Adopting Business Process Automation at Fortune 500 Companies Using RPA

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Abstract: *The paper describes the current technological era as the fourth wave, highlighting Robotic Process Automation (RPA) as a pivotal innovation. RPA automates routine, repetitive, and rule - based tasks with high accuracy and low investment. It focuses on RPA's role in boosting operational efficiency and productivity, particularly through integration with other technologies. The paper outlines organizational strategies to align RPA with business objectives and assess its impact. Key aspects include the significance of Automation Centers of Excellence (CoEs) for leading automation efforts, establishing effective governance models, choosing appropriate processes for RPA, and regularly evaluating the program's success to demonstrate value creation.*

Keywords: Robotic Process Automation (RPA), Enterprise Needs, Organizational Expectations, Automation Center of Excellence (CoE), Governance Models, Process Selection for RPA, Measuring Program Success, Strategic Goals Alignment, Periodic Progress Reporting, Security Architecture, Vendor Evaluation (UiPath)

1. 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.

2. Enterprise Needs

Orgnizaional 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 sets, 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 [5] for executives were to increase productivity, improve customer experience and deliver automation at significant scale
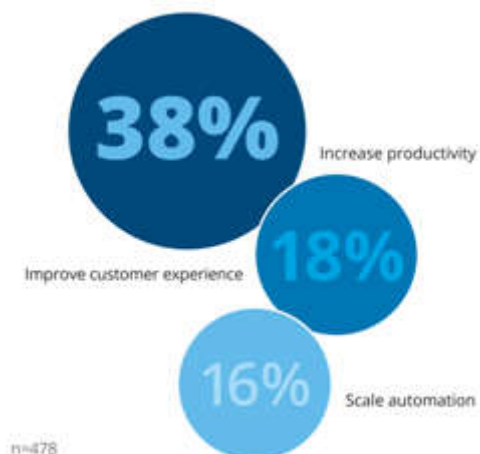

Figure 1: Top three organizational priorities

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

a) 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'

b) 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 [2].

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.

c) 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 increasingoperating 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

d) Establish Governance Framework

Deloitte's Enterprise Automation Framework identifies the capabilities required to scale, combining policies, standards, governance, ways of working and roles and responsibilities [5].
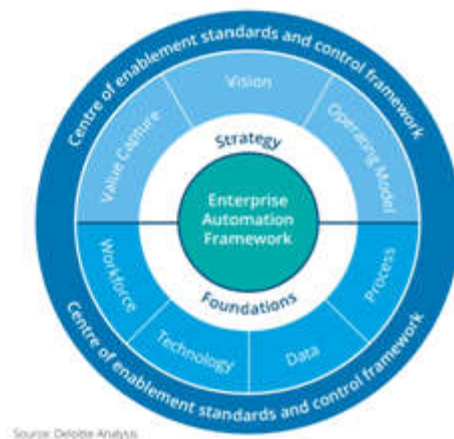

Source: Deloitte Analysis

Figure 3: Deloitte's Enterprise Automation Framework

e) Choose Right Process for RPA

Starting an automation journey can be a daunting process, but there are three areas of focus leaders can keep at the forefront to ensure a successful, profitable and pleasant transition for everyone involved. When implementing a new technology, it is important for everyone involved to use the same vocabulary and this comprehensive list of automation terminology will give you that foundational knowledge. Whether you're a new RPA developer, new robotic Center of Excellence (CoE) member, or a C - suite leader looking to implement automation technology at your company, this glossary will help you get up to speed quickly [3].

1) Focus on repetition replacement: Identify where people perform repetitive actions such as data entry, document

management, form - based processes such as in Human Resources and manual processes such as in Accounts Receivable. Replacing manual processes with automation tools prioritizes your team's mindset, the quality of their experience and their ability to contribute in meaningful, high - value ways.

2) Focus on human benefit: People are more open to embracing automation when they understand it is designed to improve their experience at work. Offloading repetitive tasks frees us from work that is more often experienced as burdensome and boring, and it can be replaced with dynamic and rewarding work. Direct leaders to map creative ways their teams can use regained time more creatively rather than letting the default expectation be that people just "do more" of whatever else they were doing before.

3) Focus on flexibility: Automation is not a "set it and forget it" process. Organizational return and team experience greatly improve with consistent evaluation and tuning. Regularly explore if there are places automation may have introduced friction or unexpected challenges and how to creatively adjust and tune your automation systems to be of maximum service to your business.

