Robotic Process Automation in Human Resources

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ABSTRACT

Human resources (HR) departments play a vital role in every business, taking care of each phase of an employee's life cycle, from headhunting to exit management. They can leverage robotic process automation (RPA) to streamline various activities in their daily workflow. RPA is a technology that interacts with digital systems and software to make and manage software robots. The ability to handle repetitive, high-volume tasks has made RPA an ideal tool for human resources, which traditionally handles huge amounts of paperwork. The integration of RPA within HR functions offers a transformative solution to enhance operational efficiency and elevate the role of HR professionals. The automation reduces staffing costs and human error. It promotes growth in business organization productivity, operational efficiency, and streamlining process flow. This paper emphasizes the transformative impact of robotic process automation (RPA) on human resources (HR) operations.

KEYWORDS: *automation, robotic process automation, RPA, human resources, HR.*

INTRODUCTION

Human resources (HR) departments, often burdened with administrative and repetitive tasks, are seeking innovative solutions to streamline operations. Robotic process automation (RPA) has emerged as a powerful tool to address these challenges by automating routine tasks, thereby freeing HR professionals to engage in more strategic activities. RPA has the potential to streamline operations, enhance employee productivity, and reshape strategic HR functions. RPA technology is often seen as a stepping stone towards broader intelligent automation, which includes artificial intelligence (AI), natural language processing (NLP), and machine learning (ML).

RPA in HR involves the deployment of software robots that perform monotonous and high-volume candidate sorting, hiring, and employment data management faster and more accurately than human workers. By automating repetitive and standardized tasks, RPA empowers HR teams to allocate more time and energy towards strategic decision-making. RPA is now regularly used within HR to automate processes such as coalescing or auditing datasets, sending offer letters to job candidates, onboarding new hires, facilitating health plan enrollment, and even creating badges for conferences and special events. RPA in HR has streamlined operations, driven efficiency, and reduced costs in human resource operations. It helps automate a wide range of repetitive tasks and allows HR professionals to provide value-driven, human-focused work. Figure 1 provides a definition of robotic process automation [1], while Figure 2 shows some HR professionals [2].

WHAT IS ROBOTIC PROCESS AUTOMATION?

Among the various forms of artificial intelligence, RPA stands out for its potential to significantly increase workforce productivity by reducing or eliminating the need to do repetitive tasks manually. Popular applications of RPA include data entry, data reconciliation, spreadsheet manipulation, systems integration, automated data reporting, analytics, email notifications, acquisitions, administrative services, finance, human resources, mission assurance, strategic communications, travel reimbursements,

claims processing, and customer outreach and communications. These are just a few examples of the ways RPA is being used to remove the burden of manual, repetitive, and duplicative tasks from public service workers [3].

Robotic process automation is a form of automation software. It is a technology that can automate repetitive, rules-based tasks. Like an Excel macro operating within a spreadsheet, RPA can record actions performed across a personal computer, access systems, and perform specific tasks for human users. It uses software robots, more commonly called "bots," that mimic basic human-computer interactions. Figure 3 shows the symbol of RPA [4], while Figure 4 shows processes that RPA can automate [5]. Most industries use RPA. The government does too. Due to the repetitive nature of some tasks, the probability of human error increases. One way to eliminate errors is by using RPA.

Robotic process automation solutions fall into three key categories: attended RPA, unattended RPA and hybrid RPA, as shown in Figure 5 [6].

Robotic process automation is a type of software that mimics the activity of a human being in carrying out a task within a process. It is a technology that automates repetitive tasks using software robots. RPA uses a set of automation tools to automate repetitive tasks and manual processes performed electronically. Since RPA can automate tasks that are rule-based, manual, repetitive, and tedious, delivering the highest levels of accuracy and eradicating human errors, it is a seamless fit for the finance industry. Here are some specific examples of what RPA in finance can do [7]:
➢ Opening emails and joining attachments
➢ Automatically logging into various applications on the web
➢ Shifting folders and files
➢ Copying and pasting
➢ Completing forms
➢ Collecting data from databases and the web
➢ Making calculations
➢ Connecting to system API
➢ Extracting structured data from documents
➢ Gathering stats from social media
➢ Following if/then decisions and rules

Some of these tasks are displayed in Figure 6 [6].

