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Robotic Process Automation in Finance

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ABSTRACT

Robotic process automation (RPA) is computer-coded software that automates repetitive tasks and processes. It is important for companies seeking to transform themselves by doing "more" with "less." Used in a variety of industries, RPA refers to the use of low-code software "bots" to handle the repetitive, time-consuming tasks of human workers — such as invoice processing, data entry, compliance reporting, etc. The main focus of RPA in finance is to replace repetitive and rule-based tasks. Software robots can do many amazing things to make the life of a finance professional much easier. This paper highlights the use of robotic process automation (RPA) in the finance industry.

KEYWORDS: *automation, robotic process automation, RPA, finance, banking, financial services, accounting*

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INTRODUCTION

Financial organizations are inundated with paper accumulation. Performing such tasks manually is not only time-consuming but also leads to errors. This is where robotic process automation (RPA) comes into play. RPA is a simple and easy-to-use software that uses software robots to mimic human actions and complete tasks. By substituting humans with RPA bots for undertaking manual and monotonous tasks, business executives are successfully curtailing manual intervention, thus, transforming elements from expenditures and staffing issues to efficiency and performance levels. Figure 1 shows some business executives [1].

The digital era is changing the way businesses operate, and RPA stands at the forefront of this evolution. RPA automates repetitive business processes across a wide range of industries, including banking, accounting, IT, human resources, government, transportation, insurance, communications, and healthcare, as shown in Figure 2 [2]. The reason to use RPA in these industries is for improving data entry and calculations. For years, finance teams have used robotic process automation (RPA) to improve the speed, efficiency and accuracy of specific tasks. RPA in finance extends automation into banking and accounting operations to reduce the amount of human labor required to process transactions. It liberates the workforce from tedious, monotonous tasks, and transitions it towards the processes requiring more thinking.

WHAT IS ROBOTIC PROCESS AUTOMATION?

The finance industry is process oriented. Financial institutions undertake various business processes such as revenue management, financial planning, accounts payable and receivable, and cash disbursement, among others on a daily basis. Every financial activity goes through a rigorous process to avoid human errors. Figure 3 shows the symbol of RPA in financé [3], while Figure 4 shows processes that RPA can automate [4]. However, due to the repetitive nature of the tasks, the probability of human error increases. One way to eliminate errors in the finance industry is by using RPA.

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 [5]:

- 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 5 [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 [7].

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 [8].

APPLICATIONS OF ROBOTIC PROCESS AUTOMATION

Automation can be deployed across a wide range of technology systems, functional areas of the business, and perform a wide range of tasks. RPA's usage is growing in the finance and accounting departments because it is effective in handling repetitive, mundane, back-office tasks. With RPA in finance and accounting, professionals are able to allocate more of their time to high-value, strategic, and advisory roles to help organizations remain competitive, innovative, and profitable. RPA can be applied to various finance and accounting processes, such as invoice processing, reconciliation, reporting, budgeting, forecasting, and tax compliance. Figure 6 shows some RPA use cases in the finance sector [9]. A few examples of financial processes that you should be able to automate include the following [10-12]:

- *Accounts Receivable:* Properly managing accounts receivable is directly related to cash flow; so it is of utmost importance. There is a high margin for error if a single record is entered incorrectly, which will affect payment. As such, robotic process automation can be utilized to automate the creation, sending, and tracking of invoice payments. Robotic accounting is a form of RPA in the accounting field. RPA should be seen as more of a robotic arm to assist accounting departments and optimize operations. RPA in accounting can be primarily "internal"–i.e. automating tasks you would otherwise expert employees to perform–or "external"–which involves direct interactions with customers. It automates data analysis tasks and identification of trends, anomalies, and potential opportunities. Figure 7 shows the symbol of RPA in accounting [12].
- *Accounts Payable:* Accounts payable (AP) involves tracking money owed to vendors or suppliers and making sure that payments are

made on schedule. Accounts payable, like accounts receivable, is a key repetitive function of accounting teams. Accounting departments are often plagued with the inevitabilities of human error, cumbersome processes, and repetitive tasks. Accounts payable is a critical, repetitive function of finance teams, which is time-consuming when done manually. Not only do employees need to validate the fields, they have to digitize vendor invoices, then process the payment. When RPA is utilized in AP automation software, incoming invoices are distributed to the appropriate recipient automatically. Late payments can be avoided by scheduling reminders.

