Coronavirus: Another Reason Factories Must Automate Now

READY ROBOTICS

INTRODUCTION

The eventual impact of COVID-19 (Coronavirus) on our economy is unknown. However, what we do know is that manufacturing, especially in China, has already fallen to historic lows. China's fallen output impacts supply chains globally because of how tightly coupled the supply chains have become and China's share of global trade being at nearly 40% according to the World Bank. The supply chains are tightly coupled to maximize efficiency at every level. In particular, inventory reduction and sole sourcing of parts from specific factories, cities, regions or countries. However, disruption at any level results in final goods not able to be assembled due to missing components. Coronavirus has proven that just-in-time manufacturing is not resilient to disruptions, and manufacturers must take actions immediately to reduce their exposure.

CORONAVIRUS HAS EXPOSED SEVERAL FAILINGS IN MANUFACTURING OPERATIONS

- An over reliance on people, whether sick or just unable to get to work, or a larger inability to fill open positions
- A high degree of geographic dependence, from the city to country level
- The inability to scale output up, or down, quickly in an efficient manner
- A failure to maintain diverse supply chains with a high dependence on single sources

Even before Coronavirus exposed these failings, manufacturers were struggling to address the following 5 key trends:

- Customization and personalization in every product being manufactured
- The push to locate manufacturing closer to the consumer
- Growing labor shortages and an expanding skills gap
- Increasing finished part quality expectations
- Rising tariffs in raw materials and finished goods

THE SOLUTION TO ALL OF THESE PROBLEMS IS THE DEPLOYMENT OF ROBOTIC SOLUTIONS

However, beyond Tier 1 automotive manufacturers, automation has not reached its full potential. The reasons for why robotic automation is not more widely deployed is:

- Robotic automation solutions are too difficult to design, install and maintain. As this article on industrial robotics future growth dynamics from McKinsey discusses, automation needs to be simpler to apply, simpler to connect, and simpler to run.
- Robot arm distributors and traditional automation integrators have a tight hold on the industry. Through

their license deals, exclusive relationships, and proprietary interfaces buyers are not able to flexibly choose products. Instead, manufacturers are forced into expensive sole sourcing relationships for robotic automation products and services.

- The overall solutions are too expensive. While robot arm prices have dropped 50% in the last 10 years, complete integrated solutions are difficult to deploy repeatedly with an ROI of less than 12 months.

By addressing these problems the amount of automation that can be deployed should grow exponentially, not at today's slow trajectory. Through automation, factory planners can rethink their cost models, enabling them to:

- Eliminate labor arbitrage as a significant input to factory location planning.
- Design factories and processes that can scale up and down without an associated change in labor.
- Factor resiliency into their operations since Coronavirus may result in a new normal, where resiliency can be factored into cost models, rather than an attempt to drive out all costs in the supply chain.

AUTOMATION IMPLEMENTATION

Coronavirus has increased the urgency and need to automate, but many manufacturers don't know where to start. Since automation will involve change management, and updates to people and process with the new technology, a great way to start is with pilots. The following 6 steps can be used by manufacturers to get their automation projects started immediately.

1. **Educate those in charge of strategy and direction for manufacturing**

    We've found that many VPs and Directors are not aware of the recent innovations in robotic automation and advanced manufacturing. From dramatically easier to program robots and other Industry 4.0 solutions, our leaders need to be aware of the possibilities to make the strategic decisions necessary to make investments in automation projects. These leaders should also be aware of the benefits automation brings in a world where manufacturers must cope with a global manufacturing labor shortage, and a labor supply that is vulnerable to global forces - like coronavirus.

2. **Identify opportunities for automation**

    Identify tasks that are relatively easy to automate with robots. Often we see companies gravitate to the most difficult tasks when starting. Solving the most complex problem is appealing, but it is not the best path to a successful automation pilot. Instead, we recommend building automation pilot around tasks that:

    - Are low in complexity
    - Reduce risk in the supply chain
    - Cause bottlenecks in production
    - Involve dull, dirty or dangerous machinery that can result in a time-loss accident
    - Have a repetitive operation with poor ergonomics

3. **Identify the ROI early**

For most projects, ROI is the most important determinant of success. Developing an ROI model, and validating that model during a pilot is critical for continued automation success since there is a clear plan for additional investments. By developing the model during the pilot, you already have the data to prove how to scale, and are ready to continue deploying projects.

4. **Form an executive steering committee to ensure prioritization**

Whether it's an automation project or an enterprise software implementation, executive stakeholder involvement is a requirement for success. It's also not just having executive support, but having a cross-functional steering committee including, but not limited to, Finance, IT, HR, Manufacturing, and Labor Relations. Each impacted group should have a level of involvement in the project.

To scale automation, and realize the massive benefits of deploying automation across not only the factory but the entire enterprise, centralized standards and executive direction is critical in ensuring teams don't waste time trying to re-prove a solution, or falling back onto other suboptimal ways of doing work. This direction also ensures that executive leadership drives the automation strategy with the agreed upon tool sets and innovative technology.

5. **Implement projects rapidly, agile, and eliminate as many dependencies as possible**

Given the urgency of addressing the problems arising from a lack of supply chain resiliency, manufacturers need to move quickly. The good news is that automation projects can be relatively low cost from a capital perspective, and in some cases achieve ROIs in less than a year. And, we cannot overemphasize the value of delivering an automation solution on a short and highly predictable schedule. It's possible to do these implementations with empowered teams who work in an agile manner using new technologies that allow for flexibility when implementing automation. Some robotic solutions can now be set up and start providing value in days. Challenge yourself and your team to use COTS solutions, especially those with new and innovative capabilities, to robotically automate a process. In addition, a dependency that derails many projects is either reliance on external partners or the need to train the team in the new technology. Solutions that eliminate altogether, or at least dramatically reduce training requirements, means you can leverage your in-house team, freeing them to do the entire project eliminating the costs from contracting, coordinating and managing an external partner.

6. **Advertise your success**

Once you've been successful at automating a process or factory, it becomes easier to implement more automation. In our experience, manufacturing tasks are not unique, and by automating one instance of that task, you've likely created a template for automating similar tasks throughout your factory or company. Advertising your success company-wide inspires others in your organization to identify similar opportunities to roll out automation. Once you create buy-in around a solution, with concrete evidence about its positive effects in the business, the rest of your organization will want to advertise their own success stories.

CONCLUSION

There has never been a more urgent time for manufacturers to implement automation. Failure to do so will mean a lack of competitiveness, and as proven by Coronavirus, business disruption. The Coronavirus epidemic will end, and the economy will recover, likely at a rapid pace. Those companies that make it through this difficult

time, while also intelligently deploying robotic automation, will be in a uniquely strong position to dramatically increase output as the economy accelerates, without relying on the hiring of staff.

READY

At READY we are solving the problem that robotic automation is too costly to implement. We've developed Forge/OS, a universal operating system for industrial automation. Our Task Canvas visual programming application enables virtually anyone to program a robot intuitively with little to no training. We've also developed turnkey robotic automation packages built specifically for each application such as CNC lathe tending, CNC mill tending, and many others that makes implementation easy. We enable an ecosystem of OEMs and software developers to create a platform where we make industrial automation easy to design, develop and maintain by everyone in the factory, not just those with advanced degrees and advanced training.

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