Six pain-points of automation for robot power-users

and how no-code robotics tackles them

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01 Introduction

Challenges which restrict business operations exist across various companies irrespective of their size. However, these challenges have over time, given rise to numerous technological breakthroughs such as 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 and used across various industries. Nevertheless, the benefits of robots are limited in several aspects even for companies which already deploy robots in their assembly lines. This is because certain unaddressed challenges with the use of robots still exist and these challenges referred to as ‘pain points’ often counter some of the benefits of automation.

This whitepaper addresses such pain points from the perspectives of three main stakeholders within manufacturing companies which already automate their processes by deploying fleets of robots on their shopfloors. These stakeholders include Jane, a Chief Operations Officer (COO) at one of such companies, Mira, a production manager (PM) and Sam, the head of the assembly line (HAL). Each of them has various pain points which must be solved in order to enhance productivity and provide a maximum return on investment. Find out what these pain points are, why each point is important, and what the most viable solution is¹.

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.
What they have to say

“We spend a lot of money to get different programmers for the different robot brands we have.”
– Jane, Chief Operations Officer

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.

“We could train some of our employees to program the robots themselves, but this will cost us even more time.”
– Mira, Production Manager

These kinds of trainings are very costly in terms of time and money. Also, when trained employees leave the company, more time and money will be spent on training new ones. In the long run, this is not a sustainable option.

“Also, it is not very safe for employees to be around robots more frequently in order to test their learnings.”
– Sam, Head of Assembly line

Safety is always an important topic when dealing with robots. 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. If inexperienced employees are constantly being exposed to robots, it increases the risk for an accident to occur.
“Maximum productivity may be difficult to attain if a lot of time and money is spent on changing even minor processes.”
– Mira, Production Manager

Product managers are very particular about maximizing productivity. Productivity is a function of the relationship between input (invested resources) and output. Production managers try to ensure that they reach the maximum amount of output with the minimum amount of input and this is the main challenge they face 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. Generally, the challenge is to figure out the cheapest and fastest way to implement the required processes.

“Depending on robot programming expert for every skill change is quite time consuming.”
– Jane, Chief Operations Officer

Since the number of installed robots is growing by 30% per year while the annual growth rate of available engineers is just around 2%, the waiting time for a robot programming expert is approximately 4 months. When the experts arrive, more time is required for the entire programming process and this could take weeks or even months for very complex processes.

“Some employees may be excited about the autonomy that comes with being able to program robots themselves, but they may not be interested in complex trainings.”
– Sam, Head of Assembly line

Workers are always interested in tools and methods that provide them with autonomy but not at the expense of ease of use. At the moment, robot programming is still a highly complicated process even for some experts. This makes it even more tasking to train people without prior programming knowledge or experience.
03 Pain points and how to solve them

The overarching goal of every company is to meet the needs of their customers at the least possible cost while ensuring the satisfaction of their employees. This section explains how this is possible.

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.

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.

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

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.

Ease of use & Training
Solution: No-code robotics solutions enable people with no prior IT knowledge 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.

Autonomy
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.
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 even within companies which already deploy robots on their shopfloors. 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.
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

We make robotics easy for everyone!

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