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AN OVERVIEW OF ROBOTIC PROCESS AUTOMATION AND ITS APPLICATION

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ABSTRACT

Robotic process automation (RPA) is receiving a lot of corporate interest as part of the constantly evolving digital revolution. Even though RPA is a hot topic in business, there hasn't been much academic research on the subject. We suggest four characteristics of RPA in a comprehensive and organised manner after conducting a literature review and tool analysis. These characteristics serve as a guide and a point of focus for future study. Software robots automate tasks that were formerly done by humans. Software robots operate within IT ecosystems and use pre-existing applications as part of a choreography of technology modules and control flow operators. Via (agile) projects, firms can design and implement software robots thanks to their usability and adaptability. Hence, organisational and IT strategy, governance models, and management frameworks must address both the direct and indirect implications of automation brought on by software robots.This paper provides an overview of robotic process automation in all aspects.

Keywords: Robotic Process Automation, Machine Learning, Artificial Intelligence.

INTRODUCTION

Robotic process automation (RPA) is a new technology that is one of the solutions that is being used to automate repetitive jobs that people perform, freeing up staff to work on more complex tasks that add more value to the firm. According to reports from consulting firms, RPA is acknowledged as a new, disruptive technology that is already providing benefits. Across a wide range of businesses and processes, RPA is currently creating new efficiencies and releasing employees from monotonous tasks. In areas as broad as finance, compliance, legal, customer service, operations, and IT, businesses in industries ranging from financial services to healthcare to manufacturing to public sector to retail and far beyond have embraced RPA. And that are only the beginning. Because RPA offers such a wide range of applications, it has become so popular. Any high-volume, business-rules-driven, repeatable process is a fantastic candidate for automation, and cognitive activities that demand higher-order AI skills are increasingly a good fit as well.

ROBOTIC PROCESS AUTOMATION

Robotic process automation (RPA) makes it simple to create, use, and manage software robots that mimic how people interact with computers and software. Software robots are capable of performing a wide range of predefined tasks, including understanding what is on a screen, making the appropriate keystrokes, navigating systems, and extracting and identifying data. Yet, software robots are faster and more reliable at doing it than humans.

ROBOTIC PROCESS AUTOMATION WITH ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

AI is not RPA, and RPA is not AI. Yet, combining RPA and AI opens up a wide range of new opportunities for businesses worldwide. For starters, RPA technology today enables the integration of sophisticated AI capabilities into RPA robots, including as machine learning models, natural language processing (NLP), character and picture recognition, and more. By endowing robots with certain AI capabilities, their capacity to manage cognitive processes requiring things like:

- Comprehending written material that contains unstructured or semi-structured data picturing screens (including virtual desktops).
- Understanding speech and engaging in talks and conversations.
- AI is also enabling RPA applications like process mining to scientifically uncover a wide range of automation opportunities and create a reliable automation pipeline.

When used in accordance with AI and machine learning, RPA can extract more context from the content it is working with by using optical character recognition (OCR) to read text or handwriting, natural language processing (NLP) to extract entities like names, invoice terms, or addresses, and more. For example, RPA can extract more context from images by automatically estimating accident damage in an insurance claim picture.


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APPLICATIONS OF RPA

RPA installation offers significant financial benefits that should be emphasised. Robots were said to provide 20% of full-time equivalent (FTE) capacity on average, with a payback time of less than a year. RPA makes a range of efforts to meet and exceed expectations. Additionally, studies have revealed that over 90% of C-level executives claim their businesses currently employ some form of intelligent automation.

- **ROBOTIC PROCESS AUTOMATION IN HEALTH CARE:** In the healthcare sector, there are many extremely delicate client interactions, but there are also lots of arduous administrative tasks and lengthy, tedious procedures. RPA may automate jobs across the organisation, from front-office activities to operational processes to patient interaction and bill payment. It can reduce expenses, quicken the pace of procedures, organise work, boost business process productivity, and improve the patient experience in healthcare facilities. In the next seven years, the global market for robotic process automation is predicted to reach $10.7 billion, growing at a CAGR of 33.6%, making the healthcare sector one of the greatest in which RPA applications can be seen.

- **ROBOTIC PROCESS AUTOMATION IN SUPPLY CHAIN MANAGEMENT:** Production, efficiency, and precision in the business process sector are projected to be significantly impacted by RPA in Supply Chain. Robotic process automation is used in the supply chain to automate tasks that are now done manually, minimising the potential of mistakes and deviations. Businesses will be able to hire and train staff for problem-solving and brainstorming assignments using robots rather than boring, tiresome tasks. Also, studies have demonstrated a 43% reduction in time for procedures like credit, collections, invoicing, etc. thanks to robotic process automation. Companies are pushing swiftly to automate their supply chains in order to make them more efficient and compact, even though robotic process automation is still in its infancy in supply chain operations. Even though, the sector will soon serve as a shining example of the best RPA implementations.

