Building a Digital Enterprise Through **Integrated RPA**

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Abstract

Today Robotic Process Automation (RPA) is being widely adopted, as an increasing number of businesses realize the value that RPA brings to a digital enterprise. Combined with AI technologies such as machine learning, cognitive algorithms/models and predictive analytics, RPA is addressing the evolving digitization, allowing enterprise to automate business operations at scale. Let us look at some key technology areas that can supplement and complement an RPA tool from outside.

In this paper we will talk about the concept of 'Integrated RPA' experience - what it means, how it works and benefits organizations. Traditionally, RPA has been perceived as a standalone solution, helping organizations get to the first level of automation where the focus is more on taking the "bot" out of the human i.e. relieving humans of monotonous, repetitive and voluminous tasks, higher value tasks. Unfortunately, this basic level of automation leaves only a small IT footprint and has minimal impact on business. Organizations tend to get stuck at this level understandably because of the limited capabilities of RPA tools compared to automation. Hence, there is a compelling need to use the right set of technologies in conjunction with RPA to take automation to the next level. Let's explore these.

Digitization: a use case of OCR

Digitization in an enterprise typically refers to the process of scanning paper documents, flowing in from multiple sources, and storing them in digital form in content management repositories. Once they're available in the internal repository, business units use these digitized documents for different business processes. When these business processes are selected for automation, Optical Character Recognition (OCR) can be used for extracting information from digitized documents.

Most RPA tools available today come with basic OCR capabilities by bundling API-based integration with Opensource OCR engines like Google Tesseract, MODI, etc. Alternatively, RPA tools also support custom scripting for use in cloud-based OCR solutions like AWS Textract, Google Cloud Vision, Azure OCR etc. via APIs for Intelligent Document Processing (IDP).

Many organizations have a full-blown OCR product like KOFAX, ABBYY, Datacap etc. on-premise and use it for both digitization and data extraction. In this scenario, there are many possible options to integrate with RPA. It can be "Hot-Folder"-based, email-based, API-based or based on the traditional method of accessing the content management repository via a UI like any other automation solution. The integration option is typically chosen based on the landscape of the business use case which is getting automated. But the most common option chosen in general is the "Hot-Folder" based approach i.e. the document exchange between RPA and OCR is through a pre-determined folder where the input documents and extracted outputs are stored. This way the integration is loosely coupled and remains independent of any process or use case getting automated.

Chatbot: a use case of NLP

RPA is more effective if it can be designed as an unattended automation solution. Otherwise, neither bot time nor human time is effectively utilized. Besides, the total cost of ownership (TCO) for attended bots is higher because of individual licenses required for end users, as opposed to an unattended bot which can be better optimized to run multiple processes and serve multiple users.

That said, RPA bots mostly require human inputs as trigger points to run unattended. Provisioning an attended bot or building a custom UI form to get inputs from a user just to trigger an automation may not

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be a viable option. In such situations where human inputs need to be processed, the chatbot serves as a perfect front-end interface (UI) to an unattended automation. Chatbot UI can be provided via a browser to multiple users across lines of business. The chatbot can be used to take inputs from users and send them to the RPA bot ecosystem which can then run the automated process in an unattended mode.

Chatbots interact with the user to understand the intent and the context of the conversation and relays the request in a way that is understood by the RPA bot. A chatbot interprets the user's conversation by using natural language processing (NLP) and sends the information to the RPA bot, which in turn acts as the backend service and works based on the message sent. Technically, the chatbot talks to the RPA bot via a web service.

Cognitive bot: a use case of ML

RPA cannot make a headway into the next stages of evolution without the digital workforce learning from the past and deep enough. There is a multitude of business use cases across various industries where we can apply a combination of RPA, machine and deep learning algorithms for real benefits. Let's take a quick view of some real-world examples and applications, as well as the various mediums where we can apply learning algorithms.

Text is a medium where analytics and mining can be leveraged to solve business problems such as sentiment analysis, entity recognition etc. For instance, understanding the voice of customer from surveys, emails, reviews, etc. is achieved by performing a sentiment analysis on text. Candidate profile screening during recruitment is another area where ML helps by doing entity extraction.

Similarly, audio, video and images are other media where algorithms can be applied to automate processes in industries like banking, insurance, media and entertainment etc. One such area where image proves very useful as a medium is KYC (Know Your Customer) processing using image analytics to identity documents for customer onboarding, loan disbursement etc. KYC processing uses parameters such as facial photographs and signatures to identity customers and validate documents. For automating other tasks related to onboarding or loan disbursement processes, conventional RPA along with OCR can be used to achieve end-to-end automation.

Workflow orchestration: a use case for automating within BPM

Business Process Management (BPM) has been helping organizations for quite a few years already. Enterprises have been leveraging BPM to orchestrate users, data and systems involved in multiple business processes. However, quite often, the systems in these processes are not integrated due to various reasons like project cost, complexity, etc. and require human intervention to bridge the system integration gap. An RPA bot can interface with BPM via webservice calls or a UI and become the digital human-in-loop in the BPM process flow.

Application Connectors: out-of-the-box utilities for SAP, CRM

RPA tools and solutions are constantly evolving to offer more services and out-of-the-box features. They are building and bundling technology solutions to infuse capabilities like OCR and cognitive solutions into their product or platform. On the other hand, they have also started offering integration services by way of connectors to off-the-shelf enterprise software like SAP, CRM, and Salesforce. This not only enables faster automation, but also shields the automation process from the impact of version upgrades /migrations of enterprise software.

Making bots part of the enterprise

Let's now consider the various options available for integrating the above discussed technology areas with the bot ecosystem. While it is possible to write custom scripts within the RPA bot to call any enterprise systems via a webservice, this service call from the bot alone will not suffice, since it is one-way communication. We will also need to enable the other way i.e. to call a bot from the platform and systems within the enterprise. This call-back mechanism to an RPA bot enables an end-to-end flow in the

automation process especially when we use the other technology levers to augment RPA.

Most RPA tools publish a set of authenticated services exposed as a webservice call which can be consumed by any external entity. These are a set of standard services namely triggering a bot/process, viewing the status of bot execution, scheduling information, queueing details and so on. It covers most of the functionalities that are required to manage and control the working of the bot ecosystem.

In this capacity, certain tools like Automation Anywhere and UiPath host a middle tier in the form of Orchestrator or Control Room to expose these web services that can be consumed by the other enterprise systems. All services are hosted in this centralized component, which then relays the message to the deployed bots as applicable. Tools like Blue Prism allow the user to directly expose a process running on a bot machine as service. By exposing these services, it becomes easy for any external consumer to integrate well with the bot ecosystem.

Conclusion

'Integrated RPA' provides a new dimension to the current digital transformation scenario. It creates a collaborative and intelligent digital ecosystem where digital workers interface with IT applications and leverage services of cognitive platforms and technologies to create new disruptive solutions in the world of business operations. The different combinations of various cutting-edge technologies that organizations will dabble in to leverage this 'Integrated RPA' experience to become future ready will be intriguing to witness in the coming years.

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Vijay S. Natarajan

Lead Technical Architect - Intelligent RPA Practice, LTI

Vijay comes with 20+ years of extensive experience in architecting and consulting large scale digital transformation engagements across geographies and business domains. In his current role, he leads the RPA Centre of Excellence, and is responsible for building solutions and competency within the team to deliver value to end customers via delivery and pre-sales functions. He is TOGAF and Scrum certified, seasoned RPA professional.

info@lntinfotech

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