Robots in warehouses: Job killers or indispensable?

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CHRIS ATCHISON

The days of warehouses bustling with workers to pick boxes and fill orders could soon be a thing of the past if robotic automation continues to gain momentum.

Robots are already rapidly delivering efficiencies as organizations across North America reinvigorate their logistics facilities with fast-moving machines.

Not surprisingly, these non-sentient additions are also generating a high degree of anxiety among some workers who fear for their jobs as robots accelerate their march into the workplace. Not without cause: 58 per cent of chief executive officers from 140 global companies planned to decrease their employee head count over the next five years as a result of robotics, according to a 2014 leadership survey by consultancy PricewaterhouseCoopers LLP.

And in Canada, between 1.5 million and 7.5 million jobs could be at risk of automation in the next 10 to 15 years, according to a report just released by the University of Toronto's school of public policy and governance.

Need for efficiencies

But the flip side is businesses need these efficiencies to survive in an increasingly competitive landscape with an aging work force, experts say. However, Canadian companies lag competitors abroad in introducing warehousing automation, according to Marc Wulfraat, president of supply chain and logistics consulting firm MWPVL International Inc. in Montreal.

For those in the business of manufacturing robotic equipment, the transformation of the fulfilment system, if not the wider economy, is already here. And it may carry some benefits, says one provider.

"Technology provides … better jobs," says Simon Drexler, director of industrial robotics for Kitchener, Ont.-based Clearpath Robotics Inc., whose industrial subsidiary Otto Motors designs and manufactures self-driving vehicles for warehouse, manufacturing and industrial environments across North America, and beyond.

"If you were an accountant when computers came out you would probably be terrified that you would lose your job, but what a computer allowed accountants to do was become data analysts."

Transformation of warehousing

What we know for certain is that automation is transforming the warehousing industry, not to mention manufacturing facilities across the globe, as companies such as Amazon.com continue to embrace robotic assistance for jobs previously managed by humans.

Media reports indicate that e-retailing giant Amazon.com Inc. has cut costs by as much as $22-million in those fulfilment centres in which it deployed Kiva robots.

In a report, British market research firm Technavio estimates the market for logistics robots will reach $2.15-billion (U.S.) by 2020, with a compound annual growth rate of about 32 per cent over that period.

The PwC leadership survey indicates that 94 per cent of CEOs whose organizations had incorporated robotics into their operations found they helped boost productivity, while 64 per cent are counting on robots to help them innovate and increase revenue per employee.

Canadian companies

In Canada, retailers such as Hudson's Bay Co. and grocery chain Sobeys Inc. have taken a lead role in the automation of their facilities, with the former investing more than $60-million to streamline operations at its distribution centres in a bid to compete with Amazon.com and others.

Indeed, in much of the world, the future is here when it comes to warehouse automation. Drones, self-driving vehicles and even legged robots are handling tasks ranging from unloading trucks and picking orders, to gathering data and assisting with inventory management.

According to Mr. Drexler, organizations typically turn to robots to solve one of three problems: tackling labour shortages, gaining a cost advantage or improving efficiency.

Clearpath Robotics has been a clear beneficiary of that. The company, founded in 2009 by four University of Waterloo engineers, earned a place on Deloitte's 2016 Technology Fast 50 ranking, posting three-year revenue growth of 662 per cent.

'Smart factory'

"I really think we're progressing toward the smart factory as a society," says Mr. Drexler. "It's about centralized operational data, about having interconnected devices feeding information into a centralized database, which gives the systems and processes utilizing the data as well as the people analyzing that data a better information pool about how operations are actually running in real time.

"Once you have that information, you're able to make significantly better decisions about where you should be investing time in improvement initiatives to make your facility more efficient."

But while robots are commonplace in facilities across Northern Europe, particularly Germany, Canada remains a relative laggard when it comes to automation, according to MWPVL's Mr. Wulfraat.

Why? He points to rapidly increasing labour costs that have forced manufacturers and distributors in Europe to continuously search for cost efficiencies – in many cases replacing human labourers with cheaper robots who don't collect salaries, claim benefits or take sick leave.

Labour costs

"In Denmark there are people who make $75,000 per year … to drive a forklift in a production facility or warehouse," he notes. "When the labour rates get that high then businesses look to automate."

Mr. Wulfraat says that in North America, many organizations – particularly smaller ones – will often avoid multimillion-dollar investments in automation unless they can reasonably expect to recoup their investment in a few years or less.

In Canada, he says, the use of warehousing automation for smaller companies tends to be targeted to areas such as packaging, while capital investments on robotics tend to be capped at around $1-million or less.

Canadian companies usually can't afford to automate to the same degree as their U.S. or European competitors because of smaller markets and limited economies of scale.

Demographics

But the tide is slowly beginning to turn even in the Great White North, according to Mr. Wulfraat, largely because of demographics.

“The work force is shrinking and companies are struggling to find labour to fill their facilities,” he points out.

That’s the precise reason why he feels that fears of robots fuelling a surge in unemployment are not imminent.

Consider this: The U.S. federal government projects a roughly 5-per-cent reduction in the country’s overall labour force participation rate by 2040, equivalent to about 20 million fewer workers, largely because of an aging population.

Statistics Canada’s projections are similar for the Canadian economy.

That’s why companies are wise to be proactive in their embrace of robotics, says Mr. Wulfraat, or risk being left behind when demographic pressures make finding labour even more challenging and costly.

“It takes time to integrate automation, it doesn’t happen overnight. If you’re the person who wakes up and realizes it’s 2030 and you can’t find people to run your warehouse and your competitors have already done this, pushing more volume out at a lower cost per case, that’s going to be a major differentiator.”