Robotic Process Automation

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1. Introduction

Today's businesses are undergoing a massive transition from old, outdated technology to new ones. The new ones are very rapidly forming, and businesses that are going to be successful must adapt to this shift. Robotic Process Automation (RPA) uses robotic technology to automate various repetitive tasks in business. RPA is gaining popularity due to its ability to decrease costs, streamline processes, and improve customer experiences. Another benefit of RPA software is that it may be implemented without the need for business units to learn new tools or seek information technology (IT) help, as well as without modifying the underlying IT architecture of a company. As the popularity of RPA increases, enterprises will need to integrate RPA process automation into their IT platforms. Although RPA automatics can accelerate a previously managed business process substantially, it may be unacceptable if applications or processes change.

2. Definition of RPA in the Human Resource Department (HRD)

Businesses utilize robotic technology to automate numerous repetitive activities via RPA. The RPA-simplified HR operational procedures include employee interactions, recruitment, selection, training and development, benefits and remuneration and general HR tasks. RPA in HRM decreases the amount of time workers spend on these activities, allowing them to focus on other important responsibilities like as talent development, retention, and policy execution. As a consequence, productivity and efficiency are enhanced in the HR Department's varied tasks. RPA employs a number of robots to do various tasks in order to be more precise and efficient. By utilizing RPA a firm can use a totally virtual workforce. RPA is defined as a relatively new technique for process automation based on software and algorithms that attempt to imitate human work and execute manual tasks by interacting with information systems via current user interfaces (Gejke, Mendling, &Ratia, 2018). Van Belkum et al. (2018) observed that most RPA is used to gather and analyze existing processing applications, to modify data, to trigger reactions, and to engage from a commercial point

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of view with other digital systems. As a result, it is regarded as "suitable for large volume, repetitive, boring, well-structured, and standardized activities that do not need subjective judgment, originality, or interpretation skills." Aguirre (2017) claimed that RPA solutions are minimally intrusive, simple to use, affordable, and straightforward to install since RPA rests on top of current information systems, does not store transactional data and does not require a database. Aguirre et al. (2017), Kirchmer (2017) and Hallikainen et al. (2018) indicate that the perceived value of RPA is mostly connected with improving organizational performance and lowering costs by eliminating human labor in normal business operations while simultaneously improving work quality.

The notion of RPA is lately broadened to incorporate artificial intelligence (AI) and cognitive computing. With the advent of improved digital technology, RPA may be redirected from completing repetitive and error-prone routines in corporate processes to more complicated knowledge-intensive and value-adding activities (Anagnoste, Gejke & Tsaih, 2018). The bulk of the 400 businesses examined by Deloitte (2017) have begun their RPA journey with over a quarter planning to do so within the next two years. They indicate that payback times are around one year on an average and that they fulfill or surpass their objectives of reduced costs, accuracy, timeliness, flexibility and increased compliance (Deloitte,2017). According to Forrester (2019), over 4 million robots will be employed to do routine tasks but the focus will shift to AI integrations and RPA analytics enhancements. Likewise, Everest Group,(2018) alludes to the need for enhancing analytics and cognitive skills, while most purchasers have RPA solutions. Despite the significant advantages of RPA, only 5% of the firms are researching RPA (Deloitte,2017).The success of RPA initiatives depends on organizational competence and knowledge of the business goals of RPA deployment. According to Suri (2017), the major difficulties for automating procedures are highlighted via incomprehension of what and where the RPA implies, a lack of management support and a concern that the workforce would loss jobs. An organizational transformation strategy, a change of corporate culture and a change of thinking might assist bridging the gap between IT and business RPA (Deloitte, Suri 2017&Lacity 2016). Alternatively, participants from the Everest Group (2018) regarded strong customer support, training and educational resources as significant drivers of RPA adoption as well as RPA maintenance services and a solid RPA vendor ecosystem for further technologies. Furthermore, the introduction of new technology raises concerns regarding the administration of robots, their central control, and governance (Forrester, 2017).

3. Why do HR operations need to be modernized?

The managers of human resources are under continual pressure to recruit and maintain excellent personnel. To guarantee that the company's operations and growth go smoothly, they must establish a favorable work environment for workers and good relationship with a number of departments. HR managers are faced with a variety of quantitative and qualitative responsibilities on a daily basis. Processing employee salary issuance is an example of a quantitative task. It is a qualitative task to discuss with an employee about his or her perspective of the firm.