At its core, robotic process automation (RPA) is a tool designed to mimic rule-based business processes, performing them seamlessly and without fatigue. RPA is a rule-driven method that is limited in its application. The technology functions much like a Microsoft Excel macro; the key difference is in power and reach. It follows set rules, similar to how an Excel macro works, to do things like move files or log into accounts. Growing as a popular solution in finance and accounting, RPA refers to software technology or "software robots" with artificial intelligence (AI) and machine learning (ML) capabilities. The "software robots" have the ability to learn and complete a high volume of rules-based, repetitive tasks, and business processes. They have the capacity to operate much faster than humans, with 100% precision and reliability, working around the clock.

Finance and human resources are just two examples of departments likely to have many use cases that RPA can help solve. Some examples of good use cases for RPA in finance include processing customer orders, ensuring timely vendor payments, and managing period ending financial close processes. For human resources, some examples include employee onboarding, time tracking, and leave of absence management. Processes where human judgment is needed are not appropriate for RPA since RPA automations rely on clear, consistently applied rules [8].

Along with RPA, one should be aware of both business process automation (BPA) and digital process automation (DPA) – two commonly used automation technologies that robotics process automation can be paired to optimize and streamline a digital transformation. BPA refers to the use of technology to automate complex, multi-step workflows, typically very specific to a company's core business functions. DPA offers dual power by automating processes from end to end, and optimizing common workflows that involve external human interactions (i.e. sales, management). Separately, RPA and AI are quite powerful, but leveraging them together is undoubtedly advantageous to any financial institution. When deployed together, AI is the "brains" behind RPA's bots [9].

ROBOTIC PROCESS AUTOMATION IN HUMAN RESOURCES
Traditionally, HR functions involved manual, time-consuming tasks such as recruitment, payroll processing, employee benefits management, and performance evaluations. However, in recent years, advancements in automation technologies, specifically robotic process automation (RPA), have dramatically transformed how HR departments operate. RPA refers to the use of software robots or "bots" to automate repetitive, rule-based tasks that were previously performed by humans. A growing desire to free staff from manual tasks so they can pursue higher-value-adding work has led more HR professionals to implement RPA technology. By

implementing RPA, the HR function eliminates the need for that daily time-consuming manual task. RPA has significantly transformed human resources by automating repetitive and time-consuming tasks, allowing HR professionals to focus on more strategic initiatives. Initially applied to administrative functions such as payroll, benefits management, and attendance tracking, RPA has evolved to streamline complex. RPA has emerged as a powerful tool that streamlines administrative processes, enhances efficiency, and reduces errors [10].

Companies should start their HR RPA program by deploying one or two bots for the most optimal low-complexity and low-risk processes. The initial low-scale automation will help measure the success of the RPA application and lay the foundation for more complex RPA solutions down the line. Once the RPA is developed and configured, integrate it with the application where the automation needs to be done. Run the automation to perform the automatic execution of the repetitive processes. Once the automation is in the live instance, the robots are available 24/7 to perform automation of various business processes. The last stage aims at testing the system and evaluating its performance in real-world conditions. During the early adoption of RPA, it is always recommended to monitor the automation as frequently as possible. Organizations must invest in upskilling and change management and ensure that RPA enhances rather than replaces the human aspect of HR [11].

APPLICATIONS OF ROBOTIC PROCESS AUTOMATION IN HUMAN RESOURCES

HR can use RPA to automate manual processes, standardize common tasks, quickly complete existing tasks and free workers from the mundane to spend more time on complex projects. RPA in HR applications can range from automation to consolidation.

There are endless applications of robotic process automation in HR. Common areas of application include the following [2,12]:

➢ *Automation*: In the HR sector, companies have used RPA to automate a number of tasks. Companies have automated payroll updates, sick leave certification, and employee onboarding. Automation has enhanced operational efficiency, reduced costs, and improved employee and candidate experiences. Automation in the recruitment space is about far more than saving time. Email automation saves HR staff from having to manually type individual email to respond to the large volume of messages typically received. When a hiring manager sets out the

need for a new employee and sends job details and requirements, they can use RPA tools to automate job posting across a variety of websites. If you want new hires to hit the ground running, automating elements of the onboarding process is the solution. The automation of these processes has led to a streamlining of workflows and a substantial reduction in bureaucratic administrative processes into intelligent, efficient and user-centric flows. Figure 7 shows the need to automate every process [13].

