

A Study of Robotic Process Automation Use Cases Today for Tomorrow's Business

Yuvaraja Devarajan

(Information Technology Professional, California, USA)

Abstract:

Historically, most of the companies across various industry domains, implemented multiple IT tools and processes (workflows), that often had a mix of automated and manual steps. These manual steps performed across these industries constantly required lot of manpower, generated human errors, reduced employee motivation due to mundane repetitive tasks, degraded productivity, increased operational expenses etc. The automated steps performed, had its own downside due to the implementation of multiple IT automation solutions adding up license/development/maintenance cost, increased integration timelines, continuous patching of code to accommodate underlying business logic changes. Businesses today and over the years had been constantly looking for IT solutions that could holistically augment their user's performance improving customer satisfaction, increase productivity and quality, reduce costs etc. Robotic Process Automation (RPA) has recently emerged as a game-changing technology outperforming multiple solutions that evolved from Business Process Management (BPM) industry over the decades. Robotic Process Automation, since its inception, due to its capability to automate rudimentary rules-based tasks that are repetitive and manual, found its way across multiple industry domains, extending the use cases and continuing to evolve with business requirements. This paper study RPA's application across various industry domains, benefits of RPA, and future of RPA.

Keywords —Robotic Process Automation, RPA,Cognitive Automation.

I. INTRODUCTION

In today's fast paced work environment, it's critical for businesses to think better ways of engaging their employees, strategizing solutions to avoid rudimentary manual repetitive human workloads, in order to generate maximum throughput. Robotic Process Automation, or RPA, is a new solution in business process management technology leveraging artificial intelligence and machine learning which helps businesses accomplish the above said goal.

The IEEE (Institute of Electrical and Electronics Engineers) Standards Association defines Robotic Process Automation (RPA): "A preconfigured software instance that uses business rules and predefined activity choreography to complete the

autonomous execution of a combination of processes, activities, transactions, and tasks in one or more unrelated software systems to deliver a result or service with human exception management" (IEEE Corporate Advisory Group 2017).

Robotic Process Automation is a versatile, non-invasive, scalable technology that can be readily applied to automate use cases across many different departments and industry processes. This study will review the significance of RPA across various industry domains specifically,

- Banking
- Audit
- Insurance
- Retail
- Manufacturing

Across these industries, RPA could cover application areas / use cases in various business functions not limited to,

- Sales
- Finance
- Operations
- Procurement
- HR
- Customer Support
- IT

II. WHY RPA IMPLEMENTATIONS ARE ON THE RISE?

Research studies across all the industry domains on Strategic agenda for their businesses show Continuous improvement and Automation as top priority items.

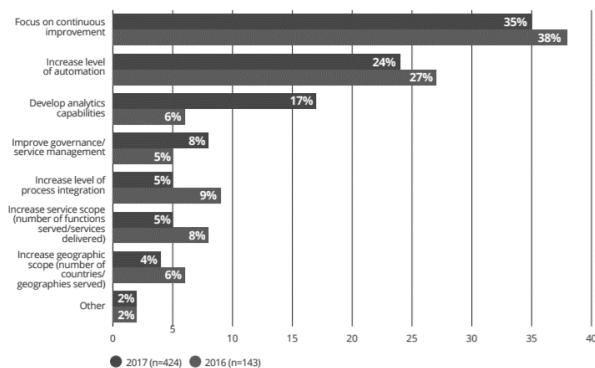


Fig 1. Strategic Priorities for Business (Adapted from [11])

For any organization, even the simplest use of right technology can dramatically improve their business efficiency and productivity. One way to assure that your technology/system delivers desired value to your business is to align it with your strategic business priorities. Majority of global organizations have already started their RPA journey / have RPA on their roadmap since RPA evolved and proved itself as a solution that can deliver significant productivity improvement and Automate many of their rudimentary business tasks. Due to its versatility, RPA is becoming a critical software in solving systematic automation

challenges and helping organizations to grow into digital workplaces.

