

Finance Business Process Automation using RPA

Nilesh D Kulkarni^{1*} and Saurav Bansal²

¹Sr Director, Enterprise Architecture, Fortune Brands Innovations, USA

²Sr Manager, Enterprise Architecture, Fortune Brands Innovations, USA

ABSTRACT

The paper provides comprehensive analysis of implementing Robotic Process Automation (RPA) in financial processes. It highlights the transformative potential of RPA in enhancing operational efficiency, accuracy, and productivity. The paper discusses the strategic alignment of RPA with business goals, the importance of establishing Automation Centers of Excellence (CoEs), and the selection of suitable processes for automation. It emphasizes the critical role of governance, continuous evaluation, and the integration of RPA with other technologies like OCR for successful implementation in finance operations. The document concludes by underscoring RPA's capacity to optimize finance processes, illustrating its effectiveness through various use cases.

*Corresponding author

Nilesh D Kulkarni, Sr Director, Enterprise Architecture, Fortune Brands Innovations, USA.

Received: June 08, 2023; **Accepted:** June 15, 2023; **Published:** June 22, 2023

Keywords: Robotic Process Automation (RPA), Enterprise Needs, Organizational Expectations, Automation Center of Excellence (CoE), AP Automation, Finance use cases, RPA & OCR Architecture

Introduction

Robotic Process Automation (RPA) is a technology that uses software robots or "bots" to automate repetitive, rule-based tasks typically performed by humans. These tasks often involve interacting with digital systems to process data, manage files, or handle other routine business processes.

RPA bots can mimic many human user actions, such as logging into applications, entering data, calculating and completing tasks, and logging out. The key advantages of RPA include increased efficiency, reduced errors, and the ability to free up human workers for more complex, value-added tasks.

While RPA offers significant benefits in terms of efficiency and cost savings, it's important to approach its implementation strategically. Over-relying on RPA without considering the broader context of business process management and digital transformation can lead to suboptimal results.

Enterprise Needs

Organizational Expectations

In this paper we focus on the IT function and its role in RPA. Why? Because our in-depth case work and interviews show much misunderstanding about RPA's attributes, and how RPA fits with corporate IT architectures, infrastructures, skills set, governance and security procedures. In our view this has created unnecessary barriers to adopting RPA, and delays to gaining the large process and business benefits manifestly available – as demonstrated in our case studies [1].

Enterprise application leaders are often mandated by their business counterparts to rapidly deliver and deploy automation to increase organizational efficiency, efficacy and agility. In response, they are launching automation efforts with technologies such as Robotic Process Automation (RPA), Business Process Automation (BPA) and Optical Character Recognition (OCR). The findings from Deloitte's 2016 and 2017 research indicated that cost reduction was the main priority when implementing RPA.

However, there has been a noticeable shift in the aspiration for robotics. In their latest research the top three priorities for executives were to increase productivity, improve customer experience and deliver automation at significant scale [2].

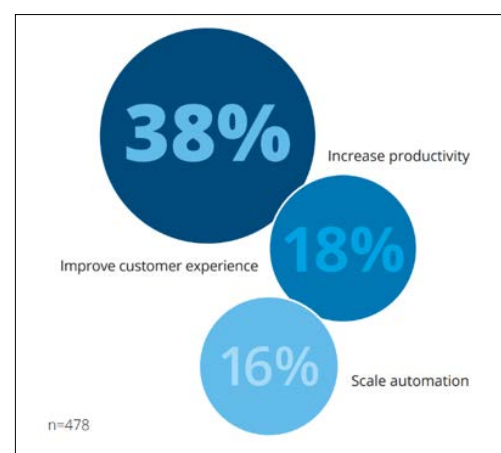


Figure 1: Top Three Organizational Priorities

Organizations with successful RPA adoption and efficient business processes have experienced positive impacts on their strategic goals, staff productivity, and customer service [1].

RPA Benefits Delivery against Expectations

The organization expectations vary based on the type of the organization but when the expectations are mapped percentage 'met expectations' or 'exceeded expectations' we see that Improved productivity has higher ranking over cost reduction.

