Everest Group
RESEARCH

Pushing the Dial on Business Process Automation

The Pros and Cons of RPA and ARA

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Introduction

Organizations are increasingly turning to automation for process efficiency as well as cost reduction. High volume transactional processes, where there are repetitive and rules-based tasks, lend themselves very well to automation. Demand is also driven by factors such as reducing risk of errors and embedding regulatory compliance in processes. Automation promises to deliver these benefits as well as increase throughput and capacity. Unsurprisingly, there is much demand for Service Delivery Automation (SDA) technologies such as Robotic Process Automation (RPA). Adoption can raise many questions and challenges for both, those starting out on new projects, as well as those wanting to automate higher level processes that are more complex and aggregates of other processes. The questions that are often asked include – where to begin? How to choose the automation solution? How to deploy? How to scale and how to move up the business value chain by automating higher level processes? **(Exhibit 1)**

EXHIBIT 1

Questions and challenges for organizations starting out on SDA

Source: Everest Group

Where to begin?	How to deploy?
How to choose an automation solution?	How to scale?
How to move up the business value chain?	
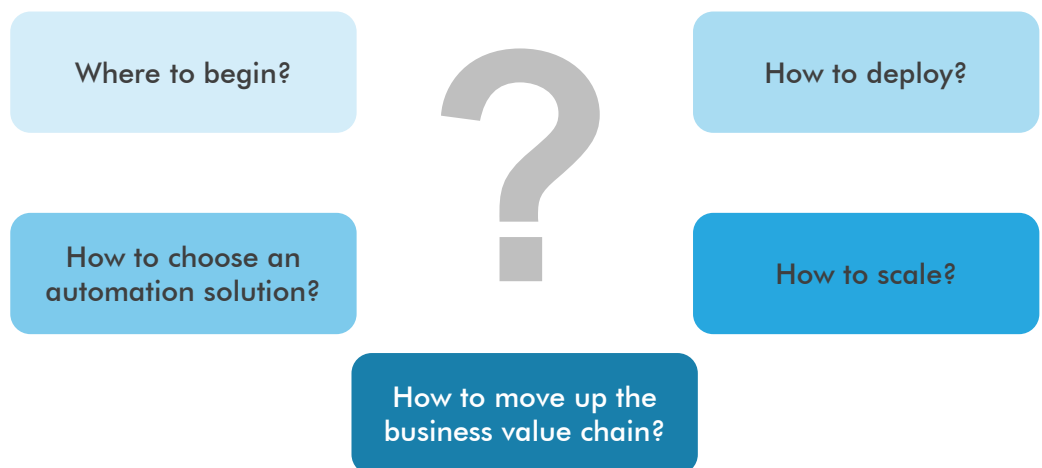
There are no simple answers to these questions and with the rise of alternatives to RPA, such as Accelerated Robotic Automation (ARA), there are more choices and options than ever before.

Everest Group interviewed a number of enterprises that have automated their transactional processes for handling structured data. They were asked about the challenges they faced and the level of processes they could automate using RPA and ARA. The results, including the perceived pros and cons of each type of solution, are summarized in this paper.

The paper is intended as a guide for executives leading enterprise operations who are looking to optimize services through increasing levels of automation.

Service Delivery Automation (SDA) Definitions

Everest Group's first principles of SDA and definitions can help organizations develop a unified vocabulary for automation:

- SDA is utilization of technology to replace a series of human actions when delivering business and IT services
- Much automation is already embedded in software systems (e.g., Microsoft Excel functions), but since it is part of the normal feature-functionality of a system, it is generally not considered automation, but rather simply a more powerful system

RPA: This is a subset of SDA. It refers to a group of tools that interact with computer-centric processes, typically, through user interface, and so can do away with the need for other types of integration with the underlying system. RPA handles structured data, for example, taking data from electronic forms and entering them into databases. RPA tools are rules-based and deterministic with known outcomes, e.g., data copied from one system into another.

Some RPA solutions come with libraries of function- or industry-specific modules that can speed up automation and so overlap with ARA when automating lower-level processes as described later in this paper.