The challenge for HR managers as the firm expands is to strike a balance between quantitative and qualitative duties. HR managers tend to focus more on quantitative tasks since they are easier to document and report. However, if the emphasis on qualitative activities fades, it will result in greater problems in the long run.

Quantitative tasks need a significant amount of time to accomplish, are repetitious, need a lot of paperwork, and are, above all, tedious. In that cases, the robotic process automation may help. RPA adoption leads in 10-20% savings on HR procedures and, more generally, on total company processes, according to Deloitte research.

4. Applications of RPA

Some of the top applications of RPA include the following:

➢ **Excellent customer service**: RPA supports companies to provide improved customer service through the automation of contact center tasks like as e-signatures validation, scanned documents and automatic approval/rejection verifying information.

➢ **Accounting:** Accounting for operational activities, general accounting, reporting on financial transactions and budgeting are all areas where RPA is used.

➢ **Banking and financial services:** RPA is utilized to automate payments of foreign currencies, openings and closings of account, requests for audits and the processing of insurance claims in the financial services industry

➢ **Healthcare:** Patient records, claims, customer service, account administration, invoicing, reporting, and analytics are all handled using RPA in medical companies.

➢ **Human capital:** HR operations like as onboarding and off boarding, updating employee information, and time sheet submission may all be automated with RPA.

➢ **Managing the supply chain:** RPA may be utilized in procurement supply chain management, order and payment automation, inventory monitoring and shipment tracking.

5. Used Cases for Robotic Process Automation in HR

These are supported by numerous blogs, editorial columns, and articles.

➢ **Screening of resumes and short listing of candidates**

Today, employees do not have to take a lot of time to go through a number of resumes and application forms for available employment. Software robots can quickly collect all of the data and compare the information to the job requirements list. These standards might be considered as pre-determined guidelines for the selecting process. The top applicants will be contacted and invited to interviews, while those who do not meet the requirements may be rejected.

➢ **Administration of offer letters**

The content of offer letters must adhere to different sets of rules depending on the applicant being considered. These laws are often kept in a variety of systems and databases, making manual verification and cross-checking time-consuming and error-prone.Software robots, on the other hand, can swiftly gather all of the necessary data, write the offer letter, send it, and track the suitability of returned papers.

➢ **Orienting new employees**

When a new colleague joins the team, data from several systems must be synchronized in order to generate a new user account, email address, application access permissions, and IT equipment access rights, among other things. In order to discover agreement between the employee's profile and preferences and standard corporate practices, data integration capability is required.The user account may automatically activate a specific template for the onboarding procedure using robotic process automation, which streamlines the whole procedure. The Bots,an autonomous program on the internet may then make rule-based judgments about which credentials to assign, which onboarding papers to provide, and so forth.

➢ **Bottom of Form**

➢ **Management of Travel and Expenses**

Manual processing may result in difficulties such as late expense submissions, missing receipts, ambiguous expenditure explanations, and so on, all of which have a detrimental impact on compliance and employee satisfaction. Individual costs may be checked against both corporate laws and external expenditure criteria by software robots, making the process more efficient.

➢ **Data Management for Employees**

Current and former workers, applicants, contractors, and new recruits are all referred to as "employees." The term 'data' refers to corporate policies, payroll, and benefits. These requirements are intended to stress that managing employee data necessitates coordinated, consistent operations across many databases and data types.This is readily handled through robotic process automation, which reduces the risk of erroneous data entry. It guarantees data consistency across various databases by performing data cleaning activities on a regular basis.

➢ **Keeping Tack of Attendance**

Something like "learned carelessness" might get in the way of employees using the absence management system properly. At this point, size does matter, in the sense that the larger the firm, the more difficult it is to analyze time records correctly.

Self-reports may be cross-checked against time documented in the corporate record, and discrepancies can be reported to HR.

➢ **Reporting and Compliance**

Given the necessity to adapt to changing circumstances in the workforce's socioeconomic position and to provide workers with acceptable health, safety, and welfare circumstances, labor laws are among the most often modified. By integrating data from different systems and utilizing robotic process automation in HR, organizations can better comply with continuously changing compliance laws and prepare reliable reports.

6. Bangladesh and Robotic Process Automation

This is supported by the findings of the research (Anagnoste, 2017; Aguirre &Rodriguez, 2017;Suri, 2017;Deloitte& Forrester, 2017).