- *Public Accounting:* Robotics and AI are used in a variety of public accounting applications that include tax automation, consultancy, assurance assistance, reconciliation, and analytical functions. They also serve to substitute traditional evaluation and auditing techniques. The most transformational use of robotics in public accounting is in assessments and auditing. RPA and AI have dramatically enhanced automation in tax, advisory, and assurance services, enabling accountants to provide more extensive and reliable advice faster.
- *Account Reconciliation:* Account reconciliation is one of the most important tasks in a finance department because it confirms that a company's general ledger balances are accurate. One of the chief challenges in this domain is juxtaposing company accounts with bank statements. This meticulous process demands acute attention to detail and often involves the tedious task of navigating between different systems. RPA can simplify and expedite this reconciliation. RPA in the financial industry can help companies balance their accounts and provide accurate financial statements.
- *Auditing:* RPA helps auditors by accurately performing some tasks, such as reconciliations. Since auditing is a type of process improvement using technology, RPA is expected to replace repetitive and manual audit tasks. It is also intended to motivate the re-engineering of audit systems. Due to the highly regulated nature of the industry, RPA for auditing remains in its early stages. RPA is a disruptive and dramatic change to current audit practices that enable auditors to operate at a higher level and perform more efficient work.
- *Data Management:* Most organizations operate with data in various systems. Data is vital in every industry, especially finance and accounting. Data is a paramount asset within businesses, but when it is separated and hard to access, then it proves useless. Robotics process automation is a great solution to improve data management. RPA bots can be tasked to easily move, collect, and transfer data between systems to execute processes, conduct analysis, and generate insightful reports.
- *Know Your Customer (KYC):* KYC (know your customer) is a time-consuming procedure mandatory for banks to perform for every customer. KYC is a laborious but crucial requirement for banking and financial service providers. Each customer needs to be examined to ensure they are who they say they are, and that they are not attempting to conduct fraudulent activity. Becoming more prevalent in the digital age, finance departments and institutions are enlisting KYC to verify customers' identities, and assess and monitor customer risk. Not only is KYC costly in time, many companies are faced with compliance sanctions. RPA can cut out this manual work and save time and money by eliminating the tendency for human error and uncertainty associated with KYC processes.
- *Fraud Detection:* Identity theft, banking fraud, money laundering, and other types of malfeasance are of major concern for finance teams across all industries. To help detect and prevent fraud, financial institutions need the right cybersecurity technology for due-diligence checks. In accordance with recent statistics, the anti-money laundering process is "highly manual." Because bringing money laundering activities to a halt is time-sensitive, RPA technology would be a great solution. RPA helps in anti-money laundering investigations by establishing an "if-then" approach to identify potential red flags. RPA improves the speed and accuracy of fraud detection. In terms of fraud detection, it has been estimated that analysts are spending 90% of their time collecting and entering fraud-related data into the system.
- *Invoicing Processing:* Timely, accurate invoice processing is a cornerstone of an AP department because it allows finance teams to track how much money the company owes to vendors and to properly approve payments. Processing invoices is a labor-intensive and error-prone task. Between handling and routing invoices (especially paper formats), managing vendor disputes, reconciling duplicate entries, and stringent compliance adherence, the hurdles are plenty. Automation can help enhance and speed it up by scanning,

extracting, and analyzing data from invoices, reducing mistakes and freeing up accountants' bandwidth. RPA is equipped to tackle these challenges head-on. Its precision-centric approach can clear backlogs, ensuring the finance department is always abreast of the latest.