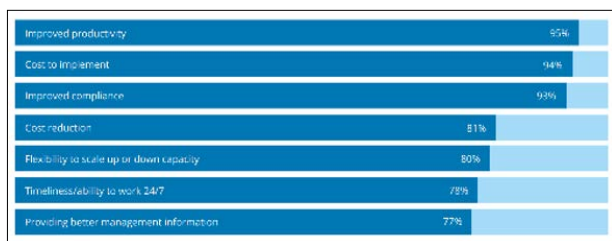


Figure 2: RPA Benefits Delivered against Expectations, Percentage 'Met Expectations' or 'Exceeded Expectations'

Automation COE

The role of an automation COE will depend on your organization's governance model. Before building the automation COE, enterprise application leaders must determine if their organization needs a centralized, federated or hybrid governance model to support business-led automation, and make the automation COE adaptive to organizational needs [3].

To balance the need for rapid delivery of automation with the required controls and standardization across the organization, enterprise application leaders need an automation COE.

An automation COE with a cohort of automation specialists can play a crucial role in any organization. In a centralized governance model, the COE will be fully involved in managing all aspects of decision making and delivery.

In a federated model, the COE will establish and enforce guidelines and standards for fusion teams.

In a hybrid model, the COE could oversee demand prioritization and automation portfolio management, while all other aspects of automation delivery could be delegated to fusion teams.

Defining Robust COE Framework

Define the mission statement for the CoE, one of the examples can be "An automation CoE-Center of Excellence enables organizations to utilize automation that make processes faster, more efficient, and have fewer errors".

Define a clear roles and responsibilities within the Automation COE Team and identify the clear roles for the business team members as well. It will more strategic if your organization support identifying the business champions to create a top-down acceptance of CoE.

Define clear Automation COE Program Objectives some examples below

- **Apply & Adopt Automation:** To perform highly repetitive, mundane & routine tasks normally performed by knowledge workers in order to save time and money, allowing employees to perform higher-value work.
- **Enterprise Focus:** Build an enterprise-wide automation program and roadmap to avoid working silos. Build a Center

of Excellence for Process Automation.

- **Cost Savings:** Generate cost savings in support of increasing operating income.
- **Business Efficiency:** Absorb operations growth by absorbing headcount growth that might otherwise be needed.
- **Overtime Reduction:** Paid overtime reduction by reducing paid overtime work.
- **Peak Management:** Eliminate/Avoid the need for additional workforce planning to handle repetitive tasks during busy periods.
- **Higher Quality:** Eliminate human errors, and improve process output quality.

Ensure to clearly define the goal of the Automation COE with the quantified result as a measure of success, one of the examples can be number of human hours saved per period. This number can be further dollarized based on the resource hour rate, to create a clear CBA (cost benefit analysis) for the program.

Perform the Business Process Automation candidate assessment, some of the parameters that can be leveraged are

- Process Complexity
- Potential time savings
- Potential cost benefits

RPA & Agile Enterprise

To unblock automation programs and achieve scale, executives should encourage investment in new capabilities, and support a culture of learning, innovation, iteration and agile ways of working [4].

Agile enterprises are more than aggregations of teams. They are carefully balanced operating models that use agile methods to run the business reliably and efficiently, change the business to capitalize on unpredictable opportunities, and harmonize the two activities [4,5].

If the goal of RPA is to enhance the human work experience by eliminating repetitive, low value tasks, it must be co-implemented with the end-user. Fortunately, an agile approach encourages close collaboration with stakeholders early and often [6]. Agile methodologies have shifted the approach to implementing new technologies like RPA from being an IT-exclusive task to involving cross-functional teams. This helps in aligning business and IT objectives, crucial for RPA's success. RPA systems, being sensitive to changes, benefit from agile iterative and flexible nature, allowing for continuous improvements post-deployment. Moreover, agile provides a governance framework essential for scaling RPA and intelligent automation enterprise-wide. Adopting a factory-like model with reusable components and standards under agile ensures cost-effectiveness, higher quality, and enhanced security in RPA applications.

RPA Vendor-Ui Path

All RPA vendors now offer a spectrum of capabilities that extend far beyond the realm of orchestrated screen scraping. Many RPA products now offer task mining, process mining, low-code UI development, workflow orchestration and decision automation. The following sections present leading (unbiased) commercial and open-source tools that we consider representative of the recent applicability of RPA (ideally with the application and some AI techniques or algorithms).