III. BENEFITS OF RPA

RPA can help businesses solve their systematic automation challenges that are repetitive and rule-based. It is a way of creating a virtual workforce that brings in extended capacity to businesses to gain a competitive edge in customer satisfaction and enterprise agility. These Software Robots or Bots offers a magnitude of benefits, including,

- Accuracy – To err is human; RPA can significantly improve the accuracy of business operations since they are impervious to human error.
- Consistency – RPA can automate any business process that is repeatable, and rule based. It can execute business processes with extreme precision at very high velocity that even smartest humans cannot.
- Reliability – RPA with its inbuilt capabilities including Monitoring and Analytics, can offer detailed Audit logs that allows users to oversee the health of their systems and processes. If any unexpected errors occur, the processes could be configured to notify required personnel and handle them appropriately with specific workflows.
- Scalability – RPA tools offer centralized management of Bots that allows businesses to Scale up / down quick. With a simplified Bot architecture and ensuring the bots are audited in regular intervals post deployment, scaling up/down RPA infrastructure would be simple.
- Reduced Costs – In general, RPA Bots cost way less than a full-time employee. By deploying bots to automate mundane business processes, RPA can significantly reduce operation cost.

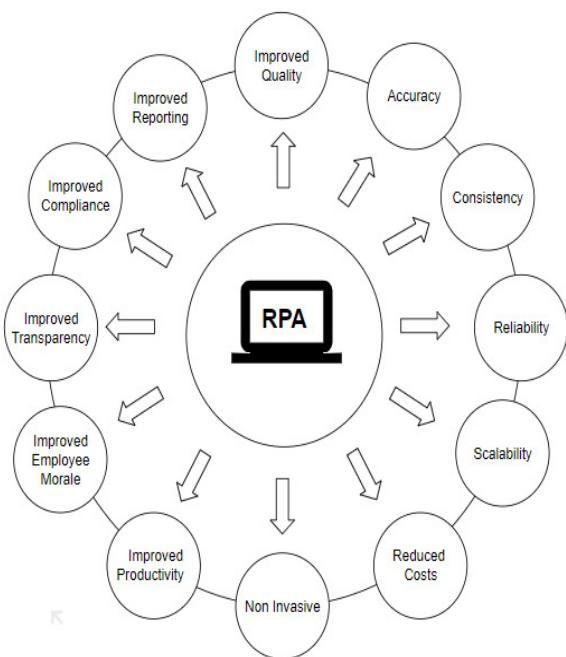


Fig 2. Benefits of RPA

- Non-Invasive – RPA is designed to mimic human action; hence the technology interacts with data within the presentation layer of platforms and applications. This allows companies to implement RPA without making any significant changes to their legacy systems. This also brings in significant savings as it reduces the need for consistent IT development and technical workforce
- Improved Productivity – RPA with its ability to autonomously execute business processes $365 \times 24 \times 7$ with high efficiency and accuracy can bring in significant business productivity gains. Bots cut down the time it takes to do mundane repetitive tasks and outperform humans as virtual workforce.
- Improved Employee Morale – RPA can relieve employees of repetitive mundane tasks, so they can focus on more engaging and challenging activities. Most employees have better morale when they invest their time and talent in jobs that are more interesting and less routine. Since better morale improves productivity,

businesses can get more work done by their human team members as well.

- Improved Transparency – RPA bots can detect poor data integrity errors and enable standardization. This leads to transparency in any industry by identifying significant errors hampering both management decisions and operational performance
- Improved Compliance – RPA Bots execute processes per instructions they have been configured to follow and provide an audit trail for each step. Furthermore, if any step in a specific process needs to be reviewed, bots have the ability to play back their actions. This controlled nature of bots increases transparency and eliminates fraud.
- Improved Reporting – RPA generates significant amount of data that allows organizations to analyse and identify process bottlenecks / inefficiencies. This operational insight provided by bots allows organizations to streamline existing business processes.
- Improved Quality – RPA enables businesses to streamline and standardize their processes which reduce data errors. This reduction in errors lead to high quality data, that enables more reliable analysis.