4) Choose the right process: Choosing the right process for Robotic Process Automation (RPA) is critical for ensuring its successful implementation and maximizing its benefits. Processes that are well - documented, stable, and have been in operation for some times are ideal. Automating a process that is still evolving or poorly understood can lead to inefficiencies and frequent reconfigurations of the RPA solution.

"The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is that automation applied to an inefficient operation will magnify the inefficiency. " - Bill Gates

f) RPA Application & Security Architecure
The fig 4 provides a reference architecture for the fortune 500 company with multiple business units and multiple systems that RPA has to interact with, a federated governance model in such large enterprises using Ui Path central Orchestrator would be a suitable option to reduce the implementation complexity and increase the reusability of the business processes designs.
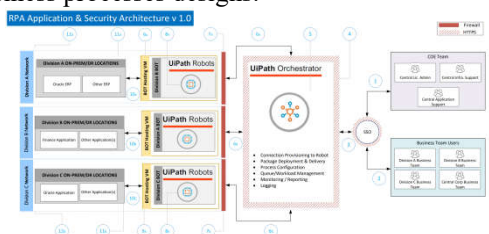

Figure 4: RPA Application and security for Fortune 500 orgnizations

1) CoE Team: Team to support Orchestrator, Process deployments, License allocation, Configurations Mgmt. Security: Authenticated using Okta [4] based Security using the division based windows credentials

2) Business Support Team (s): Teams separated by division specific tenant, responsible for the process monitoring, logs, reports etc. Security: Authenticated using Okta based Security using the division based windows credentials

3) SSO Trust Gateway: Allows users connecting into Orchestrator using Okta (AD) as a IDP. The Trusted application authentication broker with OAuth 2.0 Security FW in use with user email acting as a Federation ID

4) Orchestrator Security: Standard SSL 443 Security Layer with (TLS 1.2), hosted within Azure PAAS

5) Orchestrator: A central Orchestrator web application component, hosted within Azure PAAS acting as a central control point for all the process, robots and administration

6) Orchestrator – Robot Connection: Robot initiates secured HTTPS channel to Orchestrator which establishes two - way communication between robot and Orchestrator. Robot authenticates with Orchestrator via Passkey and robot ID known to the Specific robot and Orchestrator. Robot initiates the connection and the connection stays alive

7) Division Network Security: This is a firewall restricting connectivity from a Central Orchestrator to individual division network, to protect Bot VMs from any non - allowed outside IP other than Central Orchestrator. Due to firewalls at divisions, Orchestrator cannot initiate a connection to the robots, therefore robots initiate the connections to Orchestrator.

8) UI Path Robot (s): A host application on the VM Hosted within division data center, responsible to execute the commands connecting to the target application (s) and execute packages/scripts managed by central orchestrator.

9) VM Hosting Bot (s): This can be a physical machine or a VM/VDI within division Network/Data center which will host the Bot application. This VM would then allow/dis - allow the connection into the individual applications that Bot should have access to using the application based on network - based security setup by division administrators.

10) VM Bot – Application Connection: This connectivity ensures that a specific bot can connect into specific application or network segment (based on division security setup)

11) Division Specific On - Premise Applications: This is a farm of applications hosted within division datacenter or Cloud which is used by the humans to perform their daily activities which will be run by the Bots.

12) Division Specific On - Premise Network: Final protection layer to ensure that Bots, Applications are contained within the physical network fence for "a" division.

RPA Vendor - UiPath
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 [6 - 12] 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. 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 [6]. The UiPath Studio module corresponds to a tool that allows to design, model and execute workflows [7] 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 Elastic search (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 - 12].

Measuring Success of RPA Programs

Business support is crucial for the success of any program, including those involving RPA (Robotic Process Automation) or an Automation Center of Excellence (CoE). Establishing a self - funding model, where the initiatives led by the CoE team yield returns of 2X to 3X based on the manual labor saved or by converting saved hours into monetary value, can garner substantial organizational backing. Implementing periodic progress reports can be beneficial in justifying current business investments and for securing future investments. These reports demonstrate the tangible impact of the CoE'sinitiatives, showcasing the value and efficiency gains brought to the organization.
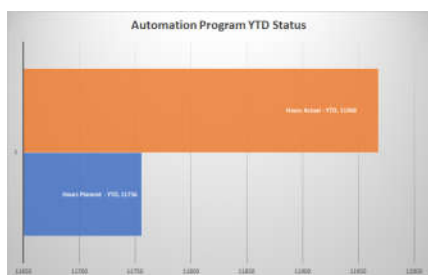