UiPath is a tool that allows the development of RPA functionalities in its framework to create and execute programming scripts,

allowing it to be programmed with an interface of blocks and multiple plugins for the business process customizations [7-14]. The RPA UiPath platform is currently structured in three modules, UiPath Studio, UiPath Robot and UiPath Orchestrator, in which the latter allows the possible orchestration of robots [7]. The UiPath Studio module corresponds to a tool that allows to design, model and execute workflows and help in the creation and maintenance of the connection between robots, as well as to ensure the transfer of packages, management of queues. In turn, with the storage of log records and linked with Microsoft's Information Services Server and SQL Server, as well as with Elasticsearch (which is open source and built on the Apache License search engine) with a Kibana data visualization plugin also allows to potentiate the view of analytical information associated with the execution of RPA processes. These features can be found in more detail in [8-14].

OCR Vendor-ABBYY

ABBYY's Optical Character Recognition (OCR) technology is a sophisticated solution that enables the conversion of various types of documents - such as scanned paper documents, PDF files, or images captured by a digital camera - into editable and searchable data. This technology is particularly useful in digitizing documents like magazine articles, contracts, and more, making the information available for editing in formats like Microsoft Word [15].

The OCR technology includes powerful PDF processing tools for converting documents into searchable PDF and PDF/A formats, ensuring the integrity of the text layer. Utilizing AI and ML technologies, ABBYY OCR is capable of identifying the logical structure of documents and accurately recognizing their formatting elements, such as headers, footers, and font styles. The technology includes sophisticated image pre-processing functions to optimize images for OCR, enhancing recognition accuracy even for low-quality images.

Finance Use Cases for RPA

Finance Processes: Accounts payable invoice automation (APIA) tools automate the capture, validation and processing of invoices. These solutions attempt to automatically match invoices to purchase orders (POs) and contracts, or automatically code those invoices that would not have a PO. The RPA in combination with OCR technologies can be proven combination to achieve APIA.

While selecting the AP invoice processing use case automation of the manual work using RPA and OCR, the selection of right supplier and invoice is critical to gain the maximum benefit from the automation. Some of the critical Boolean questions to ask while selecting the candidate supplier for OCR and RAP automations are

1. Is invoice text based?
2. Does the supplier send high quality invoice images? Some red flags to look for include rescanned images, inconsistent positioning of fields, water marks, speckling/noise, etc.
3. Does supplier send multiple invoices per attachment?
4. Does invoice meet minimum DPI of 400?
5. Does the supplier master address information matches/closely matches invoice addresses?
6. Does the supplier include information to correctly map the business unit/org on the invoice?
7. Does the supplier include information to correctly map tax on the invoice?
8. Does the supplier include information to correctly map freight on the invoice?
9. Does the supplier include information to correctly identify miscellaneous charge on the invoice?

10. Is the PO number correctly mentioned on the invoice?
11. Do any prefixes or suffixes in the PO# have relevance from supplier standpoint?
12. Does invoice show the remit address or Zip code?
13. Does the unit and/or extended price on invoice match the PO price, if not, does the sum of line quantity match the PO?
14. Sum of PO matches single invoice line?
15. Is item number required for matching and clearly shown on the supplier invoice?

The above question will ensure the viability of the success with accounts payable automation with less human intervention.

