



Machining

Robots, Cobots and Automation: Is the Pandemic Propelling a Wave of Change in Manufacturing?

Roland Jones | Sep 15, 2020

The COVID-19 pandemic has shown the need for automation inside manufacturing facilities. Here's how innovations such as collaborative robots are helping companies improve business processes.

While most industries have been affected by the COVID-19 pandemic, some have suffered more than others.

Take American manufacturing, for example. Facilities have been idled and production slowed in the face of slack demand and to allow for deep cleaning to protect workers. Companies have also faced worrying shortages of raw materials and personal protective equipment.

Yet despite these challenges, manufacturers have found ways to keep producing. Some have responded by switching to essential medical supplies, while others have found ways to circumvent disrupted supply chains. Facility managers have devised new schedules to accommodate cleaning and social distancing while still meeting the demands of the marketplace.

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Now, as *U.S. manufacturing begins to recover*, industry leaders are looking at how manufacturing technology can help them thrive when operating in a "new normal" and set them on a path for success in the years ahead.

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The Future of Manufacturing: Embracing Automation in Your Facility

One thing's for sure: The old ways of doing things no longer make sense, particularly as traditional manufacturing practices are being transformed by automation technology, most notably robots, and by smart data analytics.

Should You Implement Automation? Five Factors to Consider

In *a recent report on automation in manufacturing*, consulting firm McKinsey recommends considering the following factors when evaluating an automation project:

1. **Technical feasibility:** Is your automation project a realistic one? Can it be achieved technically?
2. **The cost involved:** How much will you need to invest to develop and deploy both the hardware and the software for automation?
3. **The cost of labor:** If workers "are in abundant supply and significantly less expensive than automation, this could be a decisive argument against it—or for automating only to a limited degree," the report says.
4. **The benefits beyond reducing labor costs:** Will the project bring about higher levels of output, better quality and fewer errors? Automation options should be considered and evaluated using a clear strategy focused on reducing the total cost of operations.
5. **Regulatory and social-acceptance issues:** Are machines acceptable in your particular setting, especially where they will interact with humans?

The potential for automation to take hold in a given sector or occupation "reflects a subtle interplay among all five of the factors" and "the trade-offs among them," the report concludes.

Yes, automation leads to a reduction in costs, but it should be deployed as part of a targeted plan for efficiency with a clear expectation of the investment's outcome, advises Joe Campbell, senior manager for strategic marketing and applications development at Universal Robots.

Speaking at *a recent roundtable* on using automation in business that was hosted by the Association for Advancing Automation, a global advocate for the benefits of automating, Campbell noted that he's seeing a "big surge" in small-to-medium-sized enterprises—companies that have never really automated in the past and make up the biggest share of manufacturing capacity in the U.S.—looking to adopt automation technologies.

His advice? Start small and build over time.

"We generally counsel [companies] to find the dirty and dangerous jobs," he said. "Don't try to go and solve all your problems, all in one step. Look for the \$75,000, \$100,000 problem and solve it, you know, kind of build some muscle memory in automation, especially for people who are just new to it."

Indeed, your initial shift to automation doesn't always require a dramatic revolution in your operations. It could be as straightforward as switching to digital channels for interactions with customers, going paperless to reduce data-entry errors, or adopting robotic process automation to perform repetitive tasks. All of these processes can lead to a huge increase in efficiency, a reduction in errors and improved quality.

Human labor still dominates the shop floors of the manufacturing sector, and it's still less expensive than purchasing a full robotic system, but as costs decrease, the automation option is becoming more appealing. Ever since 1961, when the ***first industrial robot was installed on a General Motors assembly line*** in Trenton, New Jersey, robots have been adopted in a wide range of manufacturing settings and used to perform repetitive tasks.

Because of the global lockdown, demand for automated machines and robots ***declined during the first half of 2020***. But with lockdowns easing in some quarters, demand is expected to regain traction later this year.

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As the cost of robots declines and the functionality improves, it will be more feasible for companies to invest in automation because their return on investment will be more attractive. A projected lack of skilled workers, the increasing cost of labor and the need for greater flexibility in manufacturing processes are also expected to drive growth.

The Rise of Collaborative Robots

An area of automation with significant growth is the field of collaborative robots, or cobots. The market for these devices, which are designed to share a workspace with humans, is ***expected to be worth \$7.5 billion by 2027***, grabbing a 29 percent share of the global industrial robot market. Manufacturers already see the huge potential in these small machines, which ***can cost a fraction of the price of a regular industrial robot*** and therefore allow buyers to recoup their investment fairly quickly.

The benefit of cobots is that they can be programmed, controlled and maintained by your existing workers, even if workers have no robotics experience, and they can be easily deployed to do repetitive, dirty or dangerous tasks, letting companies move existing employees into more satisfying roles. They are smaller, lighter and more affordable than traditional robots, boosting competitiveness and flexibility in almost any company.

In ***a recent IndustryWeek article***, Universal Robots' Joe Campbell delved more deeply into why these devices are so appealing to manufacturers. They are "easier to digest, faster to deploy and generate returns quicker," he explained. They also work side by side with skilled operators, allowing manufacturers to automate one process at a time.

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The Practical Application of Cobots

"The business impact in these companies is significant because everyone is struggling to hire, which hits [small-to-medium-sized] companies even harder," he told IndustryWeek. "We are regularly seeing collaborative robots go in right at or below the annual cost of an average manufacturing worker."

Adding to the appeal of cobots is a growing market for "plug-and-play, pre-engineered peripherals" that let companies quickly deploy a cobot for a task without the need for a skilled robot engineer for every application, Campbell said. Industry-focused companies are building products to seamlessly integrate with robots in a manner "that strips out the time, cost and risk commonly associated with robots."

As Craig Zoberis, founder and president of Fusion OEM, a manufacturer of capital equipment, told Universal Robots: Using robots in his operations "helps fulfill human potential."

"Instead of having our staff loading and unloading machines every 10 minutes, they can focus on

machine programming and any other value-added tasks,” he said.

Considering Additive Manufacturing

Metals 3D printing—also called additive manufacturing—is another new technology that promises efficiencies but until recently was mostly useful for creating prototype parts and small production runs. It wasn’t as useful for larger-scale mass production.

But while full 3D production of parts is still in its early stages, and represents a fraction of the \$13 trillion global manufacturing market, many new applications are being evaluated. And major commercial and defense companies are investing heavily in additive manufacturing research, potentially opening up new growth opportunities.

According to a recent report, adoption of 3D printing is increasing across different industries, and annual growth over the next five years is estimated at 24 percent, although that forecast may have been tempered by the current climate.

Still, technological innovations that deliver cost benefits, greater safety and flexibility are likely to see sustained growth over the next decade as manufacturing companies harness their benefits.

What steps are you taking to add automation to your facility? Share your thoughts in the comments below.

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