Eight pain-points of automation for robotics starters

and how no-code robotics tackles them
01 Introduction

Companies of various sizes deal with inherent challenges that impede business operations from time to time. These challenges have over time, given rise to numerous technological breakthroughs like the development of online video conferencing to enhance remote work or the introduction of robots to solve the problem of labour shortage. Today, robots are being widely accepted across various industries. Nevertheless, considering the benefits of robots, the rate at which they are being deployed, is expected to be much higher. This is because certain unaddressed challenges with the use of robots still exist and these challenges referred to as ‘pain points’ hinder automation especially in small companies with limited resources. This whitepaper addresses such pain points from the perspectives of two main stakeholders within small and medium enterprises (SMEs) which have never automated their processes. These stakeholders include Smith, a company owner, and Jack, a machine operator in an SME. Each of them has various pain points which must be solved in order to consider automating their manufacturing processes. Find out what these pain points are, why each point is important, and what the most viable solution is.

1 All individual names are fictional with the aim of presenting the facts (which are true) in a way that is easy to imagine, understand and follow through, even for non-experts.
02 What they have to say

“The market research costs a lot of time and money even before considering the cost of implementation.”
– Smith, Company owner

Most companies deploy different robot brands for different applications depending on several factors such as payload capacity, availability, safety and so on. Each robot brand understands its own unique programming language, and most robot programmers have expertise in only a few of the most common robot programming languages. This means that companies with a variety of robot brands will have to hire different experts for the various brands on their shopfloors and since robot programmers are very few, this becomes quite expensive.

“If we introduce robots on our shopfloors, the current employees may fear that robots will eventually take away their jobs.”
– Jack, Machine operator

Acceptance is the biggest challenge for shopfloor workers. If robots are able to do most of their jobs today, then they fear that the robots will be able to do all of their jobs in the near future.

“I am not sure robots are flexible enough to meet our changing product demands.”
– Jack, Machine operator

Flexibility is another important aspect that should be considered when designing an automation system. In terms of mobility as well as functionality, it is beneficial to have a high degree of flexibility. One may build a sophisticated and unique machine to automate the whole or a part of the production process. However, a change in the product or production process would cause huge modifications to the system which will be a financial as well as a temporal burden. Therefore, flexibility should be a key aspect when designing an automation system.

“It is important to consider the frequency at which our products change as each change requires a modification of our processes and applications. Re-programming robots frequently is quite costly.”
– Smith, Company owner

Robots are expensive, this is true. However, the cost of programming a robot accounts for majority of the total cost of automation. This means that companies which change their processes regularly must constantly spend a lot of money on programming the robots every time a new skill is needed. This is a major pain point several companies face today.
“We have to consider productivity as well.”

– Smith, Company owner

Productivity is a function of the relationship between input (invested resources) and output. The goal is to ensure that the maximum amount of output is reached with the minimum amount of input and this is the main challenge faced when considering automation. For most companies, it is necessary to consider the availability of the robot in terms of productivity. Availability in this context, is the percentage of time a robot is able to function and perform its task. Less downtime means more availability. Industrial robots have higher availability (99.995% on average) than cobots (70% on average). Nevertheless, when considering the time needed to program the robots for every skill change, the availability time lost on cobots is accounted for by a much shorter programming time than the time needed to program an industrial robot. Therefore, companies with small lot sizes and high product variations may consider cobots over industrial robots with equal payloads.

“Our employees could accept automation if they are able to work together with the robots very easily.”

– Jack, Machine operator

Ease of work is one of the most important considerations of the user. People always prefer the easiest and quickest ways of getting things done and if robots make their job easier, then why not?

“‘The safety of the employees on the shop floor is a huge concern too.’

– Jack, Machine operator

Robots – collaborative or industrial – are machines and with every machine, there are tendencies for accidents to occur. However, the risk is higher with industrial robots than with collaborative robots which are designed to work side by side with humans. Industrial robots require a higher level of security especially when humans are also required to be present on the shopfloor where industrial robots operate.

“We also have to consider the return on investment because we cannot automate if the return on investment (ROI) remains unclear.”