Finance Use Cases for RPA

Few more use cases for finance operations are listed below

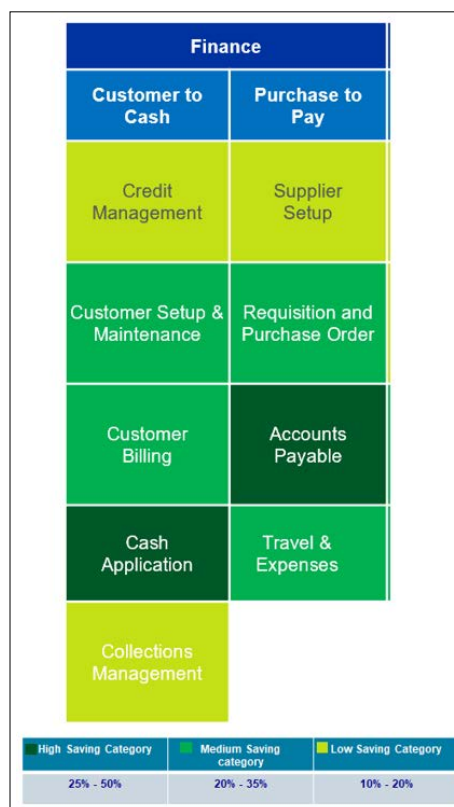


Figure 3: Finance RPA Use Cases

RPA Envisioning Workshop

Identification of the high value uses cases can be accomplished with the help of the business and technology envisioning workshop to identify the areas of opportunities, gain trust from the knowledge workers and remove the barrier between technology enablers (IT) and beneficiaries (business users). The below agenda can span for four to six hours in two days of envisioning workshop.

- Introduction
- How automation helped Finance make work worthwhile for humans
- UiPath Automation Showcase for Finance
- The Automation Value Proposition
- Digital workshop with Miro
- Understanding key operating factors of Finance operations
- Develop High Level Finance Process Heatmaps
- Review and validation of candidate Finance processes for RPA
- Ideation on top 5 processes
- Conclusion

Reference RPA & OCR Architecture

The below architecture diagram illustrates the reference architecture for a company with on-prem Oracle financial system and with ABBY hosted on the cloud and ABBY development tools hosted on the Azure to ensure the privacy of the data exchange between on-prem systems and cloud systems

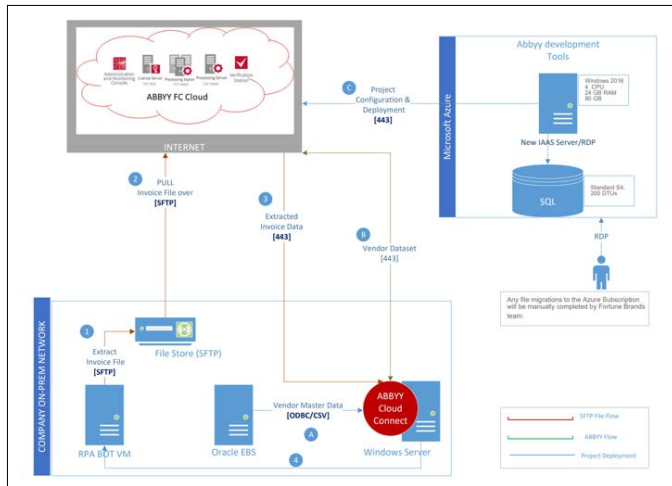


Figure 4: RPA Benefits Delivered against Expectations, Percentage 'Met Expectations' or 'Exceeded Expectations'

- Shows the RPA BOT extraction of the invoices from the email server and then sending the invoice to the secure on-prem FTP location
- The ABBY FC (FlexiCapture Cloud), which is a cloud-based platform for document and data capture. This platform offers advanced capabilities for capturing, classifying, and transferring critical data from both unstructured and structured documents. ABBYY FlexiCapture Cloud uses machine learning and AI to improve classification and data extraction, allowing for faster and more accurate processing of documents [16].
- The extracted data from the invoice is pulled by ABBY FlexiCapture Connect using port 443. FlexiCapture Connect is a Windows service designed to facilitate document import and export operations within ABBYY FlexiCapture Cloud. It allows users to import documents into these projects, export documents from them, and synchronize data sets [17].
- The RPA process imports the extracted datasets into the Oracle EBS system by calling EBS APIs and posting the invoices

ABBY Project Deployment

- Shows the supplier master data transferred into the ABBY Connect to relay into the ABBY FlexiCapture cloud
- The supplier Master data located in Oracle EBS is used to map the invoices with the vendors within the FlexiCapture cloud to use the OCR maps within the FlexiCapture designed for a specific supplier.
- The FlexiCapture invoice layout pams are stored within the ABBYY Development tools in the form of a project, and configuration which is deployed to ABBYY FlexiCapture Cloud.

Conclusion

RPA bots can mimic many human user actions, such as logging into applications, entering data, calculating and completing tasks, and logging out.

Enterprise application leaders are often mandated by their business counterparts to rapidly deliver and deploy automation to increase organizational efficiency, efficacy and agility. In response, they are launching automation efforts with technologies such as Robotic Process Automation (RPA).

Around 38% of the business users are looking RPA as a productivity improvement enabler, while only 18% believes that it helps improve customer experience.