ARA: Another subset of SDA, ARA refers to software products that are designed to automate significant parts of specific business processes such as order-to-cash and procure-to-pay. The products in this category use software modules or robots, some with built-in intelligence, to automate processes end-to-end. The products come with pre-built function-specific libraries of automations that bring process knowledge as well as pre-built integrations using APIs and connectors with enterprise systems such as ERP. Given the API-based approach to integration with enterprise systems, ARA robots are less prone to errors that can occur because of changes to the User Interface (UI) when using RPA. ARA software typically comes with built-in workflow and process orchestration to enable end-to-end process automation. This allows easier automation of higher level processes. Robot development in ARA is often done by the vendor or its partners with trained programming skills.

Some ARA solutions are hybrids that, along with offering function-specific features, can be programmed to automate processes in other functional areas. They can also use UI-integration where there are no other ways of connecting to the underlying systems.

As described above, there are overlapping areas between different types of solutions, and the following sections are designed to help the reader with some of the core features of each type of solution.

Approaches to Business Process Automation

Automation of business processes has taken a diverse and windy path to date, often involving automation of specific steps such as activating a custom piece of software to start order processing across multiple systems, or login to an on-line account to extract and download information into a spreadsheet on the desktop. Until recently, much of this type of work was done using macros or bespoke code development, using desktop tools, and workflow and Business Process Management (BPM) tools for larger scale and more strategic process automation. SDA technologies emerged in recent years and have come to prominence for their ease of deployment and remediation.

RPA

RPA software products have made automation easier, primarily because they integrate with the underlying system through their user interfaces. This approach reduces the amount of effort that is required from corporate IT and does away with organizations having to implement integration between systems at the services layer of the software. This style of automation, often referred to as non-invasive, is the primary reason that many organizations choose RPA as their automation technology of choice. It has helped many tackle long-standing process challenges such as a backlog of cases to process, or deal with data entry that could only be done at night when the systems were not being used for running the daily business of the organization. Enterprises have started small and gone on to process millions of transactions a month using enterprise-grade RPA.