- *Expense Management:* Manual processes in validating and reimbursing employee expenses can quickly spiral into an administrative mess. Mismanaged reimbursements can strain payroll departments and lead to internal disputes. With RPA, these challenges are mitigated. The automation ensures swift and accurate processing, always in alignment with company guidelines. By standardizing expense management, organizations can instill better financial discipline.
- *Mortgage Processing:* Processing mortgages and loans is among the most common uses of RPA in banking and finance. Closing a mortgage loan can take up to 60 days, with loan officers required to go through steps including employment verification, credit checks, and inspections. This is because the banks require credible information on the customer's previous finances, loans, properties, and other details. Considering the efficiency and reliability of RPA systems, banks can process and validate the required information within a short time.
- *Report Generation:* A common request for many financial services is the generation of reports. Financial reporting requires preciseness, particularly when providing reports and forecasts to stakeholders. RPA can efficiently gather and analyze data from diverse sources, present it in a coherent format, and generate highly accurate reports. In order to remain compliant with regulation, banks are required to prepare reports regarding their performance and activities. These reports contain vast amounts of data, making them time-consuming to produce and (potentially) filled with errors. RPA and banking can remove these issues by automatically gathering data from the necessary sources, arranging it into a coherent format, and producing the reports with no mistakes.

BENEFITS

There are numerous benefits of adopting RPA technology in the finance industry. RPA software performs monotonous tasks, at a level of accuracy, speed, and scale that humans cannot compete with. Driving greater efficiency and compliance while reducing human error are just a few of the reasons RPA in finance is so beneficial. Incorporating automation is not just about embracing the future; it is about ensuring survival and growth. Other important benefits of RPA include the following [4]:

- *Cost-Effectiveness:* Cost saving is critical to the finance industry. Automation can streamline processes and reduce the need for manual labor, leading to cost savings. According to industry research, RPA can drive 25-50% cost savings by automating rule-based, repetitive tasks. Implementing RPA in finance does not require any significant modifications in infrastructure. Many companies that have implemented robotic process automation in finance see substantial ROI.
- *Increase Efficiency:* Humans are simply prone to mistakes, especially when manually processing invoices or sorting Excel spreadsheets. RPA bots increase the efficiency of financial processes. With RPA bots, business executives scan make their processes quick, productive, and highly efficient. RPA reduces processing times and streamline various processes across the finance function.
- *Boost Productivity:* By replacing humans with RPA bots for repetitive and mundane tasks, CFOs can achieve optimum efficiency. Task automation would reduce human error and significantly improve productivity. Maximum efficiency and improved productivity lead to increased gains for the business.
- *Accessibility:* It is easy to buy into the misconception that RPA is only for the big players. Rather, RPA technologies have become enormously more accessible for smaller, regional accounting firms, even ones with relatively modest IT setups.
- *Availability:* Whether banks want to eliminate manual intervention or achieve higher accuracy at low cost, RPA bots work 24/7 to complete the tasks assigned to them. Thus, their availability is unencumbered.
- *Risk and Compliance Reporting:* In finance, remaining compliant requires a high level of detail. RPA helps banks and financial institutions in generating reports of complete audit trails for every process, reducing business risks and ensuring compliance. Keeping up with the changing regulatory standards is crucial for CFOs in order to successfully handle financial and accounting processes. RPA allows CFOs to keep track of the regulatory standards and alleviate non-compliance risks, ensuring that financial processes abide by the regulations.

- *Faster Implementation:* With a drag and drop feature, RPA tools are faster to implement. Using RPA bots, organization scan easily automate their financial processes and maintain automation workflows without much coding requirements. Faster information processing ultimately enables enhanced customer service.
- *No Infrastructure Cost:* One of the major benefits of RPA is that it does not require any infrastructure cost. Due to its automation capabilities, the hardware and maintenance cost of RPA infrastructure is zero.
- *Business Growth With Legacy Data:* With RPA techniques, the finance industry is using both legacy and new data to bridge between the financial processes. This kind of effort and availability of essential data in one system enable fintech's to generate faster and better reports for business growth.
- *Receiving Budget Approval:* CFOs often deal with business proposals that are without merit in terms of potential overall benefits or recognizable ROI. However, the RPA concept enables financial leaders to create a business case, delivering significant value to their company.
- *Accuracy Eliminates Human Error:* In the intricate world of finance, where every figure and decimal counts, the importance of accuracy cannot be overstated. Humans make mistakes. Reducing the margin of error is one of the best benefits of automating key financial processes. Human error can cause upheaval and negative consequences that could ripple throughout the business. RPA can take human error off the table and help to achieve consistency and accuracy across the organization.
- *Lowering Operational Risk:* Delay in financial closing, not meeting deadlines for payment release, or making decisions based on incomplete/inaccurate information are some of the errors that lead to operational risks. To overcome this challenge, CFOs adopt RPA best practices, which reduces financial risks.
- *Improving Customer Satisfaction:* Banking, financial services, and insurance (BFSI) is a pivotal and hectic sector where companies deal with lengthy processes of servicing financial products and services and implementing various productive strategies to enhance the welfare of customers. RPA is growing in popularity because it can reduce costs, streamline processing, and drive better customer experiences. RPA offers many advantages for your customers. For example, with robots working alongside employees, customers can expect quicker response times.
- *Staff Freedom:* There is the indirect benefit of employee freedom. By taking care of laborious tasks, RPA gives your human customer service agents the time to manage more complex customer issues. They can focus on providing excellent personal responses for better customer satisfaction.

