Robotics Process Automation :Stragetic Technology solutions for IT

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***Abstract*— Increasing volatility and an unsure macro environment have increased the complexity of doing business, globally. Organizations have started investing in innovative technologies to tackle the rise in labor costs and lack of skilled resources. Existing enterprise resource planning (ERP) systems have their own limitations, such as lengthy implementation life cycles, and also require significant human intervention and change management. Organizations are consequently moving toward another period of human–machine interface to change business forms and lessen costs. "Robots" are programming tools that have risen to improve business process delivery. The innovation behind this improvement is called Robotics Process Automation (RPA). "These software robots offer improved business efficiency, data security and effectiveness by mimicking human actions and automating repetitive tasks across various business applications without altering existing infrastructure and systems. Upgraded efficiency, diminished process duration, and improved precision and consistence are a portion of the advantages of this innovation. Today, high-volume, exceedingly monotonous, multistep assignments with numerous approval standards, and manual procedures, are computerized start to finish utilizing RPA. This progressive technology will keep on utilizing components of man-made consciousness for complex basic leadership later on as well. For instance, inside a couple of years, RPA will work increasingly like a human mind, which can adjust and survey, and perform intellectual assignments by detecting, foreseeing and inducing; it may even have a specific dimension of passionate insight. So, it is tied in with "offering capacity to the robot."**

Keywords: Enterprise Resource Planning (ERP), Artificial Intelligence (AI), Process Automation, Robotics Process Automation (RPA), Human Resource Management (HRM)

I. INTRODUCTION

Work automation is definitely not new. There is a distinction between what we've seen mechanically supplant the work ordinarily performed by individuals and Robotics Process Automation (RPA). While we normally consider conventional automation regarding sequential construction system innovation, ATMs, computerized toll stalls, and self-checkout counters, mechanical procedure automation manages "brilliant programming" and the use of savvy programming to do high-volume, repeatable errands that normally take people an agonizing period of time to achieve and which they commonly find every day to perform.

One of the discussions encompassing RPA spins around the subject of whether this innovation is genuinely progressive or just the result of the development of other comparable innovations. Numerous innovations, counting computerized reasoning (AI), master frameworks, and different techniques for procedure mechanization have served as ancestors to RPA. That being stated, RPA takes man-made reasoning and master frameworks to a raised level. Among pioneers in the mechanization business, mechanical procedure automation is seen as offering remarkable abilities and points of interest over past advances.

The difference between RPA and traditional business process automation could be likened to a driverless robotic car versus a car using cruise control. Cruise control simply modulates vehicle speed, while the driverless car is able to be aware, learn, adapt, and respond to various driving situations, as a human would. This adaptability and awareness is what gives RPA the edge over traditional business and information technology process automation technology. Table 1 shows the evolution of RPA.

Table 1: Evolution of RPA

Manual Old Processes	Assisted Macro Automation	Robotic Process Automation
Human workforce	Virtual assistant	Virtual workforce
Clerical long process	Human assisted macro applications	End-to-end process automation
Required huge human resources for scaling	Non scalable apps built for specific processes	Scalable & flexible virtual workers
-	Multiple macros/apps could not work simultaneously	Multiple bots working simultaneously
Time consuming human activity	Time consuming development work	Fast and efficient development & deployment
-	Compatibility issues with legacy systems	Compatibility with universal software systems
Manual work	No scheduling	Task scheduling
-	No centralized macro/app management	Centralized robot management & tracking
-	Deployed on desktop or shared location	Can be deployed in server, cloud/saas

II. BENEFITS OF RPA

Improved Data Analytics

Each task the robot executes produces data that, when gathered, allows for an analysis. This drives better decision making in the areas of the processes being automated. When data is efficiently combined, compared, and contrasted to data collected in other areas, it allows for better decision making on both a micro and macro level. As each step in a process is traced, a company is able to identify gaps where processes could be further optimized to increase efficiency

Increased Regulatory Compliance

The nature of automation means that each step in an IT or business process is fully tracked and documented within the system that is being automated. This makes a company become more compliant with industry and audit regulations. RPA is a lifesaver for industries that have functional areas highly regulated by strict compliance guidelines, such as healthcare, banking, and insurance. In an RPA-enabled scenario, the solutions will provide in-depth telemetry/data about workflow, thus enabling tremendous insight and documentation to comply with specific regulations.