Another advantage of the RPA software is that all leading technologies are generic tools that can be used to automate any data-driven transactional process, be it in the front-, back- or, the middle-office.
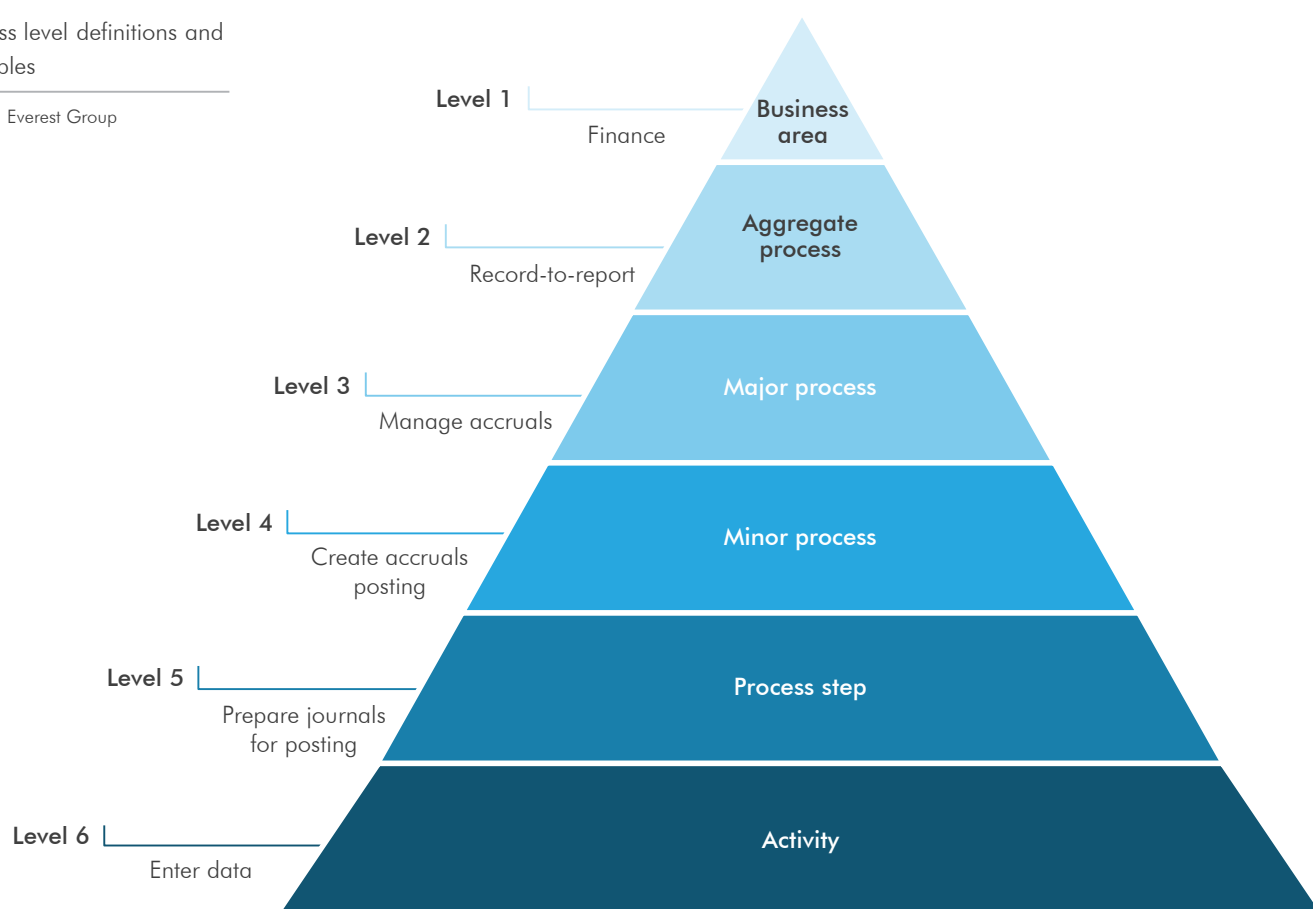
The user interface integration in RPA can be a weakness as well as a strength, as it can lead to some runtime issues. Users talk of problems with screen resolution and the software picking up data from the wrong objects on the screen. That said, RPA software vendors that had these issues in their products have addressed them in the newer versions of their software. Most look for objects on the screen based on their properties and not their coordinates or position on the screen. Some even compare screens to identify changes in the layout, while others have added features to ensure that robot connectivity through the UI is maintained. Additionally, many run in virtual mode and on Virtual Machines (VMs) without the need for a physical screen. Nonetheless, it is not uncommon for organizations to set up control towers that handle changes in business systems that might affect the UI and consequently the integration with RPA software.

Another point to note is that RPA takes a user-centric view of processes. RPA mimics the user and automates the process steps that a user would take. To automate a process end-to-end using generic RPA software, the programmer/developer would have to ensure that there is synchronization and sequencing of processes, tasks, and steps that different users would undertake. This requires process orchestration and workflow. A lot of coding is needed to enable this kind of orchestration. This is the main reason that users give for only automating lower-level processes, level four and below, when using generic RPA software. **Exhibit 2** provides definitions and examples of different process levels.

EXHIBIT 2

Process level definitions and examples

Source: Everest Group

Level 1 — Business area
Finance

Level 2 — Aggregate process
Record-to-report

Level 3 — Major process
Manage accruals

Level 4 — Minor process
Create accruals posting

Level 5 — Process step
Prepare journals for posting

Level 6 — Activity
Enter data

Everest Group interviewed several enterprises that have deployed RPA and the feedback has been that it is not easy to automate processes, such as purchase order processing and cash reconciliation, end-to-end. Some of the difficulties come from business units within the same organizations using different finance systems. Others that have standardized on one or two systems still talk about the time that it takes to automate higher-level rules-based processes within functions such as Finance and Accounting (F&A).