➢ *Recruiting*: Sifting through a large volume of resumes and finding the ideal candidate is an uphill task. In recruiting, many tasks follow a set of predefined rules and do not require human judgment, therefore making this HR process optimal for robotic process automation. Without RPA, for example, a recruiter would have spent most, if not all, of the day sifting through resumes to find the best match, sending emails to candidates, and tracking and reporting to hiring managers the status and rationale for a hiring selection. RPA can be employed to scan and evaluate resumes against predefined criteria, shortlisting candidates whose qualifications match the job requirements. RPA software can assist in scheduling job interviews, sending out meeting invites and, later, offer letters. In addition, RPA in recruitment helps HR departments eliminate unconscious bias, leading to more equitable candidate selection and fair workplace.

➢ *Leave Management:* Logging attendance and leaves on a daily basis is quite challenging for employees, especially when it requires filling up several forms. RPA can manage employee leave requests by verifying available leave balances, cross-referencing them with the company's leave policy, planning training and events, and updating the records accordingly. It can also track attendance data and generate reports, minimizing errors and facilitating payroll processing.

➢ *Payroll Management:* Payroll management in HR operations involves high-volume data extraction and verification for counting working hours and considering potentially variable tax regulations. Automating payroll processes with RPA ensures accurate calculation of salaries, taxes, and deductions. The technology can extract data from timesheets, attendance records, and other sources to generate error-free payrolls, reducing the risk of human errors.

➢ *Employee Data Management:* Once your new hires are bedded in, there are a range of tasks that need to be done. RPA can help streamline many

of these jobs. An organization's employee data management involves collecting, storing, and maintaining employee information. From employee bios and medical information to employment details and performance data, HR requires employees to provide data about themselves. RPA can handle this data extraction from multiple systems, reduce the chances of data entry errors and maintain accurate employee records.

➢ *Performance Management:* Performance management is a part of any healthy organization. HR teams need to compile a lot of data to provide accurate assessments, and RPA tools are perfect for the job of collecting data from various databases, spreadsheets, and other information sources and centralizing it for performance management reviews.

BENEFITS

The benefits of RPA have been recognized in HR due to the department's involvement in numerous repetitive processes, such as payroll, recruitment, and employee data management. RPA in HR operations can create a digital experience for employees and customers. Its biggest advantage is that it can liberate HR staff to use their people skills to help find solutions to pressing business problems. HR departments are turning to RPA because it is easy to implement, improves accuracy, and the tools are getting better. Other benefits include the following [14]:

➢ *Cost Reduction:* One of the most compelling reasons to invest in RPA is cost savings. RPA can help companies scale by augmenting their existing staff and helping them become more productive without adding new employees. RPA is adept at bridging the gap between legacy software and new tools, allowing teams to reduce the costs of investing in new tools when they have perfectly good but dated software to do the job. RPA automates key labor-intensive processes, streamlining HR operations and reducing costs.

➢ *Higher Efficiency*: Efficiency and accuracy are crucial in the dynamic field of human resources (HR). The traditional manual processes often struggle to keep up with the growing demand, leading to inefficiencies and errors that can affect the entire organization. Using bots, HR departments can significantly accelerate their key operations with up to 85% faster processing. Using RPA in HR operations is a surefire way to improve greater efficiency.

➢ *Increased Productivity*: Within HR, hire-to-retire refers to the entire employee lifecycle, from

recruitment to onboarding to performance management right up to the point of retirement. The daily tasks of HR professional involve a lot of repetitive, rule-based processes, like background checks, payroll adjustments, holiday authorization, performance management, resume screening, onboarding. RPA can take on tedious administrative tasks, allowing HR staff to focus on employee engagement.