Increased Efficiency

A software robot never needs time off – it can work twenty-four hours a day, seven days a week, and 365 days a year. It doesn't call in sick or take a vacation. Typically, a single software robot can replace two to five full-time employees, possibly more. The same volume of work can be done in less time, or more volume can be processed in the same amount of time, thereby allowing downstream work to commence sooner.

Higher Employee Productivity

As software robots handle the more repetitive, tedious jobs in a business, employees can participate in more value-added activities that involve personal interaction, problem solving, and decision making. Robotic process automation allows employees to complete tasks that are more valuable to the company and its customers. When employees feel their work is valued and worthwhile, their productivity increases, which increases employee retention rates. But beyond being able to participate in more value-added activities, employees are better supported for their value-added tasks. This can help increase productivity. Again, the same volume of work can be done in less time, thereby allowing downstream work to commence sooner.

Improved Accuracy

Employees are human, and all humans make mistakes. A compelling feature of RPA is its capability to virtually eliminate processing errors. It's not a turn-key solution. There will still be the need for testing, training, and governance, but as long as a process is properly optimized and all its sub-processes are accurately mapped, a business need not worry that its software robots will make the mistakes that its employees might.

Increased Customer Satisfaction

As employees move to more customer-facing roles, and as automation makes processes more efficient and error-free, customers are likely to become more satisfied with their experience. As a company improves its relationships with its customers, customer satisfaction, retention, and acquisition will improve as well.

Logistical Upside

Transitioning to RPA will minimize or eliminate complications with offshore labor as it relates to time zone differences and cultural and language barriers. Using RPA can also decrease the need for employee recruitment and training costs

Minimize Cost

Cost is reduced dramatically as the RPA tool takes care of the repetitive clerical tasks thus saving precious time and resources while human resources can focus on the work that creates more value.

RPA and Business Processes

Technologies like presentation-layer automation software – a technology that mimics the steps of a rules based, non-subjective process without compromising the existing IT architecture – are able to consistently carry out prescribed functions and easily scale up or down to meet demand. Process automation can expedite back-office tasks in insurance, finance, procurement, supply chain management, accounting, customer service, and human resources. It could also perform duties including data entry, placing purchase orders, creating online access credentials, and completing business processes that require "swivel-chair" access to multiple existing systems

III. CRITERIA FOR SELECTING RPA TOOLS

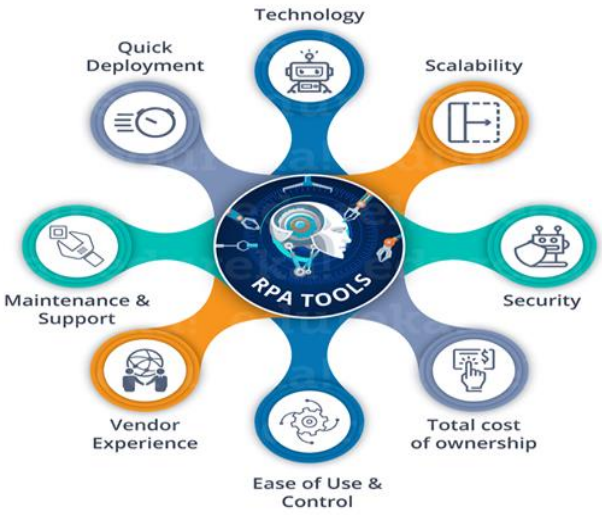

Fig 1: Criteria for Selecting RPA Tools

The various criteria shown in Fig can be explained as follows.