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An enterprise told us that it took eight weeks to automate one process when they had expected it to take only four. They had automated processes up to 70% but not end-to-end. The difficulties were around validation and exception handling.

Another challenge is having to explain the business context of the process that is being automated to robot developers. Enterprises tell us that this can take a lot of time and often has to be explained many times over. This is unsurprising, given that generic RPA tools can be used to automate a wide variety of processes across industries and business functions. Pre-built robots provided in libraries of RPA solutions can reduce some of the burden of programming the business context into robots, but it is still early days for these in terms of how much they can do.

With increasing maturity of the automation market, we are bound to see a rise in the number of industry or function/business area-specific solutions on the market. This trend has already started with ARA.

ARA

Everest Group defines ARA software to be either function- or industry-specific. Consequently, ARA software can more easily automate the processes that it has pre-built features for, than horizontal RPA solutions. The features include pre-built process models and standard process flows, for example, for record-to-report, order-to-cash, or procure-to-pay processes. The primary advantage of ARA is that it brings with it the business context and knowledge of the process that is being automated, built into its models, and pre-built libraries of automations, to speed up deployment. Another advantage of ARA software is that, because it comes with the knowledge of the process, it also recognizes where interactions are expected between different parts of a process and can offer pre-built capabilities to handle these. Consequently, it helps organizations automate a greater part of each process without significantly increasing the software development effort. ARA typically requires involvement from the software vendor or its partners for solution customization. This is because, though ARA is typically based 80% on standardized processes such as F&A, circa 20% customization is expected at the time of deployment. The customization is another step in enabling automation of higher level processes.

Some of the leading ARA products in the market have workflow embedded in them and, therefore, can take care of the sequencing of tasks and process orchestration to achieve a high-level of automation. The combination of process knowledge and the workflow and orchestration means that it is easier to automate higher level processes, e.g., level 3.

Unlike RPA, which takes a user-centric view, ARA software takes a process-centric view. ARA is focused on what the processes do together to produce an outcome (the function, the aggregate business process such as month-end close), rather than on individually replacing the people who undertake different sub-processes such as validating data in incoming invoices.

This is a key differentiator, as ARA handles automation from the bigger picture of the function that must be performed rather than the tasks that a user must do.

ARA solutions work directly with the systems that support a function such as F&A. Consequently, ARA integrates with business systems using pre-built connectors or APIs and not the user interface. Some organizations consider this kind of integration, that seems to require higher involvement from IT, negatively, but UI-based integration in RPA is also best handled in collaboration with IT. Furthermore, we know that some organizations use RPA via connectors and APIs as well, to increase the accuracy of the automation.

Everest Group interviewed several enterprises that have deployed ARA successfully. They highlighted the value of having the business context in the solution, reducing the level of effort that is needed for developers to learn this for coding both lower and higher level processes. While the same organizations intend to do more with this type of solution, e.g., deploy it in other business units, some of these organizations plan to deploy RPA and AI-based automations as well to handle other requirements.

This is an important observation by these organizations; that firstly, they are happy with the outcome of their use of ARA and intend to automate more with it, and secondly, that they intend to automate business processes outside the scope of ARA. They intend to use a mix of solutions such as RPA for these other requirements.

The availability of ARA hybrids that can be programmed for other functions increases the number of solution options for enterprises.

Exhibit 3, overleaf, provides a summary of the perceived advantages and disadvantages of each type of automation software.

EXHIBIT 3

The perceived advantages and disadvantages of each type of automation software.