Figure 5: Reporting the status on the progress periodically showing the Plan savings Vs Actual realized savings
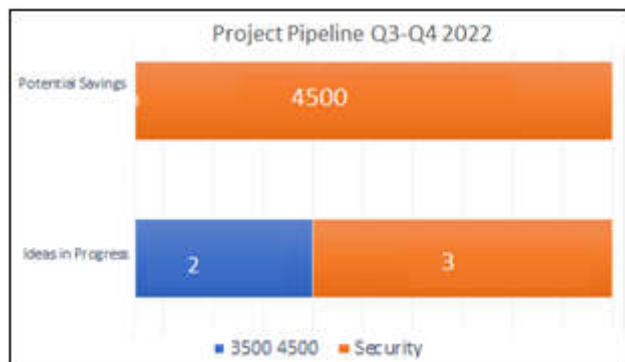

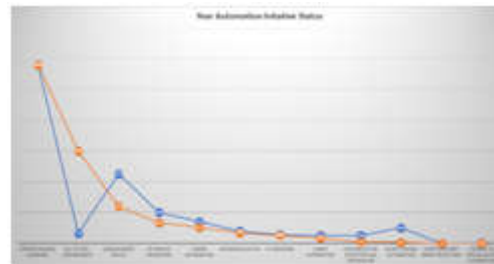**Figure 6:** A chart that shows the potential savings and pipeline ideas for the RPA use cases

Figure 7: A detail chart showcasing the actual hours savings Vs planned hours savings for individual initiatives

The charts displayed in Fig.5, 6, and 7 offer suggested methods for highlighting the progress of the Automation or RPA Center of Excellence (CoE). These visual representations play a key role in driving accountability within the CoE by clearly illustrating the advancements and outcomes achieved through their initiatives.

3. 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 productuty improvement enabler, while only 18% belives that it help 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.

Starting an automation journey keeping three areas of focus (repetition replacement, human benefit, flexibility) technology leaders can be at the forefront to ensure a successful, profitable and pleasant transition for everyone involved. RPA reference architecture need to be established to create a secure, scalable and dependable foundation for multiple RPA initatives. UiPath is one of the leading product company with cloud based RPA platform.

At last measuring the success of the program with right KPIs will not only help periodic showcase progress report but can also be beneficial in justifying current business investments and securing future investments.

References

[1] M. Lacity, L. Willcocks and A. Craig (2015) on Robotic Process Automationat Telefonica O2 LSE Outsourcing Unit paper 15/03; Robotic Process Automation at Xchanging LSEOutsourcing Unit paper 15/03; and chapter on a major utility in Willcocks, L. and Lacity, M. (2016) Service Automation: Robots and the Future of Work (SB Publishing, Stratford). Significant benefits are also recorded by clients at three other major organizations we have researched so far, namely Leeds Building Society, University Hospitals Birmingham NHS Foundation Trust, and a major utility.

[2] Garter "How to Organize an Automation Center of Excellence to Optimize Business Outcomes", G00786000

[3] K. McDaniel, "Automation in 2019: The 10 Most Popular RPA & AI Articles in 2019", [Online]. Availlable from: "https: //www.uipath. com/blog/rpa/top - 10 - rpa - articles - of - 2019"

[4] Y. Abousselham, "How Okta Protects You Against Identity Attacks", [Online]. Availlable from: "https: //www.okta. com/blog/2019/05/how - okta - protects - you - against - identity - attacks"

[5] "The robots are waiting Are you ready to reap the benefits ?" deloitte global robotics survey 2018

[6] Tripathi, A. (2018). Learning robotic process automation: Create software robots and automate business processes with the leading RPA tool,

[7] UiPath Documentation, "Studio User Guide", [Online], Availlable from: " https: //docs. uipath. com/studio/standalone/2020.10/user - guide/introduction"

[8] UiPath (2020a). "UiPath Studio: introduction. [Online]. ", Available from: https: //docs. uipath. com/studio/docs/introduction.

[9] GitHub (2020a). "Open Source, Distributed, RESTful Search Engine. ", [Online], Available from: https: //github. com/elastic/elasticsearch.

[10] GitHub (2020b). "Your window into the Elastic Stack. ", [Online], Available from: https: //github. com/elastic/kibana

[11] UiPath (2020b). "Prerequisites for Installation. ", [Online], Available from: https: //docs. uipath. com/orchestrator/docs/prerequisites - for installation.

[12] UiPath (2020c). "About the UI automation activities pack. ", [Online]. Available from: https: //docs. uipath. com/activities/docs/about - the - uiautomation - activities – pack

[13] UiPath (2020d). "Artificial Intelligence RPA Capabilities. ", [Online]. Available from: https: //www.uipath. com/product/ai - rpa - capabilities