Some of these benefits are illustrated in Figure 8 [4].

CHALLENGES

Modern technologies have modern challenges and RPA is no exception. While RPA is not without its challenges, many of these can be overcome with proper preparation. RPA requires considerable training, governance, and implementation know-how. Businesses recognize RPA's potential to overcome some of their biggest challenges, including governance, compliance, reconciliation, and strategic planning. A major problem with monotonous tasks is that they destroy the mental health of the workers. Other challenges include the following [13]:

- *Implementation Challenges:* Implementing RPA comes with its challenges, including resistance from employees and integration complexities. Despite the potential, automation has been more difficult to implement in banking and finance than other industries because a high amount of human intervention has been required to secure accounts and transfers. We tackle the challenges by ensuring clear communication about the benefits of RPA and involving employees in the transition process. Additionally, we continuously monitor and optimize the RPA system to handle increased loads and adapt to regulatory changes.
- *Privacy:* Bots can work with personally identifiable information governed by privacy requirements. Teams need to ensure this data is processed in conformance with local data protection laws such as the General Data Protection Regulation (GDPR). For example, if an RPA bot moved data outside of a given country without encryption that would be a GDPR violation.
- *Security:* A major problem for all technologies centered around computers is their long-term security. Paper-based approaches are slow and require more effort to preserve the information. RPA bots sometimes need to access sensitive information to complete their tasks. If they are compromised, they pose an additional security risk for organizations.

- *Integration Complexity*: Integrating RPA with legacy financial systems and ensuring seamless interoperability poses a significant technical challenge.
- *Governance:* Companies should have strong governance in place to establish proper financial controls and accountability across all areas of the business. RPA bots help businesses maintain solid governance and ensure compliance by automating these tasks and performing the work more accurately than humans.
- *Unrealistic Expectations:* RPA is impactful but not a magic solution for all issues; one must set realistic goals and align with business objectives. Know what RPA can do and cannot do. Not all processes suit automation. To fully leverage this promising technology, companies need to understand what it is, recognize its benefits, and then decide how and when is the best time to implement it.
- *Change Management:* The introduction of RPA can evoke resistance from employees who fear job displacement. If you fail to explain the essence of the RPA change, massive protests against the technology (mostly covert) are inevitable. The goal is to show that the RPA tools are about automating routine tasks to free up time for more valuable, strategic work. Effective change management is crucial to mitigate this negativity.
- *Ensuring Compliance:* Adhering to stringent regulatory requirements while implementing RPA in finance demands meticulous attention to compliance standards and data security protocols. RPA offers the opportunity to enhance accuracy in financial processes while ensuring compliance with regulatory standards through consistent rule-based execution. Financial institutions are subject to stringent regulatory requirements that are continually evolving. Implementing RPA while maintaining compliance is an ongoing challenge. It requires monitoring and adapting automated processes to ensure they align with the latest regulatory changes, minimizing the risk of non-compliance and associated penalties. RPA can be used to automate compliance-related tasks such as KYC (know your customer) checks, AML (anti-money laundering) checks, and regulatory reporting.
- *Scalability:* As businesses grow, RPA solutions must adapt. Ensuring the scalability of RPA implementations is challenging, particularly when considering factors like increased transaction volumes, additional processes, and expanding service offerings. A well-defined scalability strategy is essential to accommodate growth without disrupting operations.
- *Maintenance:* RPA systems, like any technology, require regular maintenance and monitoring. Ensuring that bots operate effectively, handle exceptions, and remain up-to-date with process changes demands dedicated resources. Maintenance includes addressing issues, updating scripts, and optimizing bot performance.