➢ *Increased Accuracy*: Human resources, like most other sectors and departments over the last few years, have gone digital. Communication, records, and employee data are stored digitally. With so much data going back and forth, the risk of human error has increased. The consequence of these errors could be anything from a minor inconvenience to more serious matters like work permit delays, inaccurate payments, or missing out on new hires. Enterprise RPA tools help solve these issues by eliminating human error from automated processes. Bots never get tired, which eliminates the risk of human error and ensures high data accuracy.

➢ *Efficient Talent Acquisition*: Talent acquisition has been a major problem within the last few years. RPA can help recruitment teams in several different ways. These tools can automate posting job ads, sifting resumes, scheduling interviews, and communicating with candidates. By streamlining the acquisition process, HR professionals have more time to focus on interviews, leading to a more efficient pipeline.

➢ *Scalability:* Another major benefit that using RPA for HR unlocks is the ability to scale. RPA solutions are easy to scale, so HR departments can increase the bots' operational capacity in line with their needs. RPA bots can efficiently handle payroll processing for organizations of any size, regardless of the number of employees. Sudden upturns in business can be a huge headache for HR teams as they struggle to manage new hires. However, enterprise software testing automation tools and RPA solutions can grow with you, meaning new business does not mean more strain on your HR team.

➢ *Employee Satisfaction:* Employee experience refers to the degree to which the employee enjoys a personalized, pleasant, and digital experience on the job. RPA is well-known for its ability to increase employee satisfaction. With no human errors and increased availability and processing time, RPA improves customer and employee satisfaction. Much of the coverage around this issue involves automating mundane tasks and

allowing operatives to concentrate on more engaging and interesting jobs. By freeing up HR managers from repetitive tasks, RPA helps increase their job satisfaction and reduce staff turnover.

CHALLENGES

The challenges of RPA implementation include employee resistance, integration with legacy systems, and concerns about job displacement. One of the major concern of HR professionals is that technologies like RPA will eliminate their jobs. But most of the evidence to date indicates that this is unlikely. Many proponents argue that bots will improve jobs rather than replace them. However, HR is filled with a lot of transactional work that we no longer need human capability to perform. Other challenges include the following [14]:

➢ *Implementation Costs*: The initial implementation costs can be a barrier, especially for small and medium-sized organizations. Developing the IT infrastructure, purchasing software licenses, training users, and integrating with existing systems require considerable investments. The cost of RPA solutions depends on multiple parameters and can vary greatly depending on the level and complexity of automation and the solution vendor's pricing. Generally, a single bot costs from \$5,000 to \$15,000+, and the automation of several processes can be valued at up to \$300,000. However, the cost-benefit analysis shows that these investments pay off in the medium term by increasing efficiency and reducing errors.

➢ *Technical Skills*: Moving from traditional workplace setups to a digital environment with RPA requires some consideration. RPA is far quicker to implement than many new software tools. However, that is not to say there are no growing pains. Indeed, transformation must be carefully planned with requirements and process essential steps. Acceptance of new technologies requires a process of cultural adaptation, effective communication, and continuous staff training.

➢ *Resistance to Change*: In spite of the benefits of RPA for HR staff, it is common for employees to oppose its implementation due to concerns on their part such as job displacement or salary cuts. Leaders should use a human-centric change management approach that takes into account employee concerns and fears. When new employees do not feel some sort of emotional tie to the company within the first few months on the job, they tend not to be engaged.

➢ *Regulatory Compliance:* Regulations are in a constant state of flux, leaving HR teams struggling to keep up. HR managers have to comply with complex and ever-changing regulations when it comes to reporting, which is strictly required by labor law. Often, HR departments are responsible for ensuring compliance with various regulations. With consistent and accurate data handling, RPA software can help highly regulated HR departments comply with regulations. RPA can automatically track and monitor changes in labor laws, generate compliance reports, and notify relevant stakeholders about necessary actions.

FUTURE OF ROBOTIC PROCESS AUTOMATION IN HUMAN RESOURCES

As RPA technology continues to develop, the demand for workers with the ability to work alongside and manage the technology will increase. This means that workers who are not able to adapt and learn these new skills will be left behind in the job market.

