NAVIGATING AUTOMATION: A COMPARATIVE STUDY OF RPA AND WORKFLOW AUTOMATION

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Abstract

Process automation started five centuries before with the invention of the printing press and has gone through many learning and improvement cycles. In the 1920s, workflow automation was invented. The human race stands at a crucial turning point in history, with artificial intelligence driving automation like never before. Robotic Process Automation (RPA) implementation is slowly but surely increasing in the corporate world. This paper aims to answer the question of the difference between RPA and workflow automation. And how these differences still complement each other.

Keywords: Robotic Process Automation (RPA), Workflow Automation, RPA Vs. Workflow automation

I.   INTRODUCTION

Automation is using technology to perform a task or process with minimum human intervention. It helps save time, streamline processes, improve efficiency, increase effectiveness, and reduce errors. The first process automation instance in history started in the 1400s with the invention of the printing press. This is the century of AI; even though it was started in the 20th century, it is actively used now.

Robotic Process Automation (RPA) is a widely used technology that uses virtual robots to perform repeated tasks. However, a question can arise about how RPA differs from workflow automation, which has been used for decades.

This paper provides a detailed analysis of Robotic Process Automation (RPA) and workflow automation. Although they are different, they complement each other. RPA helps automate a specific task end to end, which is repeatable, whereas workflow automation automates complex processes, which include many tasks and human decision-making.

This paper covers an in-depth understanding of RPA and workflow automation, their comparative analysis, and how they create synergy.

II.   WHAT IS ROBOTIC PROCESS AUTOMATION

RPA is software that automates repeatable, rule-based tasks without human intervention. The two primary technologies used in RPA are Bots and artificial Intelligence. Bots mimic human actions to

interact with applications and systems. AI enhances automation with natural language processing and machine learning.

Other supporting technologies enhancing RPA are Optical Character Recognition, API, Web scraping, and Computer Vision. These technologies help RPA extract data and images and convert them into machine-readable data so that RPA can complete the processing.

The primary benefit of RPA is that it takes complete ownership of the task, which enhances its speed and accuracy. Employees also feel more fulfilled as they focus on more complex tasks than repeatable tasks like data mapping from the paper application. RPA can handle structured data. Other technologies can be used to convert unstructured data into structured data.
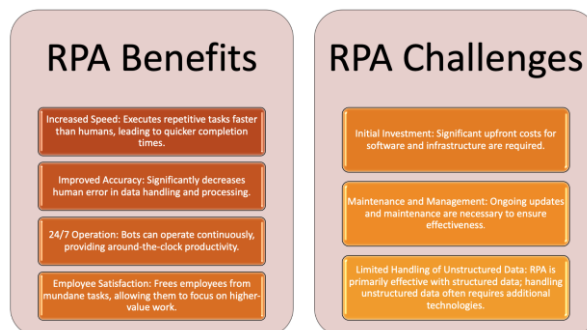

Fig 1: RPA Benefits and Challenges

III.   WHAT IS WORKFLOW AUTOMATION

Workflow automation uses technology to automate a task or sequence of related tasks with minimum human intervention. The tools and technologies used are to model, automate, and optimize business processes and follow path sequences, such as Business Process management and workflow & rules engines. User interfaces enable the user to interact with the workflows.

Other supporting technologies used are APIs and Data integration to connect and integrate multiple systems and applications.

Workflow automation also increases efficiency in overall business processes and enhances collaboration among team members and task management. Implementing Workflow automation is complex and time-consuming work.
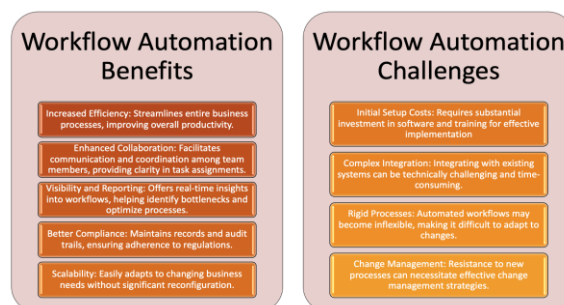

Fig 2: Workflow Automation Benefits and Challenges

IV.   THE COMPARISON

1. Applicability

RPA automates specific tasks within a process, while Workflow automation automates the more extensive process and promotes collaboration. RPA is more applicable to repeatable rule-based tasks. Following are some use cases where RPA can be implemented

- In the human service industry, data mapping is done from document management systems to the system of records. RPA maps data extracted from the Application form to the eligibility system for further processing.
- In the e-commerce industry, order tracking is automated, and information is passed to customers via email or phone for better customer service.
- In the banking industry, extracting data from the KYC (Know your customer) documents and verifying with the application that the customer submitted

Workflow automation is done to effectively manage more complex processes that require human interaction and collaboration. Workflow automation can be implemented in the following scenarios:

- In the human services industry, eligibility determination and redetermination across the social benefits program are based on the information and change submitted by the Client.
- In the Private sector, implementing an HR system to procure the employee, issue an offer, set up their account for ongoing support, and track attendance and pay.
- In the Insurance industry, implementing the underwriting process.

2. Human intervention

RPA is less complex, and Workflow automation is more complicated.

Workflow automation automates complex intertwined processes and can accommodate human decision-making within the automation. In contrast, RPA does not require human intervention and can perform repeatable tasks without any human decision.

3. Integration with other systems

RPA deeply integrates with another system, e.g., mapping data from one system to another. Workflow automation also integrates with other systems, but mainly at the surface level.

4. Cost-effective

RPA can be implemented with fewer resources and in less time, whereas workflow automation requires more time and resources.

V.   THE SYNERGY

Integrating RPA and workflow ensures that while RPA automates small and specific tasks, workflow automation can seamlessly connect the broader sequence of events. RPA further enhances workflow automation.

Human services industry example: RPA maps the application data extracted from the client application for the social benefit to the eligibility determination system, and workflow automation can then process the application information with policy rules configured in the system to

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determine eligibility and issue benefits.

Manufacturing Industry example: RPA can automate invoice processing, mapping the extracted data from invoices, validating and mapping to the ERP system, and Workflow automation can ensure the product manufacturing process, from inception to delivery, is completed seamlessly.

VI.   CONCLUSION

RPA and workflow automation are different technologies, yet they complement each other. They differ in terms of automation scope, applicability, and complexity. The underlying technology and tools used for both are also different. Together, both create synergy by further enhancing business automation. And reducing human dependency on repeatable tasks.
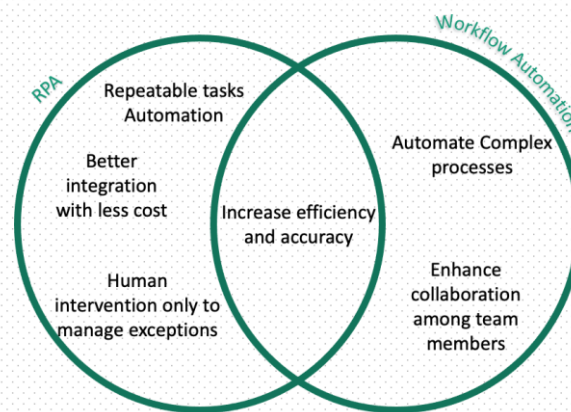

Fig 3: RPA Vs. Workflow: Understanding the differences

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