang, Published: March 6

BOSTON — At MIT, a management robot is learning to run a factory and give orders to artificial co-workers, and a BakeBot robot is reading recipes, whipping together butter, sugar and flour and putting the cookie mix in the oven. At the University of California at Berkeley, a robot can do laundry and then neatly fold T-shirts and towels.

A wave of new robots, affordable and capable of accomplishing advanced human tasks, is being aimed at jobs that are high in the workforce hierarchy.

The consequences of this leap in technology loom large for the American worker — and perhaps their managers, too. Back in the 1980s, when automated spray-painting and welding machines took hold in factories, some on the assembly line quickly discovered they had become obsolete.

Today's robots can do far more than their primitive, single-task ancestors. And there is a broad debate among economists, labor experts and companies over whether the trend will add good-paying jobs to the economy by helping firms run more efficiently or simply leave human workers out in the cold.

“We’ve reached a tipping point in robotics,” said Daniela Rus, director of MIT’s Computer Science and Artificial Intelligence Laboratory. The possibility is to run a factory, she added, “all while you are sleeping.”

U.S. firms have already begun deploying some of these newer robots. General Electric has developed spiderlike robots to climb and maintain tall wind turbines. Kiva Systems, a company bought by Amazon.com, has orange ottoman-shaped robots that sweep across warehouse floors, pull products off shelves and deliver them for packaging. Some hospitals have begun employing robots that can move room to room to dispense medicines to patients or deliver the advice of a doctor who is not on site.

Many companies see such automation as the key to cutting costs and staying competitive. Sales of industrial robots rose 38 percent between 2010 and 2012 and are poised to bring in record revenue this year, according to industry analyst Dan Kara.



Rethink Robotics: Flagship product, Baxter, designed to work alongside people: Baxter is the flagship product built by the company and is billed as America’s first adaptive manufacturing robot.

“There will certainly be winners and losers,” said Ryan Calo, a professor of law at the University of Washington who focuses on robotics and public policy. “We’re talking about robots now because they are so versatile and affordable, and that will have profound effects on manufacturing, the entire supply chain and jobs.”

Already on the market is Baxter, a robot developed by a former director of MIT’s lab. It launched in September and is being used by plastics and metal manufacturing firms. With red plastic arms and a cartoon face, it can do the job of two or more workers, simultaneously unpacking pipe fittings from a conveyer belt while it weighs and places mirrors into boxes. When a human blocks its path, Baxter stops, its eyes widen, and then it courteously gets out of the way.

The price tag: \$22,000.

The adoption of this technology is taking place even as many Americans, particularly those who are seeking blue-collar work, are struggling to find jobs that pay a middle-class wage. Many of them have seen little improvement in their lives even four years after the Great Recession ended.

Andy McAfee, a fellow at MIT’s Sloan School of Management, notes that companies are getting more productive without hiring more workers. Since the end of 2001, the nation’s gross domestic product has risen about 20 percent. Meanwhile, the number of hours worked has gone up by only 2.8 percent and the total number of U.S. jobs has increased just 1.9 percent.

“Those latter two numbers are pretty close to zero. Is it so hard to believe that a realistic future combination of fast automation and relatively slow GDP growth could cause them to turn negative?” asked a recent blog post by McAfee, who co-wrote “Race Against the Machine,” a book about how Internet technology is altering labor markets.

But the International Federation of Robotics said in a study last month that paid employment has increased in countries that are the biggest users of industrial robots. For all the jobs lost in manufacturing, others have to be created in distribution and services, the report says.

[Marlin Steel, a company in Baltimore](#), said it has [increased its staff from 18 to 34 people in the past seven years because it began using robots](#) to produce wire baskets that it sells to carmakers and pharmaceutical firms. The new positions are administrators and sales and marketing staffers, as well as engineers at its Baltimore factory.

“It’s a virtuous cycle. We are shipping great-quality products fast due to robots, and that in turn means more jobs,” said Drew Greenblatt, president of Marlin Steel.

But the math on job losses and gains due to new technology is a fuzzy science and highly subjective, other companies say.

Lear, a major auto-parts maker near Detroit with nearly \$15 billion in annual revenue, says it uses robots developed by the Danish firm Universal Robotics to help screw together seats and put together electronic dashboards. The tasks require precision in a fast-moving environment.

Humans could do the job best, but Lear officials say they have to use robots for the company to survive.

“We use them to stay competitive and to keep core employment for everyone,” said Mel Stephens, a spokesman for Lear. “Does this lead to more jobs or job losses? I think you would be able to find numbers that support either thesis.”

Baxter's creator, Rethink Robotics, says there will always be a need for humans in manufacturing.

The company designed Baxter to work alongside people. Its cartoon face changes expressions to warn people what it is doing. When it is interrupted, a confused look comes across its face. It appears sad when it is shut down.

By using cameras no more sophisticated than those in smartphones and with technology used in video game consoles such as the Xbox Kinect, it can sense when people are nearby or in its way. And it can be reprogrammed easily by guiding its arms to new tasks and pushing a few buttons.

Rethink counts Amazon founder Jeff Bezos as an investor, but both firms declined to comment on whether the online retailing giant will begin to use the robot.

These days, Rethink chief executive Scott Eckert spends his time defending his industry against critics who decry robots as job-killers. He said the firm is targeting 300,000 small businesses that can afford his product.

Without his robots, Eckert said, many of these companies might simply look overseas for manufacturing. But now it has become cheaper to buy a factory robot, he said.

"We want to bring U.S. manufacturing back and at least slow or stop the trend of people leaving the field," he said.

http://www.washingtonpost.com/business/technology/new-robots-in-the-workplace-job-creators-or-job-terminators/2013/03/06/a80b8f34-746c-11e2-8f84-3e4b513b1a13_story.html

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