– Smith, Company owner

When automating for the first time, the ROI is difficult to predict. This is because the major cost of robots lies in the cost of programming and maintenance. To teach a robot a new skill traditionally, experienced robot programmers need to be hired and this is very costly. Since it is difficult to predict how often robot programmers are required, it becomes also difficult to calculate an accurate return on investment for companies without any experience in automation.
03 Pain points and how to solve them

Ultimately, the overarching goal of every company is to meet the needs of their customers while ensuring the satisfaction of their employees. This section explains how this is possible.

- **Ease of use**
  Solution: No-code robotics solutions enable people with no prior IT knowledge to teach robots new skills entirely on their own. Therefore, the training needed when using such solutions is little to none as they are quite easy to use.

- **Cost of robot programming**
  Solution: The cost of robot programming can be drastically reduced if factory workers become the robot programmers themselves. This is possible if the complex robot programming interface becomes so simplified that one no longer needs to write a single line of code just like today’s website development. Programming becomes teaching by mere demonstration.

- **Flexibility**
  Solution: Flexibility can be improved through a solution that makes it possible to reach every complex path easily. This can also become an added advantage even for companies which already hire in-house robot programming expert. Time is saved by replacing complex methods with an easy-to-use solution.

- **Productivity**
  Solution: If programming becomes teaching, it is possible to maximize the availability of any kind of robot since the time needed to re-program the robot is largely minimized. Minimal programming time increases robot availability which consequently increases productivity.

- **Safety**
  Solution: Safety is an inherent issue with robots, but the risks differ depending on the kind of robots in use. Cobots already solve the issue of safety as they are designed to work side by side with humans. Although industrial robots are not typically designed to work closely with humans like cobots, safety measures are put in place by individual robot brands to limit risks as much as possible.

- **Unclear ROI**
  Solution: Return on investment becomes clearer and evidently larger when cheaper cost of robot programming is properly factored in.

- **Acceptance**
  Solution: With no-code robotics solutions, regular shopfloor workers can become ‘robot programmers’ themselves. This puts the power in their own hands. They can either decide to teach the robots themselves or dedicate their time to other less monotonous tasks and foster growth within the company.

- **Market research**
  Solution: This is inevitable. However, when considering the potential risks in the long run, the benefits of market research highly outweigh the cost.
04 Conclusion

The relevance of automation cannot be overemphasized. It benefits all stakeholders within the manufacturing ecosystem by enhancing productivity and scaling up the global supply chain. Nevertheless, the pain points of automation cannot be ignored as they are quite significant. Without clearly addressing these challenges, investing in automation may not seem worthwhile. These pain points create the need for a technological advancement that maximizes the benefits of robotics. No-code technologies are becoming increasingly popular as they empower people with the ability to automate processes on their own irrespective of their technical backgrounds. Such no-code technologies have proven to be effective in the context of website development and marketing automation systems. In the same way, no-code solutions will empower the next generation of robotics.
05 About Wandelbots

Wandelbots is a No-Code-Robotics Platform, that empowers everyone to work with robots. Once the software runs on a robot, it enables countless possibilities to operate and optimise robotic applications. The main product is the Wandelbots Teaching Solution that gives operators the ability to teach and reteach industrial robots, without writing a single line of code. With the Wandelbots Teaching Solution, operators can teach a robot, regardless of prior robotic knowledge. It combines easy to use software with an intelligent teaching device, e.g., the TracePen. This makes robotics easier, more flexible, more affordable, and thus accessible for every company. To teach a robot with the Wandelbots solution there are only 3 simple steps needed: The user performs the activity the robot is supposed to learn in an exemplary manner, while the robot’s movements are recorded in real time in space. The intuitive user interface of the Wandelbots app makes the path and the process editable, so you can adjust keyframes and control I/Os. Once finished, the skill is converted to immediately executable, manufacturer specific codes to run the robot. The current solution is shipped in the Wandelbox, a suitcase that contains the TracePen - a wireless pen to record the path, tripods and tracking cubes to track movements, a calibration adapter, an industrial PC for running the software platform, and an iPad with the Wandelbots app. Wandelbots’ solution mitigates several challenges that exist within the robotics industry today and enable adopters of this technology to acquire a much higher return on investment especially in terms of time and money.

For more information, visit www.wandelbots.com

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