FIND YOUR WAY THROUGH AUTOMATION

Manufacturing Automation and the 5 Things to Consider First
There are a lot of options out there when considering automation for your assembly and production processes. Those “innovative automation” solutions once only reserved for large automotive plants, are now being deployed in a variety of industries and by small or medium sized businesses. And like so many other industries, the manufacturing and production sectors have experienced a rapid rate of customized consumer demands and more complex challenges. This has many organizations wondering how they can become more agile, and more productive. Factors like scarce or dwindling labor resources can send an otherwise successful manufacturing plant into a trajectory of instability and underwhelming productivity. Manufacturing and processing plants are left with the challenge of how to do more, with less.

As we know, successful manufacturers look for opportunities of growth and stability. And chief among those opportunities are improved and scalable automation solutions that combine current day applications with forward-thinking advantage. Automation has now become the solution of choice for small to medium sized manufacturers looking to boost productivity, improve quality in their operations, and to help maintain competitiveness. Production Managers are finding that mounting costs associated with high employee turnover, fewer skilled labor resources and complex consumer demands, are resolved with automation solutions.

If you’re thinking about automation and looking to learn more about how you can improve your processes, offset labor inconsistencies and increase productivity, there are several important factors to think about. The list below includes the five most crucial elements that are considered by manufacturers when evaluating automation solutions.
With less access to skilled manual labour and increased concerns around quality and safety, a robot is a trusted, cost effective and reliable solution to help increase productivity.

A common myth about automation is that it replaces the work that humans can do, displacing many out of employment.

Rather than replacing the workforce, robots carry out repetitive, hazardous or unsafe tasks and free up time for workers to move onto more valuable and fulfilling jobs that require reasoning and logic. Automation increases productivity which in turn increases work opportunities upstream and downstream from the robot. Many customers have reported an increase in employment opportunities due to the higher levels of quality and productivity achieved with cobot automation.

Cobots offer greater flexibility whereby a single cobot can perform a variety of tasks previously fulfilled by many workers in a safe and efficient way. Cobots are easy to deploy in a range of tasks to suit a high mix low volume production environment.

This is a win-win situation - the employee gains added skills, expertise, and job satisfaction, while the manufacturer gains the benefit of profiting in a competitive marketplace.

\[ \text{Automation tools offer manufacturers the opportunity to recruit, train and retain a more skilled and satisfied workforce} \]
Consider what an automated solution could mean to your company’s bottom line. What value can automation provide and how long will it take to achieve a return on the total investment?

When calculating costs, be mindful of all the components required and those unexpected expenses that tend to increase the project budget.

Quantifying the return on your investment should be focused on the value that a robot brings to your business and the cost reduction to operating costs and your bottom line.

Cost and return on investment (ROI) are considered when deciding to automate. To calculate these, you must consider the real cost of labour such as the number of workers, their salaries, training, accommodation, leave, the cost of recruitment, floor space and the cost of human handling errors.

You will also want to consider hardware and software cost, programming time and customisation costs.

Before researching automation solutions, make a list of the tasks that you could potentially automate and then document your goals.

Look beyond ROI – consider savings beyond the hardware solution:

- Increase productivity
- Use of factory space
- Improve process/product quality
- Mitigate labour fluctuations & availability
- Reduce ergonomic hazards
- Increase your competitiveness
- Grow your business

### Example: Business Case

<table>
<thead>
<tr>
<th>Current Situation</th>
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</thead>
<tbody>
<tr>
<td>Labor Costs (per hour)</td>
<td>$18</td>
</tr>
<tr>
<td>Hours (per shift)</td>
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<tr>
<td>Shifts (per day)</td>
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<tr>
<td>Days Operating (per week)</td>
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<td>Weeks Operating (per year)</td>
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<tr>
<td># Operators (per shift)</td>
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<tr>
<td>Yearly Running Costs</td>
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<td>Monthly Running Costs</td>
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<table>
<thead>
<tr>
<th>Automation Investment</th>
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<tbody>
<tr>
<td>Automation</td>
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<tr>
<td>Additional Hardware and Services</td>
<td>$10,000</td>
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<tr>
<td>Total Investment</td>
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Combining improvements lead to decreased operating costs and increased profits.
The advantage of automating with robots is the speed at which you can get a system into production at your factory. Today customers have multiple offerings, a variety of products, and often highly customised options, deploying a robot ensures that these run efficiently and quickly. This makes the rate of production line changes and assembly to meet customer demands extremely challenging.