Some of these challenges of RPA are displayed in Figure 9 [4].

CONCLUSION

Robotic process automation (RPA) refers to the software technology (bots) that are able to mimic human behavior and actions to complete tasks. It can help finance and accounting teams to improve efficiency, accuracy, compliance, and customer satisfaction. The emerging field of RPA in finance is proving to be a real game-changer for finance professionals. Instead of being chained to spreadsheets all day, RPA lets them complete tedious tasks in a fraction of the time it usually takes. RPA plays an important role in automating manual and time-consuming finance-related tasks. If implemented properly, RPA can prove revolutionary for the finance sector. As the technology expands and matures, adopting RPA will become a necessity for organizations looking to remain relevant and competitive in the fast-changing public accounting sector. RPA is now being incorporated in the accounting curriculum [14]. Looking ahead, the future of RPA in finance is promising. More information about robotic process automation in the financial services can be found in the books [15-23] and the following related journals*:*

- International Journal of Finance
- The CPA Journal

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Figure 1 Some business executives [1].

Figure 2 RPA automates repetitive business processes across a wide range of industries [2].

Figure 3 Symbol of RPA in financé [3].

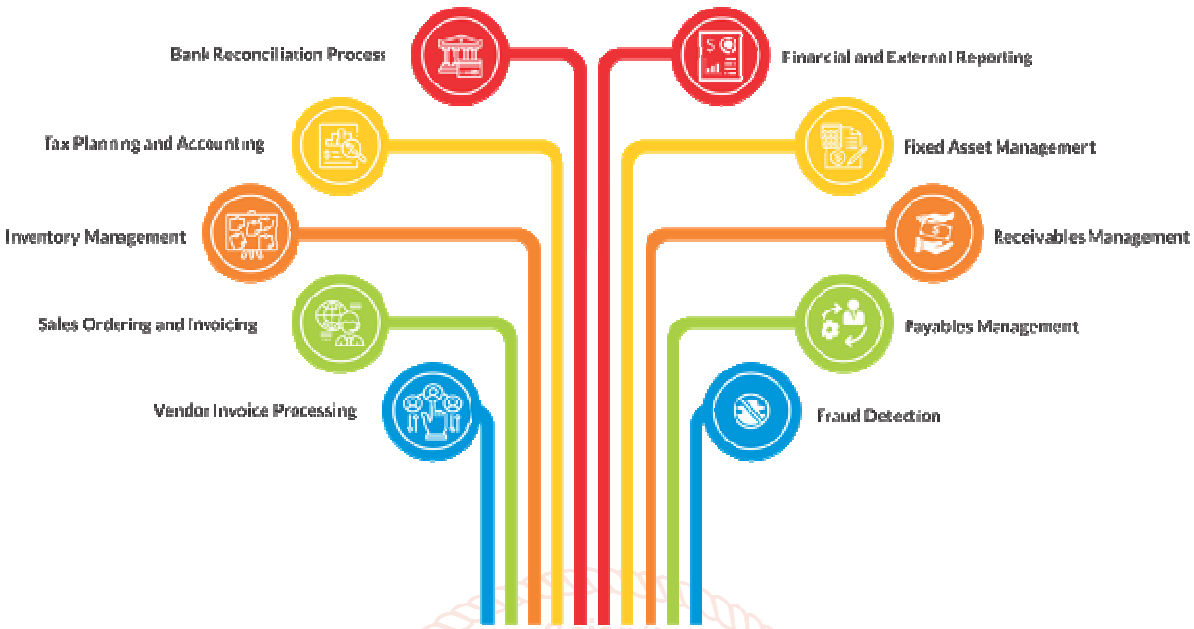

Figure 4 Processes that RPA can automate [4].

Figure 5 Some tasks RPA can perform [6].