IV. RPA IN INDUSTRY

In order to remain competitive in this rapidly evolving ecosystem, every industry needs to make significant investment in disruptive technologies that could maximize their efficiency while keeping the costs low and offer best possible user experience to their customers. RPA is one of the disruptive technologies that companies across various industries want to implement. We will review its significance in some of the industries below,

A. **RPA in Banking**

Banking industry deals with enormous amount of data every single day and its critical for banks across the globe to deal with this sensitive dataset with high level of accuracy and quick turnaround time. RPA can minimize the manual processing data errors by automating various processes including,

- Customer service – RPA can help in resolving low priority customer queries and lets human employees focus on high priority customer service issues.
- Accounts Payables – RPA can help automating the vendor invoice processing and payment to vendor account post reconciliation & validation.
- Accounts Receivables – RPA can automate processing incoming payments and clearing customer dues.
- General Ledger – RPA can help automating the collection of financial data, assets, liabilities, revenue, expenses and update GL with right information.
- Credit Underwriting – RPA can automate verification of income/expense/exposure of credit applicant against internal and external databases.
- Compliance – RPA generates full audit trials of every process executed which significantly improves the quality of compliance process.
- Credit card processing – RPA can automate various time-consuming processes like document collection, credit checks, background check and quickly determine if the customer is eligible for credit card.
- Consumer Loan processing – Most of the consumer loans including Auto, Mortgage, personal involves credit checks, employment check and verification. RPA could accelerate this process based on predefined rules and enable quick decision making.
- Fraud detection – RPA can quickly perform if-then analysis on the customer transactions and detect anomalies that could facilitate fraud detection.

- Report Generation – RPA can help banks collect information from various sources, validate them, organize it in required format with high level of accuracy and share the reports with required stakeholders.
- Account opening / closure – Account opening, and closing involves a set of predefined tasks that could be automated with RPA. All known exception scenarios could be configured as well. RPA can maintain all required compliance audit logs throughout this process.

B. RPA in Audit

Accounting/Auditing firms also deals with massive volume of data that are analysed/audited by a variety of processes that are repetitive & time consuming and that do not require audit judgment. RPA can help in variety of Audit processes including,

- Data Collection and Cleansing – Auditing involves collection of data from various sources and validate the data for completion, duplication etc. RPA can automate this data collection and manipulation / cleansing process with high level of accuracy.
- Controls testing – RPA could be utilized in automating a variety of controls testing including auditing segregation of duties, exception reporting, access related controls, change management controls etc.
- Risk Assessment – RPA can automate the data collection, classification of data and identify core trends as part of the annual risk assessment process.
- Reconciliation – RPA can automate data collection from various sources and reconcile data against preconfigured rules with high level of accuracy. RPA can reconcile huge volume of data consistently which is real tedious work for the human partners.
 - Audit PMO – RPA can handle a variety of tasks including identifying open items, sending reminders at required intervals / criteria, tracking the progress against plan, automating reports etc.

C. RPA in Insurance

Insurance companies across the globe is heavily inundated with manual back office processes. This necessitates insurance companies to automate various processes to meet rapid customer growth and improve their processing time. Some of the potential automation processes includes,

- Claims processing – RPA can expedite the claims processing by gathering required information from various sources and integrate all this disparate information with high level of accuracy.
- Underwriting – RPA can collect information from various internal & external data sources and perform risk assessment quickly with high level of accuracy.
- Appeals processing – RPA can automate extracting data from policy and claims decision document in-order to expedite appeals processing.
- Data collection and cleansing – RPA can automate extracting required data from internal and external data sources. RPA can cleanse this data, format and remove duplicates, fill required information in forms ensuring high data quality.
- New policy opening / policy cancellation – RPA can follow predefined rules and checklists to automate various processes involved in policy opening and cancellation. It also maintains detailed audit trail of all processes involved for compliance purposes.
 - Business process analytics – RPA allows monitoring and recording every task it executes which gives valuable insights including number of documents processed, exceptions generated etc. This insight allows further process improvements and decision making.