If your time to market is slow, customers can move to your competitors to fulfill their needs.

Robots can be easily deployed and thanks to their compact nature, they can work in small spaces to perform repetitive tasks previously done by many workers. The range of end effectors make the cobots suited to many applications and offers the customer improved flexibility. One cobot can perform a variety of jobs ranging from welding, materials handling and polishing to machine tending and even quality inspection. Cobots are quick and easy to deploy and offer a good solution for companies who need fast change over in production.

Automation should not require extensive programming to deliver value. Consider the following:

- How quickly the automation can be up and running.
- If it comes complete with everything you need to get started.
- How easy it is to start using it.
- Availability of pre-programmed tasks.
- Already integrated – hardware, software, ease of an integrated ecosystem.
Viewed as a ‘niche’ product in the past, cobots are now the fastest growing segment in the industrial robotics sector.

Contrary to popular belief, robots can be deployed in companies of all sizes and are popular among small to medium sized companies who need ‘extra hands’ to get the work done quickly and efficiently to the highest quality standard.

Automation tools should be designed for people, simple and intuitive to use with minimal training required. They should be easy to use by anyone on the production floor with no special technical skills or programming required.

One key principle in finding the right automation solution is that it easily integrates into existing production lines and has the flexibility to be utilised in more than one application. Collaborative robots offer flexibility, easy integration and can be up and running quickly.

Employees do not need engineering degrees or a technical background to program and work with robots.

The intuitive software interface and UR+ tools (a robotics ecosystem) make it easy for customers to manage and integrate robots themselves. Cobots have a high level of availability with low maintenance requirements. They are also backed by warranties and service support.

"Collaborative robots offer flexibility, easy integration and can be up and running quickly"
5. STRATEGIC ADAPTABILITY

WHAT DOES THE COMPETITIVE LANDSCAPE LOOK LIKE?

Today, automation is relatively inexpensive enough to provide a rapid return on investment – even for small and medium sized manufacturers with changing product lines.

In an ever-changing competitive landscape, increasing quality, productivity and being flexible enough to adapt to changing customer demands is critical.

For manufacturers that are challenged by shrinking employee availability, skilled labour shortages and high consumer demands, automation serves to propel production forward into the future.

As manufacturing processes evolve to become smarter and more connected, less agile competitors that are too slow to adapt will be left behind. Manufacturers around the world are realising that automation – and specifically collaborative robots – offers not only the potential to re-define operational efficiency and output, but also the potential to reduce rising labour costs in increasingly competitive markets.

Learn even more about automation using collaborative robots with Universal Robots.
ABOUT UNIVERSAL ROBOTS

Universal Robots (UR) was founded in 2005 to make robot technology accessible to all by developing small, user-friendly, reasonably priced, flexible collaborative robots (cobots) that are safe to work with. Since the first cobot was launched in 2008, the company has experienced considerable growth with the user-friendly cobot now sold worldwide. The company, which is a part of Teradyne Inc., is headquartered in Odense, Denmark, and has regional offices in the United States, Germany, France, Spain, Italy, UK, Czech Republic, Poland, Hungary, Romania, Russia, Turkey, China, India, Singapore, Japan, South Korea, Taiwan and Mexico. In 2019, Universal Robots had a revenue of USD 248 million.

For more information, please visit [www.universal-robots.com](http://www.universal-robots.com) or read our blog at [blog.universal-robots.com](http://blog.universal-robots.com).

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