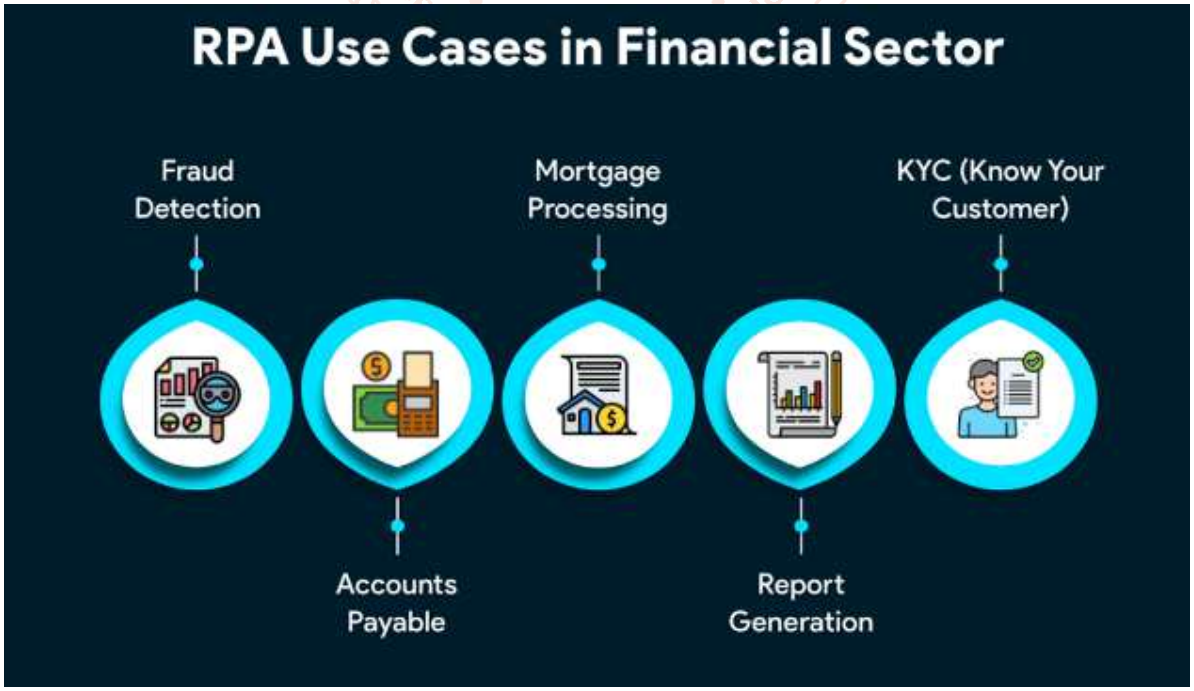

Figure 6 Some RPA use cases in the finance sector [9].

Figure 7 Symbol of RPA in accounting [12].

Figure 8 Some of the benefits of RPA [4].

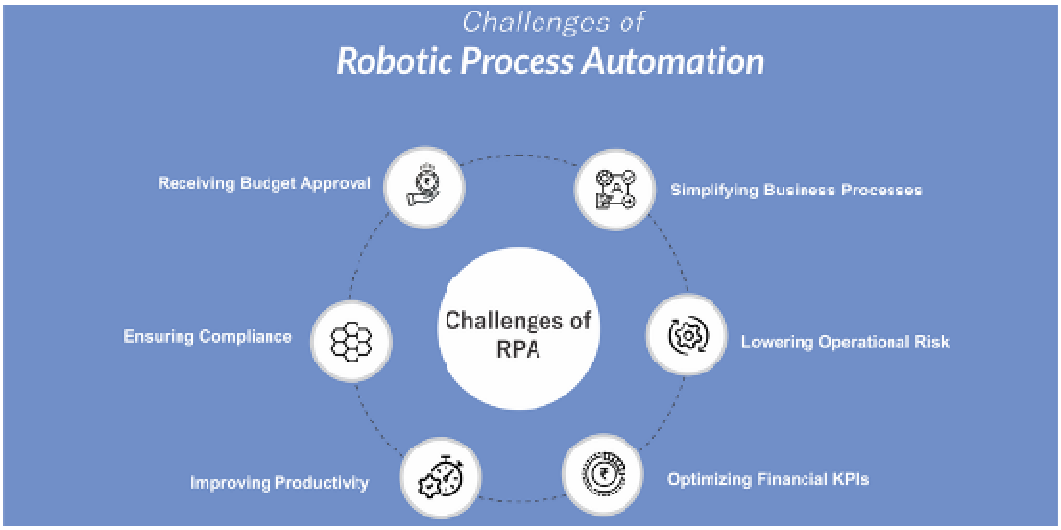

Figure 9 Some of the challenges of RPA [4].