- **ROBOTIC PROCESS AUTOMATION FOR CUSTOMER CARE:** By reducing administrative burden, robotic process automation (RPA) improves and increases customer service. Software robots that handle service requests, acquire information from numerous systems, and update customer records speed up customer support. Thanks to robots, customer requests can be handled more quickly, and user feedback and satisfaction metrics can be better controlled. RPA also increases efficiency by helping with data and document gathering, customer data updating, and request processing. Customer service is undoubtedly one of the most important uses of RPA.

- **ROBOTIC PROCESS AUTOMATION IN BANKING:** The banking sector has one of the best uses for RPA. The banking and financial industry has grown rapidly over the past several years because to technological advancements that enable faster, more dependable, and dependable services. RPA helps banking and accounting departments automate time-consuming manual tasks so that staff may concentrate on more crucial tasks and give the organisation a competitive advantage. In this area, RPA is frequently used to organise and automate laborious banking tasks. In fact, studies predict that RPA in the banking industry would reach $1.12 billion by 2025. Banks have been able to significantly reduce the requirement for human involvement by automating the majority of arduous, manual tasks that formerly required staff.

- **ROBOTIC PROCESS AUTOMATION IN HUMAN RESOURCES:** RPA is becoming more popular among HR professionals as new use cases are developed, despite not being as well-known as other types of intelligent automation used in HR. Currently, RPA is frequently used in HR to automate processes including compiling or analysing datasets, sending job offers to applicants, onboarding new employees, facilitating health plan registration, and even creating badges for conferences and special events. RPA can also be used in HR to build chatbots that are specifically designed by fusing it with machine learning and Natural Language Processing (NLP). Instead of speaking to a live employee when they need assistance or to file claims or files, employees can communicate with virtual assistants.It might significantly improve the flow and accuracy of information to specific employees across the organisation, facilitating their access to data and ensuring that their claims are resolved more quickly. This supports the idea that RPA has countless uses once more. It is clear that RPA is building the foundation for contemporary business operations in the digital world based on the industry's rapid expansion and the rate at which businesses across industries are implementing it. Businesses who do not use RPA and automation technologies are likely to lag behind in 2022 because they will not be able to compete on an equal playing field. RPA applications are growing exponentially.


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BENEFITS OF ROBOTIC PROCESS AUTOMATION

The following are some ways that robotic process automation technologies can help organisations in their digital transformation efforts:

1) Facilitating improved client service.
2) Ensuring that business procedures and practises adhere to legal requirements.
3) Significantly shortening the processing time.
4) Digitizing and reviewing process data to increase efficiency.
5) Cutting back on manual and repetitive tasks to cut costs.
6) Making it possible for workers to produce more.

RPA TECHNIQUES

1.**Reliability**: As firms implement robots to automate hundreds or even thousands of tasks, they should search for tools that offer integrated surveillance and analytics to track the health of their systems.
2.**Simplicity**: Businesses should look for solutions that are simple enough for every employee to build and use for a variety of tasks, such as data collecting and content transformation into information that executives can use to make decisions.
3.**Enterprise-class**: Businesses should look for tools that enable internal scalability, dependability, and management effectiveness.
4.**Speed**: Rapid development, testing, and optimization of the bots should be possible for businesses in a matter of hours or less.
5.**Scalability**: Businesses shouldn't select RPA software if it calls for the deployment of desktop or virtualized robots. You should seek out sizable RPA platforms that are centrally administered.

CHALLENGES IN RPA

- **Scalability:** Although RPA's software bots are very simple to create, they can be challenging to regulate and manage, making it difficult to grow RPA automation programmes.
- **Restricted capabilities:** Many detractors have noted that RPA software products automate operations even if its name contains the terms "process automation." Making a process out of several activities frequently takes more effort. Forrester Research analyst Craig Le Clair has advised businesses to follow the "rule of five" while developing RPA applications because these systems frequently malfunction when a bot is required to make more than five decisions, control more than five apps, or do more than 500 clicks.
- **Security:** In order to fulfil their responsibilities, RPA bots may need to access confidential data. They increase a company's security risk if they are compromised.
- **Low resilience:** When applications change in unexpected ways that weren't foreseen by developers, RPA failures may happen.
- **New QA issues:** To make sure that bots continue to function as intended, a number of new testing procedures are needed.
- **Privacy:** Bots may work with personally identifiable information that is subject to privacy regulations. Teams must make sure that the processing of this data complies with the local data protection legislation, such as GDPR. For instance, it would be against GDPR Article 44 if an RPA bot moved data outside of a specific jurisdiction without encryption. As a starting point for managing sensitive information, RPA suppliers are beginning to pursue ISO 27701 certification.
- **Efficiency**: RPA bots manually work their way through an application in a manner similar to that of a person. This might not be as effective as process automations built into the application itself or API automations for applications.

CONCLUSION

In the future, RPA will be essential for building a smooth operational environment because it has the capacity to reduce errors and increase efficiency. Repeated tasks will be completed more quickly and effectively, freeing humans to concentrate on skills that are more human-centric, such reasoning, judgement, and emotional intelligence. You can encounter resistance and difficulties when adopting an RPA system. Setting the groundwork up front and stressing a clear vision to your management team and staff will aid in your RPA onboarding. Without a doubt, RPA is a breakthrough invention whose innovative uses have and will continue to shake up sectors all over the world.

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