# Implementing Robotic Process Automation in the Manufacturing Industry

The widespread adoption of Industry 4.0 business concepts shows that the future of business operations is automation. Robotic Process Automation (RPA) borrows a leaf from the automation playbook of Industry 4.0 because it involves the automation of routine rule-based processes using artificial intelligence and machine learning.

RPA is a next-gen technological concept and as with all emerging technologies, it is only right to ask if RPA is a fad?

The statistics show that RPA is here to stay. According to Statista, its current <u>market revenues</u> are approximately \$3billion and it is expected to hit the \$10billion mark by 2023. The key performance indexes driving the increased adoption rate of RPA is its ability to improve process quality, reduce operational cost, automate repetitive tasks, and optimize productivity.

A real-world example of an RPA in action is the automated call center responses we encounter regularly. RPAs work alongside call center bots or Chabot to scrutinize customer responses and provide adequate answers to complaints. In this scenario, RPA leverages natural language searches to respond to customer queries. When individual queries become complex, RPAs escalate the query to a human agent.

The above example scratches the surface of the application potential of RPAs. This is because RPAs can be deployed in diverse forms to automate more complex processes across industries such as manufacturing, finance, and healthcare. This post will take a deep dive into RPAs and the technologies that enable you to benefit from the automation they provide.

#### What is Robotic Process Automation?

RPAs are productivity tools that enable their users to configure scripts to execute automated tasks. Using an RPA, also called a software robot, enterprises can automate the capture of data, its analysis, and the action to be taken using the analyzed information. The perfect RPA or software robot should be easily configured without having to write any code. The manufacturing industry is expected to become a huge beneficiary of RPA technology due to the manual repetitive tasks that categorize traditional aspects of manufacturing. For example, scheduling operations in many manufacturing facilities still rely on manually evaluating production cycles and assigning timesheets to different workers.

Scheduling bots can be utilized to automate the process of capturing operational data within a modeled environment or a digital twin and analyzing the data to develop optimized schedules. The automation RPAs provide can also be leveraged to automate resource management processes, procure to pay, and other supply chain-related processes.

#### Utilizing Robot Processing Automation in Manufacturing

To achieve complete automation within the factory floor, shop floor assets must be capable of taking decisions for themselves and RPA provides a pathway to make this possible. The goal of Industry 4.0 business concepts such as implementing a predictive maintenance strategy is to ensure equipment can diagnose defects and take action by ordering replacement parts or scheduling a maintenance session.

Manufacturers can deploy software bots that automate the capture of machine utilization data and analyze the captured data to determine when the next maintenance is required. Configured with the ability to access enterprise resource planning (ERP) and manufacturing enterprise systems (MES), the bot can then automatically place orders for spare parts and set notifications for scheduled maintenance activities.

Another much more important example of applying RPA in the manufacturing industry is utilizing it to automate production scheduling processes. As you probably know, an optimized production schedule is the difference between going to market quickly and disappointing expectant customers. Manufacturers can leverage process evaluation bots and scheduling bots to optimize productivity.

A real-world application of a production scheduling bot will involve the bot functioning within a simulation model of a manufacturing facility and its operations. Using customer demand data and knowledge of the facility's production capacity, the scheduling bot evaluates the effect of increased demand to develop optimized real-time schedules that ensure increased productivity and quality throughput. Software bots can also be configured to analyze inventory data to automate the process of allocating resources to meet increased customer demand.

## Enabling Successful RPA Implementation with Simulation Modeling

The implementation process for relatively new technologies such as robotic process automation comes with a learning curve. Reports have shown that many <u>RPA implementations fail</u> and 97% of implementations do not scale past the initial attempt to utilize software robots to automate tasks. The reasons for this failure include enterprises not correctly assessing their RPA requirements and which processes to automate.

The challenges with successfully implementing RPAs can be mitigated by proper analysis and thankfully Industry 4.0 highlights the importance of data-driven implementations within the shop floor. Simulation modeling provides manufacturers with the tools to perform data-driven analysis before deciding to deploy RPAs to automate industrial processes.

A simulation model of an existing manufacturing facility can be used to evaluate the impact of automating specific processes to determine the expected returns. To accomplish this, resource blocks or agents that mimic the automation capabilities of an RPA is introduced into specific processes. Running simulation trials with different configurations of robot placement provide insight into the effect of implementing an RPA and where they should be deployed to better optimize manufacturing processes.

The data-driven approach to determining which areas will benefit the most from RPAs ensure manufacturers do not take the highly ineffective and complex route of attempting to automate every operational process at once. The data-driven approach using simulation modeling also helps manufacturers answer questions such as:

- Will an RPA implementation simply move bottlenecks to other operational processes thus, causing new challenges?
- How will the implementation of RPA affect staff deployment within the shop floor?
- Will RPAs improve our ability to deliver increased service-levels to our customer?

# The Benefits of Robot Process Automation to the Manufacturing Industry

Automating repetitive tasks comes with multiple benefits when automation is done correctly. The application of RPAs within the manufacturing industry will:

- Reduce the time spent on repetitive manual labor such as data entry thus, reducing the possibility of human error in the workplace.
- Speed up the operational processes required to go-to-market with new products, as well as increase customer service levels
- Delegate less important tasks to RPA bots which leaves employees with more time to focus on major manufacturing activities
- Improve decision making as RPAs rely on data analytics to take action and provide data-driven insight to stakeholders

### Conclusion

Robotic process automation technology is one of the digital transformation solutions the manufacturing industry can leverage to automate tasks. To take advantage of the benefits RPA offers, proper implementation is required and the implementation process must consider its relationship with existing digital transformation solutions. You can learn how to pursue a proper implementation process through our digital transformation checklist.