- Technology: Many organizations perform their day to day tasks outside the local desktop using Citrix or Virtual machines. So the tool must be platform independent and should support any type of application.
- Scalability: Selection of an RPA tool must include how quickly and easily the tool can respond to business requirements, changes, exceptions or increasing operations.
- Security: One of the important parameter to be considered is security. RPA tools are a piece of software, in which you need to measure the implementation of security controls.
- Total Cost of Ownership: This includes the initial setup cost of RPA system, ongoing vendor license fees, and maintenance cost. All these costs must be considered when you wish to select a tool for your job to be done.

- Ease of Use & Control: The RPA tool that you choose must be user-friendly to increase both efficiency and employee satisfaction. Also, easy to use solutions require less training and have better ease of control.
- Vendor Experience: Choose a vendor that serves a company similar to yours both in terms of size and industry. This kind of experience drastically improves the speed of implementation by reducing the work required to implement RPA software.
- Maintenance & Support: Vendor has to follow a support model to ensure you meet the required Service Level Agreements.
- Quick Deployment: The tool should be able to help as a real end-user by interacting with applications at the presentation layer, using the screens, validation, and business rules as they are presented via a virtual desktop.

IV. METHODOLOGY AND WORKING OF RPA

Fig 2: RPA Methodology

1. Planning- In this phase, you need to Identify processes which you want to automate. Following checklist will help you identify the correct process

Development- In this phase, you start developing the automation workflows as per agreed plan. Being wizard driven, the implementation is quick

Testing- In this phase, you run Testing cycles for in-scope automation to identify and correct defects

Support & Maintenance- Provide continuous support after going live and helps in immediate defect resolution. Follow general maintenance guidelines with roles and responsibilities with business and IT support teams.

V. WORKING OF RPA

The working of RPA illustrated in Fig. 3 can be summed up as follows.

RPA reduces the processing time from 138 minutes to 3 minutes, or 98%.
Step1: RPA emails forms to the new hire for completion.
Step2: The new hire returns completed forms and attachments.
Step3: RPA checks for emails and completes related activities.
Step4: The new hire receives an email for any incomplete or missing information.
Step5: RPA receives the new hire's supplemental information.
Step6: RPA enters the new hire's information into the HR system.
Step7: RPA validates data for inclusion.
Step8: A manager prepares for start date and business activity.
Step9: RPA deploys new-hire notifications to internal and external third-parties.
Step10: The new hire commences work on Day 1.

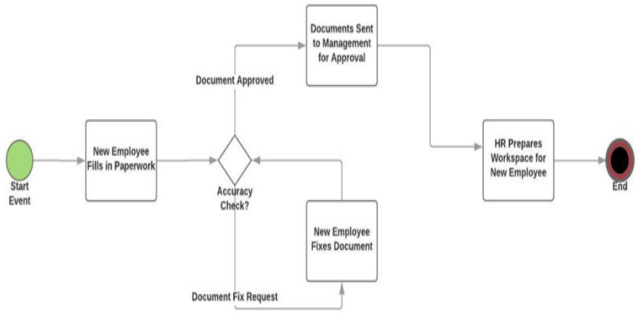

Fig. 3: RPA Workflow

V. CONCLUSIONS

RPA takes artificial intelligence and expert systems to an elevated level. What distinguishes this type of technology from traditional automation is its ability to be aware and adapt to changing circumstances or new situations. RPA technology is a good candidate for almost any organization that has many different, complicated systems that need to mesh together. The healthcare, finance, insurance, and banking industries are particularly ideal. RPA technology tracks and monitors all tasks that it automates, therefore it enables companies to become more audit and regulatory compliant and to deeply analyze company processes. Thanks to the software's ability to adapt, self-learn, and self-correct, a company can further optimize its business processes using RPA technology. Though it is expected that automation software will replace up to 140 million full-time employees worldwide by the year
2025, many high-quality jobs will be created for those who are able to maintain and improve RPA software.

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