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'The Beginning of a Wave': A.I. Tiptoes Into the Workplace

By Steve Lohr

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There is no shortage of predictions about how artificial intelligence is going to reshape where, how and if people work in the future.

But the grand work-changing projects of A.I., like self-driving cars and humanoid robots, are not yet commercial products. A more humble version of the technology, instead, is making its presence felt in a less glamorous place: the back office.

New software is automating mundane office tasks in operations like accounting, billing, payments and customer service. The programs can scan documents, enter numbers into spreadsheets, check the accuracy of customer records and make payments with a few automated computer keystrokes.

The technology is still in its infancy, but it will get better, learning as it goes. So far, often in pilot projects focused on menial tasks, artificial intelligence is freeing workers from drudgery far more often than it is eliminating jobs.

The bots are mainly observing, following simple rules and making yes-or-no decisions, not making higher-level choices that require judgment and experience. "This is the least intelligent form of A.I.," said Thomas Davenport, a professor of information technology and management at Babson College.

But all the signs point to much more to come. Big tech companies like IBM, Oracle and Microsoft are starting to enter the business, often in partnership with robotic automation start-ups. Two of the leading start-ups, UiPath and Automation Anywhere, are already valued at more than $1 billion. The market for the robotlike software will nearly triple by 2021, by one forecast.

"This is the beginning of a wave of A.I. technologies that will proliferate across the economy in the next decade," said Rich Wong, a general partner at Accel, a Silicon Valley venture capital firm, and an investor in UiPath.

The emerging field has a klutzy name, "robotic process automation." The programs — often called bots — fit into the broad definition of artificial intelligence because they use ingredients of A.I. technology, like computer vision, to do simple chores.

For many businesses, that is plenty. Nearly 60 percent of the companies with more than $1 billion in revenue have at least pilot programs underway using robotic automation, according to research from McKinsey & Company, the consulting firm.

The companies and government agencies that have begun enlisting the automation software run the gamut. They include General Motors, BMW, General Electric, Unilever, Mastercard, Manpower, FedEx, Cisco, Google, the Defense Department and NASA.

State Auto Insurance Companies in Columbus, Ohio, started its first automation pilot project two years ago. Today, it has 30 software programs handling back-office tasks, with an estimated savings of 25,000 hours of human work — or the equivalent of about a dozen full-time workers — on an annualized basis, assuming a standard 2,000-hour work year.

Holly Uhl, a technology manager who leads the automation program, estimated that within two years the company's bot population would double to 60 and its hours saved would perhaps triple to 75,000, nearly all in year-after-year savings rather than one-time projects.

Cutting jobs, Ms. Uhl said, is not the plan. The goal for the company, whose insurance offerings include auto, commercial and workers' compensation, is to increase productivity and State Auto's revenue with limited additions to its head count, she said.

Ms. Uhl said her message to workers is: "We're here to partner with you to find those tasks that drive you crazy."

Rebekah Moore, a premium auditor at the company, had one in mind. Premium auditors scrutinize insurance policies and make recommendations for changing rates. They audit less than half of the policies, Ms. Moore said.

The policies that will not be audited then have to be set aside and documented. That step, she explained, is a routine data-entry task that involves fiddling with two computer programs, plugging in codes and navigating drop-down menus. It takes a minute or two. But because auditors handle many thousands of policies, the time adds up, to about an hour a day, she estimated.

Starting in May, a bot took over that chore. "No one misses that work," Ms. Moore said.

Is she worried about the bots climbing up the task ladder to someday replace her? Not at all, she said. "We'll find things to do with our time, higher-value work," said Ms. Moore, 37.

On State Auto's current path, her confidence seems justified. If the company hits its target of 75,000 hours in savings by 2020, that would be the equivalent of fewer than 40 full-time workers, compared with State Auto's work force of 1,900. The company plans to grow in the next two years. If so, State Auto would most likely be hiring a few dozen people fewer than it would otherwise.

Automation companies are eager to promote the bots as helpful assistants instead of job killers. The technology, they say, will get smarter and more useful, liberating workers rather than replacing them.

"The long-term vision is to have one bot for every employee," said Bobby Patrick, chief market officer for UiPath. The company, which is based in New York, recently reported that its revenue more than tripled in the first half of 2018, to a yearly rate of more than $100 million.

Mihir Shukla, chief executive of Automation Anywhere, refers to his company's bots as "digital colleagues." In July, the company announced it had raised a $250 million round of venture funding, valuing the company at $1.8 billion.

The market for A.I.-enhanced software automation is poised for rapid growth, but that expansion, analysts say, will ultimately bring job losses.

Forrester Research estimated that revenue would nearly triple to $2.9 billion over the next three years. And by 2021, robotic automation technology will be doing the equivalent work of nearly 4.3 million humans worldwide, Forrester predicted.

In a dynamic global labor market, that is not a clear-cut forecast of 4.3 million layoffs. The bots may do work not previously done by humans, and people may move onto new jobs.

"But these initial bots will get better, and the task harvesting will accelerate," said Craig Le Clair, an analyst for Forrester. "For workers, there will be a mix of automation dividends and pain."

The recent research has examined jobs as bundles of tasks, some of which seem ripe for replacement and others not. So the technology's immediate impact will resemble the experience to date with robotic software, changing work more than destroying jobs.

For Ms. Uhl of State Auto, the most persistent pushback has come not at the company but at home, from her two young sons, Christian, 9, and Elijah, 7, who are eager to glimpse the future.

Hearing their mother talk about robots at work, they keep asking her to bring one home. "It's not the kind of robot you can see," Ms. Uhl said she has told her disappointed sons.

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