Source: Everest Group

Approach to automation		
RPA	**Pros**	• User Interface (UI)-based integration is easy to deploy, remediate, and remove • Does not necessarily require IT involvement but it is advisable for enterprise-grade deployments • UI-based integration does not disturb underlying systems. This is more favorable where there are legacy systems with static UI
	Cons	• UI-based integration requires ongoing maintenance and application change management. Many organizations set up control towers to manage this activity, which can be time-consuming • Requires creation of access control mechanism (login credentials) for robots to access systems and databases • On its own it does not directly lead to process improvement, as it can automate user-centric tasks as they are with minor changes for automation. That said, many organizations take the opportunity to optimize processes before they start coding them into robots
ARA	**Pros**	• Uses API or connectors to integrate with underlying systems • This is relatively maintenance-free • Integrates directly with the applications and databases at the server-level • ARA takes a process-centric view and handles automation from the bigger picture of the function that has to be performed. It can result in process improvement with embedded best practice
	Cons	• Requires active involvement by IT departments for deployment. This might be a problem for stretched resources in some organizations • In some cases, such as with legacy systems, APIs may not exist, making it difficult to implement ARA solutions. However, some ARA solutions also can integrate through the UI, but this is not their sweet spot

Use cases		
RPA	**Pros**	• Generic software that can be used to automate any rules-based process that uses structured data • This enables organizations to initially concentrate effort on learning one RPA software well, and set up a center of excellence to develop in-house RPA capabilities. They can then apply that knowledge and capability to deploy, run, and maintain robots for various business units across the organization
	Cons	• It automates user-related processes, which means that a lot of coding has to be done to orchestrate the different parts of a process in order to achieve end-to-end automation • Organizations tend to stick to automating lower-level processes • Requires process experts to provide the business context for automation • Organizations report that this can be time-consuming and inefficient
ARA	**Pros**	• Designed to automate specific processes with some knowledge of the processes embedded in the features, and thus reducing the need for subject matter expertise when developing automations • Some solutions can be programmed for different functions as well • The software typically addresses process orchestration as part of its function-specific and process-centric approach
	Cons	• Organizations may need other automation solutions to address automation of different types of transactional processes • This could mean that they will need to invest in skills and vendor relationship management for more than one solution • When the solution can be programmed for other functions, subject matter expertise will be needed to build the business context for the new application of the software

Costs and funding		
RPA	**Pros**	• Different parts of a business can share overheads of the software, e.g., training and skills development • Organizations can set up their own centers of excellence to reuse knowledge as well as previously developed automation codes • They can pool funding to minimize investment in automation by any one department • Gives the flexibility to start small and scale as required, while promising ROI in a short time
	Cons	• Costs of providing process or subject matter expertise (such as selection of right processes for RPA) should be considered in the business case • Costs of automating processes to a greater extent or to scale can be high due to the amount of development and implementation effort and the number of robot licenses that would be needed to do so • Additional software such as workflow may be required • Cost of automation maintenance, system change management, and operational continuity, e.g., setting up a control tower, should be taken into account • The costs and effort of providing process or subject matter expertise should be considered as well
ARA	**Pros**	• Costs vary from vendor to vendor. While the initial cost can seem higher than investing in a small number of RPA robots, the automation outcomes such as the degree of automation and process level could be much higher in comparison to RPA. It is, therefore, important to consider the Total Cost of Ownership (TCO), not just the robots but also staff/resource utilization for automation maintenance and operations as well as effect on IT infrastructure costs • By doing away with the need for UI-based integration, it can lower costs of maintenance and on-going automated operations • The built-in business context reduces costs of providing process or subject matter expertise
	Cons	• Typically, a departmental or functional investment • Ability to pool costs for investment purposes depends on how the function in question is funded by corporate policies

Factors to Consider When Embarking on Business Process Automation

Factors to consider include:

- The type of automation solution to use
- The software that supports the processes to be automated, e.g., legacy or enterprise software
- Departmental vs. corporate-wide automation initiatives
- The need for operations standardization and transformation
- Budget and ongoing funding
- Other organizational drivers

These are illustrated in **Exhibit 4**.