An automation CoE with a cohort of automation specialists with a centralized governance model plays a crucial role in any organization. Defining a robust CoE Governance Framework with clearly defined mission, objectives, roles and responsibilities with the quantified result as a measure of success will help generate expected results and meet business stakeholder expectations.

To unblock automation programs and achieve scale, executives should encourage investment in new capabilities, and support a culture of learning, innovation, iteration and agile ways of working. An Agile methodology have shifted the approach to implementing new technologies like RPA from being an IT-exclusive task to involving cross-functional teams. This helps in aligning business and IT objectives, crucial for RPA's success.

UiPath is a cloud-based platform that allows the development of RPA functionalities, combining and combining ABBYY's Optical Character Recognition (OCR) technology can enable many potential use cases for automating finance operations.

Accounts Payable Invoice Automation (APIA) tools automate the capture, validation and processing of invoices is a vary successful use case, right design of the architecture and data flows using the provided reference architecture can help achieve results faster without learning curve. The other use cases that finance can apply RPA are Customer Setup, Billing and Cash application.

To ensure continuous process improvement and engagement with the finance teams to gather more use cases, a very well laid out envisioning session is a great tool.

Finally, RPA is an enabler to reduce process waste, eliminate mundane tasks so that skilled workers can be redeployed to high value work especially in the back-office departments like finance.

References

- Lacity M, Willcocks L, Craig A (2015) On Robotic Process Automation at Telefonica O2. Available at: https://eprints.lse.ac.uk/64516/1/OUWRPS_15_02_published.pdf.
- The robots are waiting Are you ready to reap the benefits? deloitte global robotics survey. Available at: <https://www2.deloitte.com/cz/en/pages/strategy-operations/articles/the-robots-are-waiting.html>.
- Saikat Ray, Sachin Joshi, Mukul Saha, Frances Karamouzis (2023) Gartner How to Organize an Automation Center of Excellence to Optimize Business Outcomes. Available at: <https://www.gartner.com/en/documents/4495899>.
- Sebastian Wagner (2017) personal interview. Available at: <https://ieeexplore.ieee.org/author/3824395000>.
- F Scott Fitzgerald (1936) The Crack-Up, originally published in Esquire. Available at: <https://classic.esquire.com/article/share/97a6b0a8-ba1c-4b7b-aa64-0d08dd9fb952?source=n1&date=010621s>.
- ABBYY FlexiCapture Cloud. Available at: <https://help.abbyy>.

7. Tripathi A (2018) Learning robotic process automation: Create software robots and automate business processes with the leading RPA tool. Available at: https://books.google.co.in/books/about/Learning_Robotic_Process_Automation.html?id=JLGatQEACAAJ&redir_esc=y.
8. UiPath (2020a) UiPath Studio: introduction. Available at: <https://docs.uipath.com/studio/docs/introduction>.
9. GitHub (2020a) Open Source, Distributed, RESTful Search Engine. Available at: <https://github.com/elastic/elasticsearch>.
10. GitHub (2020b) Your window into the Elastic Stack. Available at: <https://github.com/elastic/kibana>.
11. UiPath (2020b) Prerequisites for Installation. Available at: <https://docs.uipath.com/orchestrator/docs/prerequisites-for-installation>.
12. UiPath (2020c) About the UI automation activities pack. Available at: <https://docs.uipath.com/activities/other/latest/ui-automation/about-the-ui-automation-activities-pack>.
13. Why agile for RPA? Available at: <https://www.intelligentautomation.network/scaleable/articles/why-an-agile-approach-is-essential-to-scaling-rpa>.
14. ABBYY FlexiCapture Cloud. Available at: https://help.abbyy.com/en-us/flexicapturecloud/12/cloud/introduction_cloud.
15. Why agile for RPA? Available at: <https://www.intelligentautomation.network/scaleable/articles/why-an-agile-approach-is-essential-to-scaling-rpa>.
16. ABBYY FlexiCapture Connect. Available at: https://help.abbyy.com/en-us/flexicapturecloud/12/cloud/cloud_fc_connect/.
17. What is OCR and OCR technology. Available at: https://pdf.abbyy.com/learning-center/what-is-ocr/?itm_source=frblog-en.

Copyright: ©2023 Nilesh D Kulkarni. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.