White Paper

Robotic Process Automation

The role of RPA in digital transformation

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MACEDON TECHNOLOGIES

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Introduction

Robotic Process Automation (RPA) is an automation method that simulates human interactions with the user interfaces of a software application. RPA provides operational savings and increased reliability and transparency in reporting. Robotic workers perform repetitive, rules-based tasks with speed and accuracy, allowing human workers to focus on complex tasks that are more efficient uses of their time.

RPA can also be used to integrate software applications when other integration techniques are not easily applicable or would be too costly. With relatively short development time and low initial investment, organizations can realize a significant return on RPA investment.

The field is flourishing: RPA is the fastest-growing enterprise software segment and vendor revenue growth is estimated at over 60 percent per year.[1] For this reason, both industry heavyweights and holistic digital transformation solutions providers have sought to establish RPA capabilities.[2] This increased investment, industry consolidation, and the use of complex software stacks is evolving the industry from a heavily fragmented state, largely focused on solving the most well-defined "back-office" use cases, to a more mature market capable of providing value in a wider set of situations.

However, while RPA tools can do more than ever before, some RPA projects fail to provide their intended value. In order to realize the full potential of RPA and achieve the desired return on investment, decision-makers must understand the key considerations of vendor selection. They must understand how RPA complements other technologies to form synergistic software stacks. And, they must understand key strategies to handle complex implementations that may involve exception-heavy processes and span multiple business units.

Complementary Technologies

Processes with a significant level of knowledge work can be difficult to automate with traditional task-based automation alone. In an effort to differentiate their products and address more complex use cases, vendors complement core RPA functionality with supporting technologies such as optical character recognition (OCR) and other types of computer vision, process mining, and artificial intelligence (including machine learning and natural language processing). Gartner predicts that "by 2022, 80% of RPA-centric automation implementations will derive their value from complementary technologies."[3]

Among many things, OCR allows RPA products to understand images of text. This feature is important in many RPA implementations, and especially important for VM (virtual machine) automation, where RPA software does not have direct access to the user interface elements. OCR could also be used, for example, to extract data from scanned documents. A company may use OCR as part of an RPA process to classify and organize invoices.

In the future, RPA products will offer advanced artificial intelligence capability, including the ability to extrapolate the interactive and cognitive processes of task workers as they work in order to automate their activities without the need for developers to manually code a process workflow.

This dynamic script generation is enabled by a confluence of maturing complementary technologies. RPA products will leverage advances from the nascent field of process mining to collect and analyze keystrokes, system logs, data sources, and other footprints of human interaction with software applications. Machine learning can help sift through the data, identifying which interactions are work-related and how they fit together in the overall work process. RPA software can then take these findings and create corresponding process scripts.

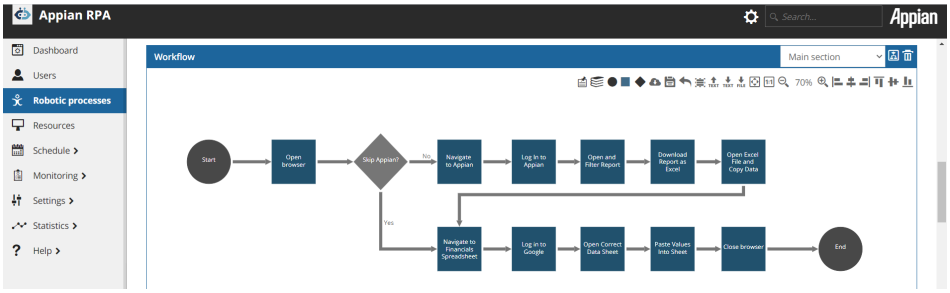
Gartner estimates that by 2023, 50% of new RPA scripts will be dynamically generated.[4] Dynamically generated RPA scripts offer potential for significant return of investment and serve as another reason why an investment in RPA now may pay larger dividends in the future.

Vendor Selection

Prudent decision-makers will focus on RPA solutions with innovative features in key areas of need. Consider current use cases and also take into account how needs may change over time. Forthcoming RPA advances may expand the domain of viability, enabling new process discovery as well as existing process automation.

RPA solutions that feature intuitive and attractive user interfaces will increase confidence and acceptance of the software. It's also important that RPA products provide an easy way for developers to create modular software interactions so that program interactions are reusable, regression testing is easier,

and business logic is decoupled from software interaction. Additionally, given the rapid changes in products and the overall industry, look for a product with frequent new releases and updates.



