AN INTRODUCTION TO ROBOTIC PROCESS AUTOMATION FOR MANUFACTURERS

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Robotic process automation is helping manufacturing organizations do more with less.

Robotic Process Automation (RPA) is transforming the way organizations across different industries do business. It allows organizations to automate certain types of work processes to reduce the time spent on costly manual tasks and increase efforts to deliver mission critical work. RPA is helping organizations do more with less: helping them automatically process and store data without having to perform manual data entry, generate financial reports without spending considerable amounts of time in Excel, and execute customer outreach campaigns without spending hours in a customer relationship management (CRM) program. These types of optimizations have been made a reality through RPA, with organizations just beginning to scratch the surface of its possibilities.

More broadly, RPA is a critical innovation within Industry 4.0, or the fourth industrial revolution that blurs the line between the digital and the physical. RPA can help enable manufacturers to improve productivity, meet customers' expectations and consistently drive product innovation—all while lowering costs.

RPA DEFINED

RPA is the use of software that automates manual tasks. It eliminates the need for employees to perform repetitive tasks by integrating software that performs the same set of steps as the employee. The software is designed to perform routine tasks across multiple applications and systems within an existing workflow. It performs specific tasks to automate the transfer, editing, reporting and/or saving of data.

RPA's benefits extend to both the back office and the C-suite, dramatically improving the efficiency of mundane, administrative tasks. Roughly 25 percent of a CEO's tasks could be automated through RPA. For example, RPA can automatically collect data from multiple sources, perform a data manipulation—such as applying data formulas in Excel—and then export or save the information to a readily available location.

One of the main differentiators of RPA from other solutions is that it performs tasks that do not require deep cognitive capabilities. RPA is the automation of a process, but the software is not improved or changed based on the inputs or its results. This is different from machine learning or artificial intelligence (AI) software, which can learn and improve based on the continuous evaluation of its inputs and results. Instead, RPA software simply performs the same task(s) repeatedly based on business requirements.

BENEFITS OF RPA

▶ Error-free, consistent results

▶ Employees can be utilized for higher-value work

▶ Increased job satisfaction (not spending time doing repetitive, low-value work)

▶ Faster, more predictable delivery timing

▶ Documented trail of work performed

▶ Identification of anomalies or other red flags

RPA provides several major benefits. The most immediate impact from RPA is that routine tasks are performed in an error-free, consistent manner. RPA also provides an audit trail of work performed, which can be valuable when the output of a process produces an unexpected result. In addition, RPA solutions can be configured to identify anomalies or red flags that may not be identifiable by an employee.

The long-term advantages are also valuable. Perhaps the most important benefit is increased job satisfaction. When employees are asked which parts of their jobs they dislike the most, the tasks they list usually include manual work that could be handled by an RPA solution.[1] Increased job satisfaction results in a better work environment and more productive employees. Moreover, the results of the newly-automated processes become better and the cost savings can be recognized.

APPLICATIONS OF RPA

The best way to understand RPA is to learn about the kinds of problems RPA can solve. For example, an RPA program–called a "bot"–can be used to manage customer email inquiries. The bot monitors a sales inquiry email account and automatically imports the information into the CRM, sends alerts to the sales team, sends an automated message to the customer, and relays the information to other systems that are used to track employee availability and sales campaign successes. This works well when timely responses to customers are required.

Below is a chart that lists several types of tasks by back-office department that can be automated in most organizations:

HR	New employee forms	Employee termination documentation	Employee benefits
Finance / Accounting	AR/AP tracking	Financial reporting	Vendor management
IT	New user setup	Software requesting	Inventory tracking
Sales / Marketing	Sales campaign email management	Outreach campaigns	CRM automation
Others	Executive analysis reports	Regulatory compliance documentation	Inventory management

While the list above appears to be limited to single-department tasks, many of these are cross-department tasks in nature. Consider a process where the finance department needs to work with IT and sales to request multiple data sets, get input, and share the results. Rather than emailing those departments to pull the same data set every quarter to develop an Excel-based report, an RPA solution automatically performs the data pull and generates the entire Excel report. This not only saves time and effort across the various departments, but also enables the finance team to spend more time doing meaningful analysis of the reports and develop projections and deeper insights.

1   Gartner Research, "Role of Machine Learning in Accelerating Automation," 2016.

RPA AND MANUFACTURERS

Manufacturers can integrate bots or co-bots on the production floor—including into various parts of the order fulfillment, production and shipping processes—in addition to back-office operations.

In fact, Statista reports that spending on RPA worldwide is expected to reach $898 million in 2018, up from $542 million in 2017—and the biggest spenders will be discrete and process manufacturers at roughly $60 billion, according to IDC. As manufacturers increase their investments in Industry 4.0 technologies, the initial focus has largely been on improving production processes on the shop floor. Using technologies to gain efficiencies on the administrative side can also yield important benefits. Automating repetitive tasks, such as compliance reports or data entry for accounts payable and receivable, can lighten employees' workloads, enabling them to focus on more valuable tasks.

Several examples of the manufacturing processes an RPA solution works well for include:

- Order fulfillment
- Purchase order processing
- Bill of materials
- Inventory reports
- Transportation management
- Regulatory compliance
- Customer support and communication

The first step toward implementing RPA is to identify highly repetitive tasks that are prone to the most error and consider piloting there.

IMPLEMENTING RPA

The most common method of RPA implementation is via individual bots or single programs that perform tasks automatically. The bot can be accessed through a desktop or web-based application. Alternatively, organizations can implement a server that controls a set of bots within a department or across the organization. The server-based approach is a more robust system that is typically employed when there are a larger number of bots throughout an organization that need to be managed

centrally, whereas the individual bot method is appropriate when only a few bots are used.

The cost of an RPA solution, a common concern for any organization, depends on these factors:

- Complexity
- Number of bots
- Time to develop and implement
- Level of customization

An enterprise-wide RPA solution involving hundreds of bots can be expensive. A smaller implementation with only 10 bots or fewer, however, can be implemented relatively inexpensively and within a short period of time. Companies who sell RPA solutions often have a suite of pre-built bots that can be quickly customized and implemented without requiring a new bot to be developed. As the RPA market matures, the cost will continue to decline.

Below are the key steps for determining whether an RPA solution is appropriate:

- Identify where most time and effort is being expended on manual tasks
- Identify bottlenecks of key processes—specifically identifying manual tasks
- Implement a pilot program to tackle a high-value discrete task that can have immediate value

RPA will play an increasingly important role in manufacturers' shift into Industry 4.0. It offers organizations an exciting new way to improve their operations while also improving employee job satisfaction. RPA solutions have become a widely adopted strategy for enhancing various parts of organizations' operations by allowing employees to focus their time and efforts on more high-value and meaningful work. It has helped organizations do significantly more with less while reducing errors, increasing workforce job satisfaction, and better ensuring that deadlines are met. These benefits have been possible with relatively small capital investments and IT resources. While RPA is not applicable to all types of work, it is a good option for reducing hours spent on routine, manual tasks.

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