D. RPA in Retail

Retail industry utilizes numerous processes that are performed manually, and retail companies are on constant look out for technologies to improve their accuracy and productivity. RPA can help automating various retail processes including,

- Customer Support – RPA can efficiently track orders and provide required updates to the customers at pre-set intervals. It can also automate feedback collection from customers ensuring customer satisfaction.
- Returns processing – RPA can help automating return management, inventory adjustment and customer credit process effectively.
- Product categorization & Pricing Comparison – RPA can assist harmonizing SKU data from various data sources and allows comparing price information to facilitate better decision making.
- Accounting & Finance – RPA can assist automating numerous manual tasks in accounting including Accounts payables, Accounts receivables, reconciliation, financial closing, financial filing etc.
- Marketing analysis – RPA can be utilized in variety of analysis functions including, Campaign analysis, Consumer behaviour analysis etc.,
- Demand planning – RPA can automate collection of planning data, cleanse the data, run simulations, identify exceptions and communicate plan data to required stakeholders.
- Logistics and Supply chain – RPA can be utilized to monitor the inventory levels, track shipment information and communicate with customers / vendors based on preconfigured events. RPA can automate a variety of use cases in Inventory management, Freight management and Vendor management.

E. RPA in Manufacturing

Manufacturing companies constantly look for technologies that improve speed, scale and simplify their manufacturing operations. RPA can help manufacturing industry in a variety of processes including,

- Bill of Materials – RPA can help in efficiently managing information from Bill of Materials data comprising of nested multilevel raw materials,

components and subcomponents for new product creation.

- Customer service - RPA can help in resolving low priority customer queries by bringing in required data from various sources and can facilitate automated email communication with users
- Logistics – RPA can automate transport management effectively monitoring goods in transit. It can also provide valuable insights in terms of carriers, insurance companies etc based on the statistical data set.
- ERP Automation – RPA can facilitate automating ERP tasks like generating a variety of reports including payables, receivables, pricing etc. It can also automate tasks across ERP functions not limited to Inventory management, Vendor management, Customer management, Accounts payables, Accounts receivables, GL, HR etc.
- Data Migration – RPA can assist in digitizing and migrating information from legacy data sources into ERP system with high level of accuracy.
- Manufacturing Analytics – RPA can provide detailed process statistics including successful execution, process bottlenecks and exceptions triggered. This valuable insight can help refining manufacturing processes.
- Compliance – RPA system would build audit trails of every process executed which significantly improves the compliance process.

V. FUTURE OF RPA

Robotic process Automation evolved as futuristic tool in automating rule based repetitive business tasks. This helped business automate a variety of their business processes that utilizes structured data and matured business rules. With global demand for talented business users in the rise, tremendous growth in unstructured data, evolution of new business processes, companies are looking for

solutions that could automate business processes that are non-rule-based utilizing structured / unstructured / semi-structured data.

RPA technology is going through a radical change being embedded with Artificial Intelligence, Machine Learning and various other cognitive technologies. RPA embedded with above-said technologies is being referred as Cognitive Automation, Intelligent Automation, Smart Process Automation etc. This evolution would enable RPA with,

- Processing of structured / unstructured / semi-structured data using variety of Cognitive technologies including OCR (Optical character recognition), Text analytics and data mining.
- Ability to integrate NLP (Natural language processing) capability to enhance human interaction which could expand its horizon and integrate well with human workforce.
- Built in Machine Learning, it can learn to adapt to / handle extensive list of scenarios than just pre-configured list of scenarios with business rules.

With the integration of Machine Learning, AI, Big Data and Cloud, businesses would be able to significantly improve quality, operational scalability and employee efficiency.

VI. CONCLUSION

Robotic Process Automation is gaining momentum across industries and evolving every day as a technology of choice for all executives who want to bring speed and agility in their business operations. Organizations who wanted to transform their business processes and maximize the outcome of RPA, would need to break down their back-office processes and analyze specific use-cases that could be automated. RPA implementation is more than just a technology implementation, it not only automates business processes; it allows business to identify business process bottlenecks and simplify / standardize business processes. As the adoption of RPA matures, businesses can look for more use-cases to

automate, redesign / refine existing implementation use-cases.

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