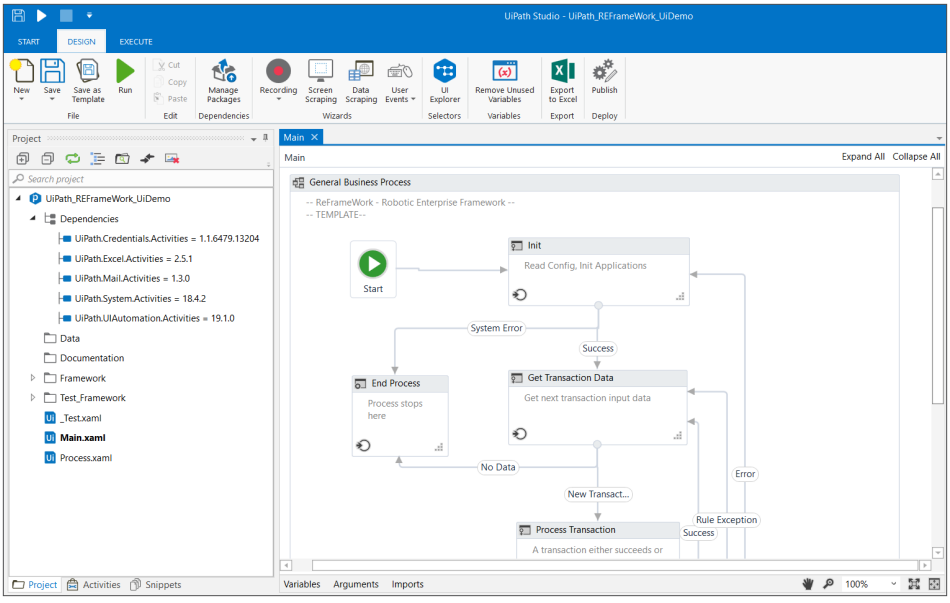
Appian RPA Dashboard

Finally, when selecting an RPA solution, one should consider which enterprise applications will interact with RPA processes. Integrated solutions (such as Appian, a BPM product with built-in RPA) as well as pure-play RPA vendors should be considered.

Enterprise Software Stacks

When used together, RPA, BPM (Business Process Management), and AI (artificial intelligence) form a complementary Intelligent Automation software stack. BPM handles higher-level workflows, RPA facilitates software task automation and legacy integration, and AI provides for content extraction, interpretation, and smart decision making.

Consider an example use case: a bank may use an Intelligent Automation software stack to assist customer onboarding. The RPA robot monitors the email inbox of the bank to detect incoming messages from customers. Enhanced with the natural language processing capabilities of an AI solution, the robot determines if the customer would like to create a new bank account. The robot then triggers the customer onboarding BPM workflow, which directs the user to fill out required information on a web form. This information is passed along to a robot that transmits it to a legacy system of record (that is difficult to directly integrate with). Finally, the AI solution's machine learning capabilities produces a probabilistic prediction about whether this customer is involved in money laundering or other illicit activity.



Example UiPath

Consider a second example use case: a company uses RPA and OCR technology to classify invoices and enter their data into their accounting system. The robot monitors an email inbox to detect received invoices and uploads invoices to an OCR system that classifies invoices by type and extracts key fields. The robot logs in to the accounting system and creates a new invoice record by providing the invoice type and information.

Using RPA in conjunction with BPM and integration platform tools allows RPA to leverage functionality in other systems, and similarly, allows RPA processes to exist within larger-scale business processes. Increasingly, RPA solutions are being built into the technology of these related verticals to offer a more seamless integration.

Using multiple automation tools creates an integrated automation infrastructure for the organization. Activities can be performed by the automation tool most specialized for the use case, while resulting process data and analytics can be shared. This is the vision for automation in the organization: high-level centralization and low-level specialization.

Decision-makers may also consider optimizing high-level business processes to avoid automating inefficient workflows. With a full-spectrum automation toolkit including RPA and BPM, such process optimization is likely to be especially valuable.

Handling Complex Automations

Automation implementations may pose technical or process-related risk. RPA solutions with advances in complementary technologies may assist with technical challenges. Meanwhile, exception-heavy processes requiring manual intervention (often domain knowledge from subject matter experts) can be modeled using attended automation, where workers collaborate with the robot, each performing some steps in the overall process. This setup allows workers to focus on the most impactful parts of the process while outsourcing tedious tasks to their “software assistant.”

The Macedon Approach

Macedon leads the market in providing premium third-party implementation services for the Appian full-stack automation platform. Appian integrates directly with the leading RPA products Blue Prism and UiPath, and also offers a built-in RPA solution (Appian RPA). Appian can integrate with other RPA software using conventional web service APIs. The Appian platform also features built-in low-code AI/OCR capability that ties into Google Cloud services. Appian AI is particularly useful for intelligent document processing (IDP).

Macedon has experience with Appian RPA, UiPath, and Blue Prism implementations. We have credentialed experts that have built custom Appian integrations for external RPA solutions. Importantly, the unique combination of Macedon’s BPM and RPA expertise make Macedon an excellent partner for automation projects that include both BPM and RPA. Some activities are best accomplished with BPM and other activities are best accomplished with RPA. We know which tool is right for the job.

Conclusion

RPA helps organizations improve their operational efficiency and reduce staffing costs by assigning rules-based process work to robots, conserving human resources for more complex tasks. RPA also helps organizations perform integrations with legacy systems that don't offer integration APIs.

For some time, RPA has provided significant value by automating back-office tasks. RPA is increasingly able to handle technically complex, user-facing processes. By making a commitment to RPA, decision-makers can build an organizational infrastructure which will drive increasing return on investment as complementary technologies mature and widen the scope of RPA applicability.

About the Author

Jack G. McKay II is an Appian Enterprise Architect with Macedon. He focuses on RPA and analyzes how multiple automation techniques can be used together to deliver more value for customers.

[1] Stoudt-Hansen, Stephanie et al. Predicts 2020: RPA Renaissance Driven by Morphing Offerings and Zeal for Operational Excellence. Gartner (2019).

[2] In 2018 and 2019: Microsoft entered the RPA industry as a vendor. SAP acquired Contextor. BPM vendor Appian bought Jidoka.

[3] Stoudt-Hansen. Predicts 2020: RPA Renaissance Driven by Morphing Offerings and Zeal for Operational Excellence.

[4] Stoudt-Hansen. Predicts 2020: RPA Renaissance Driven by Morphing Offerings and Zeal for Operational Excellence.