Many jobs, as well as the human skills needed for those jobs, will change over time but will not be eliminated. New digital skills will be needed so that HR can understand the power and capabilities associated with RPA technology and continually seek out areas for deployment. RPA implementation will require organizations to redesign roles and workflows [15]. In the future, automation will be used to make decisions on hiring the right people since RPA tools can also make decisions and recommendations free from human bias.

CONCLUSION

Robotic process automation is transforming HR operations by automating mundane tasks and enabling HR professionals to focus on strategic endeavors. Over the years, RPA has evolved from automating basic administrative tasks to supporting more complex functions, such as recruitment, onboarding, employee engagement, and retention strategies. The adoption of robotic process automation (RPA) in human resources has proven to be a game changer, streamlining repetitive administrative tasks and improving efficiency across various HR functions, from recruitment to retention.

Understanding the evolution and impact of RPA in HR is crucial for organizations looking to leverage automation for greater operational efficiency while maintaining a positive employee experience. While RPA can automate administrative processes, it cannot replace the human element required for building strong employee relationships and fostering a positive organizational culture. As the cost of purchasing RPA technology begins to drop, more HR leaders will

consider using it. More information about robotic process automation in human resources can be found in the books [16,17].

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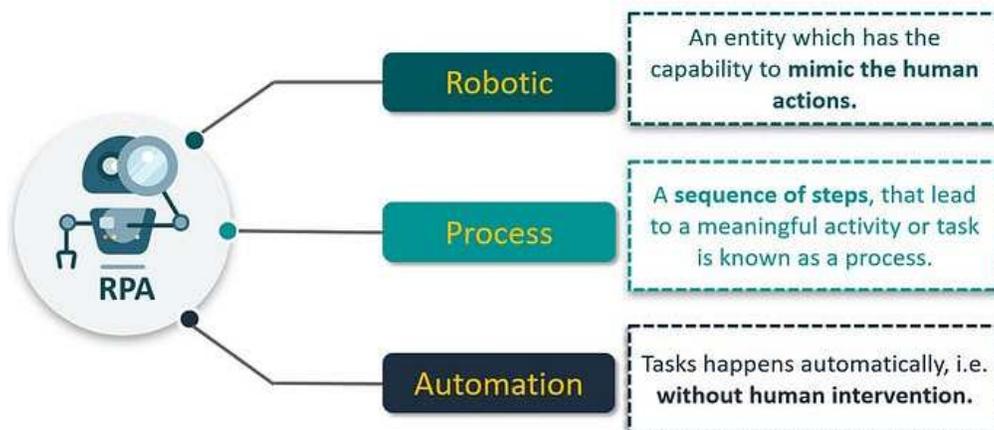
Figure 1 A definition of robotic process automation [1].
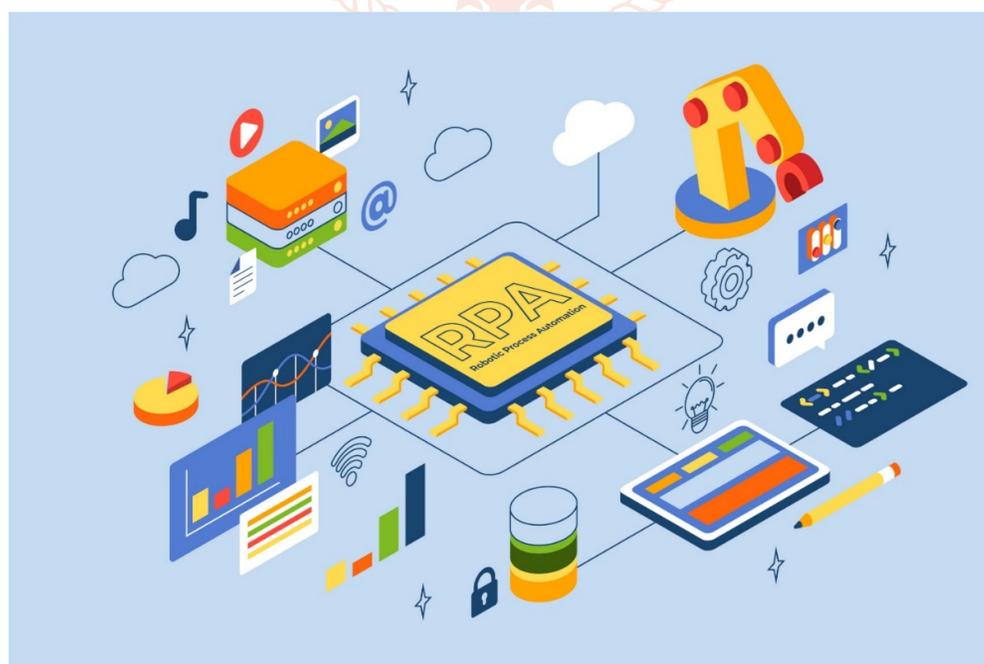