EXHIBIT 4

Factors to consider when embarking on business process automation

Source: Everest Group

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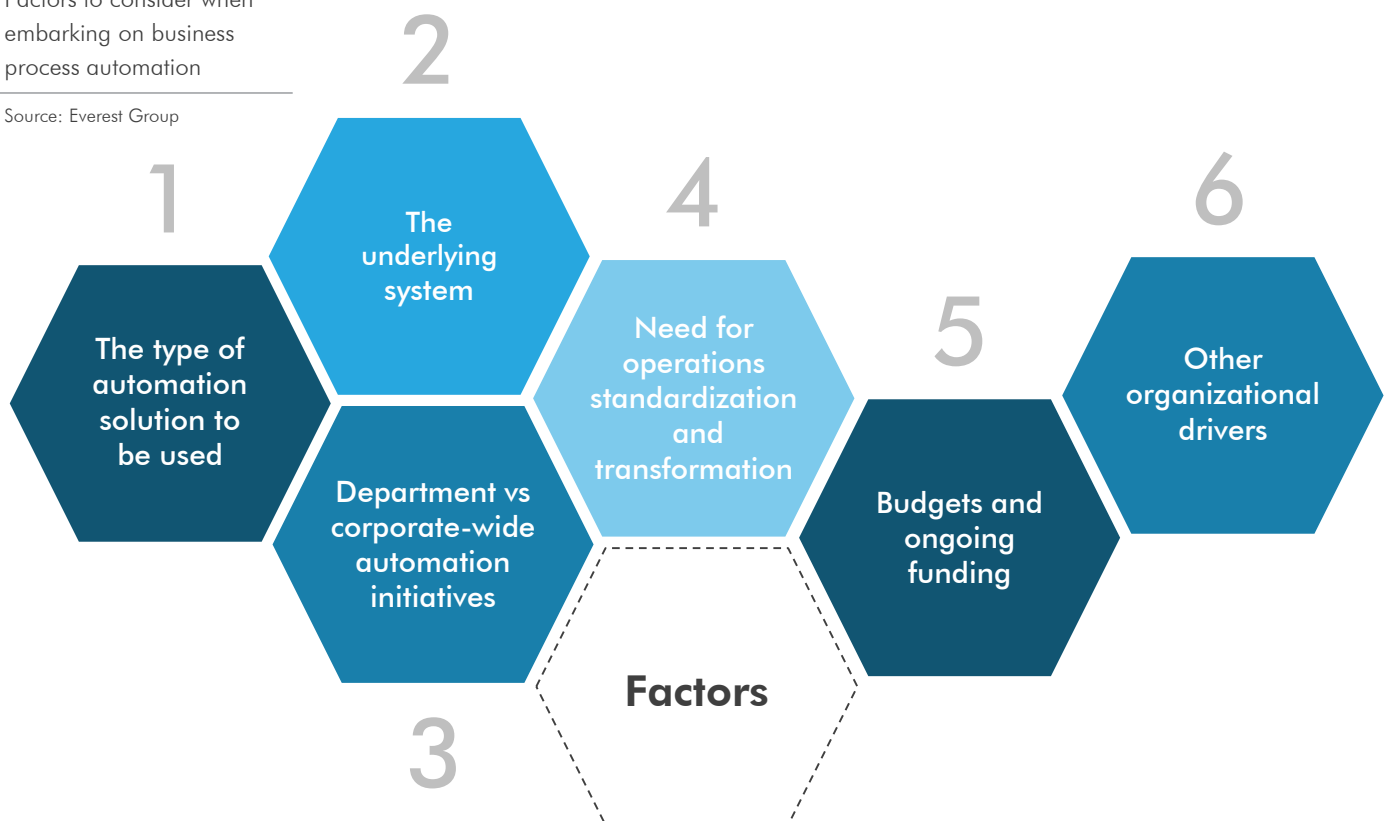
1. The type of automation solution to use

Back-office processes, such as finance, tend to be highly standardized and suitable for ARA-type offerings with pre-built models and automations. There are also ARA hybrids in the market that offer function-specific automation, but can be programmed to do other processes as well.

Line of business processes can be very diverse. RPA can automate many of these as well as back- and front-office transactional processes. Some RPA tools come with libraries of pre-built automations for specific requirements. Organizations should look at the depth and breadth of all of the above when selecting software.