➢ **Robots in industrial plants**

Robots are employed in industrial operations. Robots in most industrial

facilities are made up of a single hand (multi-linked manipulator) connected to a fixed surface. One of the most common types of producers is the gripper assembly. Despite its status as a developing country, Digital Bangladesh is presently assuring robotics automation in a variety of areas. The usage of robotics to open restaurant doors is becoming increasingly popular in Bangladesh. Many artificial intelligence experts believe that in the not-too-distant future, robots will serve as waiters. The use of robots in different production management, raw material collecting, and garment processing is projected to grow day by day.

➢ **Service Robot**

The most prevalent robots in businesses are robot weapons and manipulators, and they are mostly employed for manufacturing and distribution. The phrase "support robot" has no official definition. According to, International Federation of Robotics (IFR), service robot is a semi-autonomous or completely autonomous organization and is designed for people's convenience. Bangladesh is not trailing behind the rest of the globe when it comes to the usage of robot automation in different services. Auto robotics is being used in different web-based services in Bangladesh, in addition to its application in real life. The web-based robot, however, is not a real-life robot, such as Chatbots robot. Robots are also being studied for their usage in e-commerce sites and medical services. In Bangladesh, it is anticipated that the service would have a better start.

➢ **Robots in the education**

Bangladesh faces a difficult problem in ensuring the usage of robots in education. Various institutions around the country, nevertheless, have been doing robotics research, and as a consequence, they are verifying the use of automated robots in various locations. For example, in agricultural, auto robots are being used. Various essential chemicals, including hazardous pesticides, can be applied to field crops using this method. Furthermore, based on the water level in the ground, the robot will activate the automated water pump. In robotics, such outcomes can be discovered. In Bangladesh, however, there is no automatic usage of robots in teaching.

➢ **Military robots**

Military robots include SWORDS (Special Weapons Observation Remote recon Direct action Systems) robots, which are now utilized in ground-based warfare. It has been granted the capacity to employ a variety of weaponry as well as certain automated battlefield monitoring capabilities. Around the world, military robots are rapidly being employed in fighting

and defensive systems. But at the other side, Bangladesh is far behind. Then, in recent years, modest modifications have been observed in several military locations in Bangladesh. Bangladesh Army also guaranteeing that various forms of automated robots, such as drones, are used to carry out various tasks. Although it has not been widely implemented, there is evidence of the employment of various robots to put out fires in the fire department.

➢ **Messy, hazardous, boring, or inaccessible work**

Many tasks can be assigned to robots rather than people in the future. Some tasks, such as cleaning the home, are boring, while others, such as visiting a volcano, are dangerous. Other tasks are physically difficult for individuals to do, such as exploring another universe, cleaning within a lengthy pipe, or conducting laparoscopic surgery. Auto robots of current technology can play a far greater function in locations where humans cannot readily access or create hazardous gases from trash, or where there is a risk of damage when people come. As a trial project, road cleaning with auto robots has begun in a few Bangladeshi districts.

➢ **Robotic mining**

For millennia, people have been collecting natural resources from mines. And individuals have been excavating the dirt for many years to accomplish this difficult task. Trains were used to provide easy access to mine raw resources. However, owing to the shift in trains, the employment of robots in mining operations is rising, and the danger is lower in this job. The employment of robots in the production of different mineral resources in Bangladesh, such as coal from Dinajpur or stone from the Sylhet River's bottom, is likely to begin at some time.

➢ **Healthcare**

 Bangladesh has changed over time, as has the medicine profession. Robots are currently being used in a variety of surgical procedures in Bangladesh. Open heart surgery is being conducted using a tiny robot, which greatly reduces the danger of the procedure. Experiments like as endoscopy and colonoscopy, which provide images from within the body for the treatment of robots, are also highly beneficial. Robots will not be utilized in future testing such as ECGs, ultrasonography, or X-rays. It is believed that by scanning the skin, robots would be able to determine the amount of blood components and diagnose the condition.

➢ **Tiny Robot**

Nanotechnology is being used in research projects all around the world. It is fairly hardened, despite the fact that it is considerably smaller in size since it is formed of molecules. In many research projects, small robots as thin as hair are highly popular. BRAC the only University of Bangladesh has handed over the robot to NASA in preparation for the launch of Chandrobot-2 into space. That was a high level of nanotechnology.