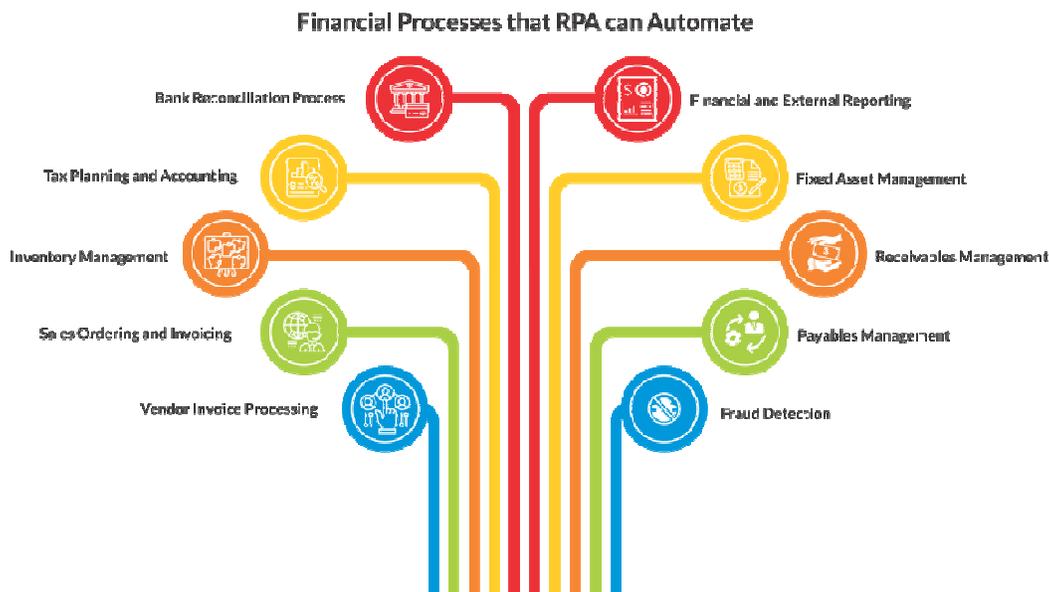**Figure 2 Some HR professionals [2].**

Figure 3 Symbol of RPA [4].

Figure 4 Processes that RPA can automate [5].
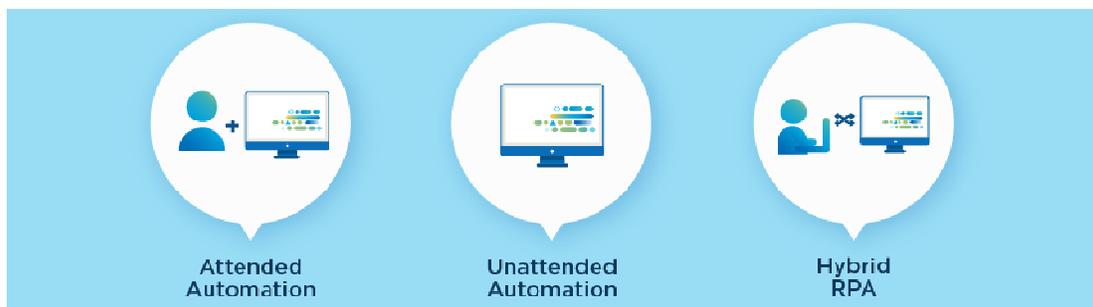

Figure 5 Three key categories of RPA [6].

Figure 6 Some tasks RPA can perform [6].

Figure 7 The need to automate every process [13]