

# Robots in Manufacturing

With more jobs utilizing technology advancements, manufacturing turns to cobots to help ease talent gaps.

By Alex Wright



Collaborative robots can help fill the talent shortfall in manufacturing, but employers must proceed with caution.

**T**he U.S. manufacturing industry is at a crossroads. Faced with a shortfall of as many as two million workers between now and 2025, the sector needs to either reinvent itself by making it a more attractive career choice for college and high school graduates or face extinction. It also needs to shed its image as a dull, unfashionable place to work, where employees are stuck in dead-end repetitive jobs.

Added to that are the multiple risks caused by the increasing use of automation, sensors and collaborative robots (cobots) in the manufacturing process, including product defects and worker injuries. That's not to mention the increased exposure to cyber attacks as manufacturers and their facilities become more globally interconnected through the use of smart technology.

If the industry wishes to continue to move forward at its current rapid pace, then manufacturers need to work with schools, governments and the community to provide educational outreach and apprenticeship programs. They must change the perception of the industry and attract new talent. They also need to understand and to mitigate the risks presented by the increased use of technology in the manufacturing process.

"Loss of knowledge due to movement of experienced workers, negative perception of the manufacturing industry and shortages of STEM (science, technology, engineering and math) and skilled production workers are driving the talent gap," said Ben Dollar, principal, Deloitte Consulting.

"The risks associated with this are broad and span the entire value chain — [including] limitations to innovation, product development, meeting production goals, developing suppliers, meeting customer demand and quality."

## THE TALENT GAP

Manufacturing companies are rapidly expanding. With too few skilled workers coming in to fill newly created positions, the talent gap is widening. That has been exacerbated by the gradual drain of knowledge and expertise as baby boomers retire and a decline in technical education programs in public high schools.

"Most of the millennials want to work for an Amazon, Google or Yahoo, because they seem like fun places to work and there's a real sense of community involvement," said Dan Holden, manager of corporate risk and insurance, Daimler Trucks North America. "In contrast, the manufacturing industry represents the 'old school' where your father and grandfather used to work.

"But nothing could be further from the truth: We offer almost limitless



*"The risks associated with [the talent gap] are broad and span the entire value chain."*

— Ben Dollar, principal, Deloitte Consulting LLP

opportunities in engineering and IT, working in fields such as electric cars and autonomous driving."

To dispel this myth, Holden said Daimler's Educational Outreach Program assists qualified organizations that support public high school educational programs in STEM, CTE (career technical education) and skilled trades' career development.

It also runs weeklong technology schools in its manufacturing facilities to encourage students to consider manufacturing as a vocation, he said.

"It's all essentially a way of introducing ourselves to the younger generation and to present them with an alternative and rewarding career choice," he said. "It also gives us the opportunity to get across the message that just because we make heavy duty equipment doesn't mean we can't be a fun and educational place to work."

## RISE OF THE COBOT

Automation undoubtedly helps manufacturers increase output and improve efficiency by streamlining

## SUMMARY

- **Manufacturing** faces a talent gap as baby boomers leave and young workers set their sights on tech-driven jobs.
- **Technology and connectivity** pose new opportunities, but also new risk exposures.
- **Collaborative robots** are one solution. Employers must educate themselves on the ins and outs of robot risks in the workplace.



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production lines. But it's fraught with its own set of risks, including technical failure, a compromised manufacturing process or worse — shutting down entire assembly lines.

More technologically advanced machines also require more skilled workers to operate and maintain them. Their absence can in turn hinder the development of new manufacturing products and processes.

Christina Villena, vice president of risk solutions, The Hanover Insurance Group, said the main risk of using cobots is bodily injury to their human coworkers. These cobots are robots that share a physical workspace and interact with humans. To overcome the problem of potential injury, Villena said, cobots are placed in safety cages or use force-limited technology to prevent hazardous contact.

"Technology must be in place to prevent cobots from exerting excessive force against a human or exposing them to hazardous tools or chemicals," she said. "Traditional robots operate within a safety cage to prevent dangerous contact. Failure or absence of these guards has led to injuries and even fatalities."

The increasing use of interconnected devices and the

Cloud to control and collect data from industrial control systems can also leave manufacturers exposed to hacking, said David Carlson, Marsh's U.S. manufacturing and automobile practice leader. Given the relatively new nature of cyber as a risk, however, he said coverage is still a gray area that must be assessed further.

"With advancements in technology, such as the Cloud, there are going to be a host of cyber and other risks associated with them," he said. "Therefore, companies need to think beyond the traditional risks, such as workers' compensation and product liability."

Another threat, said Bill Spiers, vice president, risk control consulting practice leader, Lockton Companies, is any malfunction of the software used to operate cobots. Then there is the machine not being able to cope with the increased workload when production is ramped up, he said.

"If your software goes wrong, it can stop the machine working or indeed the whole manufacturing process," he said. "[Or] you might have a worker who is paid by how much they can produce in an hour who decides to turn up the dial, causing the machine to go into overdrive and malfunction."

## POTENTIAL SOLUTIONS

Spiers said risk managers need to produce a heatmap of their potential exposures in the workplace attached to the use of cobots in the manufacturing process, including safety and business interruption. This can also extend to cyber liability, he said.

"You need to understand the risk, if it's controllable and, indeed, if it's insurable," he said. "By carrying out a full risk assessment, you can determine all of the relevant issues and prioritize them accordingly."

By using collective learning to understand these issues, Joseph Mayo, president, JW Mayo Consulting, said companies can improve their safety and manufacturing processes.

"Companies need to work collaboratively as an industry to understand this new technology and the problems associated with it," Mayo said. "They can also use detective controls to anticipate these issues and react accordingly by ensuring they have the appropriate controls and coverage in place to deal with them."

Manufacturing risks today extend beyond traditional coverage, like workers' compensation, property, equipment breakdown, automobile, general liability and business interruption, to

new risks, such as cyber liability.

It's key to use a specialized broker and carrier with extensive knowledge and experience of the industry's unique risks.

Stacie Graham, senior vice president and general manager, Liberty Mutual's national insurance central division, said there are five key steps companies need to take to protect themselves and their employees against these risks.

They include teaching them how to use the equipment properly, maintaining the same high quality of product and having a back-up location, as well as having the right contractual insurance policy language in place and plugging any potential coverage gaps.

"Risk managers need to work closely with their broker and carrier to make sure that they have the right contractual controls in place," she said. "Secondly, they need to carry out on-site visits to make sure that they have the right safety practices and to identify the potential claims that they need to mitigate against." &

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