➢ **Telecom Sectors**

Banglalink Digital has chosen Genex Infosys Limited, a publicly traded Information Communication business in the nation, as a key partner to deliver robotic process automation (RPA) services. It says that Genex Infosys Limited was one of the first companies in Ban- gladesh to work with RPA, with a top-notch dedicated staff to col- laborate with IT heavyweights like UI Path. Grameenphone is the only telecom operator from Bangladesh to be recognized for RPA integration in internal operations, as determined by an experienced team of worldwide adjudicators.

7. Difference between RPA and AI

In most situations, the confusion between artificial intelligence and robotic process automation has been seen. But two are very different in actual terms.

RPA	AI
RPA stands for Robotic Process Automation	Al stands for Artificial Intelligence
RPA (robotic process automation) is a kind of automation technology for business operations that seeks to automate manual and repeat procedures.	Al refers to the simulation of in-telligent behavior in machines, in which machines are designed to learn and adapt to their surroundings.
It is a technology that enhances commercial values through process simplification and increased company efficiency.	Al is intelligence shown by machines that exhibit at least some of the same behaviors as humans.
The objective is to concentrate on tedious, repetitive chores that are a complete waste of time and effort.	The goal is to build technology that enables machines to think as do people.

Source: www.differencebetween.net

8. Benefits of Implementing RPA Technology

RPA is presented in current literature as the future of automation for all corporate enterprises. The following are the benefits and pitfalls of this technique mentioned in existing research. This is supported by the findings of the research (Anagnoste, 2017;Aguirre &Rodriguez, 2017;Suri, 2017;Deloitte& Forrester, 2017).

➢ **Low risk and easily integrated:** RPA is a non-invasive low-risk technology easily integrated with a current system that allows the HR team to build a platform, continuously expanding with new algorithms and machine learning tools.

➢ **Increased productivity:** RPA may free up workers to focus on high-value jobs like employee engagement and retention, which di- rectly contribute to the company's overall strategic goals, therefore improving overall productivity.

➢ **Scalability:** When used on a broad scale and scaled up or down according to the system's demands, RPA has a negligible cost per effort, resulting in zero or no wasted effort for the system as a whole.

➢ **Accuracy:** Its computational superiority, which vastly exceeds its human equivalents, allows it to provide exact output and make judgments quickly when it comes to data analytics.

➢ **Duration:** RPA programs last 9-12 months, with a 30 % to 200 % return on investment in the first year.

➢ **Consistency:** It is designed to provide flawless replication and error-free performance as well as to eliminate output fluctuation over the course of an operating period.

➢ **Reliability:** They can work 24 hours a day, seven days a week and do not require any sick days.

➢ **Flexibility:** Regardless of the deployment environment, RPA is an industry-agnostic technology that follows a well-programmed method.

9.Shortcomings of RPA

RPA is not without shortcomings. The main shortcomings identified by the experts are as follows:

a) **Turnover:** RPA robots do not usually replace workers, although it is a possibility. Furthermore, companies may utilize bots to manage in-

creased workloads; they won't need to hire extra humans who would have handled the job otherwise.

b) **Massive Technology:** As more robots are introduced to accomplish more duties, organizations are at risk to face difficulties in managing and maintaining them.

c) **Increased Complication:** When RPA is not properly documented, controlled, and governed, it might result in layers upon layers of software. It increases the complexity and makes it more difficult to execute business changes.

d) **Exaggeration of Troublesome procedures:** Experts say that businesses that automate processes without first reviewing and, if required, reengineering and optimizing them, automating problematic processes may arise. This entails magnifying inefficiencies, and mistakes with the process.

e) **Thwarted transformation:** Management of the enterprise aiming to support RPA to accomplish its digitalization goals, needs a comprehensive strategy to prioritize automation activities and a clear knowledge of how these projects fit within their broader strategic objectives.

10. Conclusion

Even with the introduction of robots, a firm is only as good as its workers. Robots will assist organizations in streamlining their processes and distinguishing between individuals who require their unscheduled time. RPA is a relatively recent technology, enabling people to replace and automate repetitive activities and therefore, engage in more difficult tasks which may provide value for the company. RPA is a disruptive technology that is still in its early stages with already valuable results according to reports from consulting businesses found by Deloitte & Forrester (2017). It has the ability to collect and condense data quickly. It can also help an organization to save a lot of money. It also allows HR to concentrate on responsibilities such as resolving employee concerns. As a result, their work satisfaction will rise, and they will be able to concentrate better on organization success. Assigning monotonous daily duties to a robot, therefore, provides a significant benefit.

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