2. Software that supports the processes to be automated, e.g., legacy or enterprise software

The type of software that supports a process or function makes a difference to the options for automating that process. For example, if a process uses an ERP system such as SAP or Oracle, with published and standardized APIs, then there may well be an ARA application that could be used to automate that process. The same processes could be automated with RPA and the evaluation of the best option should consider the advantages and disadvantages that are listed in Exhibit 3. If the process uses a legacy application with no published APIs and/or with green screen user interfaces, then an RPA solution would be ideal. Integration with legacy systems through creation of new APIs or connectors can be complex, whereas, the UI-based integration mechanism of RPA avoids the complexity and risk of such changes to legacy systems. This is why some ARA solutions also offer the ability to integrate through the UI in addition to their integration features. Additionally, the user interface of these legacy applications tends to remain static in layouts and design. This minimizes changes that would otherwise have to be made to RPA robots if system UIs change.

3. Departmental vs. company-wide automation initiatives

If this is a departmental or functional requirement such as finance or supply-chain management, then an ARA that is designed for the specific function could save on automation development time and achieve higher levels of automation. This should not be mistaken for a tactical deployment. Deploying ARA requires a strategic decision, albeit at a function or departmental level and a transformational one at that. If it is a company-wide initiative where multiple departments are involved, each requiring automation of a different group of processes, then a generic RPA software could be more suitable, as it can be applied to address different automation requirements across business units within an organization, e.g., new hire onboarding in HR, payment processing in finance, and industry-specific processes.

Some organizations only invest in a single generic RPA software as their strategic solution.

This is so that they develop the skills for that particular software and apply them many times over to different requirements. These organizations often build a center of excellence with technical and operational maintenance teams focused on the one RPA software. Others who contemplate an ARA solution can invest more in process/functional experts with the balance of their time tilted towards process improvements, and less spent on robot code development and maintenance.

4. Need for operations standardization and transformation

If automation is part of a bigger program to standardize functions across divisions or modernize specific processes, then the organization should think about how much work is needed before automation can take place, and if the automation software can boost the outcome. Some RPA products come with methodologies that focus on optimizing processes specifically for automation. ARA solutions tend to be built with best practice approaches for standardized processes, often using the latest features of the underlying ERP. Enhancements in enterprise systems can improve the performance of a system and increase productivity, but people do not always have the time to learn about them, let alone use them. ARA software typically taps into these features and by implementing them, organizations increase use of best practices at more granular levels of a process resulting in enhanced performance and process optimization.

5. Budgets and ongoing funding

Software license and lease costs vary from vendor to vendor. When comparing products, it is important to think about the TCO and not the immediate upfront costs that can be deceptive. In most cases ARA requires a larger initial investment than RPA. When you purchase ARA, you pay for a software package that has some capabilities and knowledge of the process built into it. RPA can start at a very low cost. However, costs can escalate with increasing levels of automation and scale.

With RPA, companies, can buy as many robots as they need or think that they need. Some vendors require a minimum number of robots to be purchased. It is not unusual for organizations to buy more robots than they can use, or invest in many robots (hundreds) for large scale deployments.

For all types of solutions, TCO calculations should include operational running and maintenance costs.

6. Other organizational drivers

There may well be organizational or tactical drivers for choosing one type of solution over another. For example, if IT resources are particularly hard to get, then the organization might opt for RPA using UI-based integration over ARA and its API and connector approach. Some IT involvement will always be needed, for example, to ensure compliant and secure RPA deployments.

Once the initial proofs of concept or deployments have been completed, organizations could increase their skills by training "super-users", business users that have good technical abilities and who can be trained to become expert users in either type of technology. By taking on some automation support and coding responsibilities, "super-users" could reduce the burden of automation on enterprise IT departments.

Conclusion

The first wave of RPA deployments saw many successful proofs of concept move into operational live environments. The technology maturity curve is at play today, pushing more advanced users to think about what else could be automated, and if coding of robots could be speeded up. ARA has emerged as an alternative to these requirements. It speeds up automation with pre-built capabilities and by increasing the extent of automation within specific functional areas. With different approaches to automation, one being horizontal and user-centric, the other function-specific and process-centric, it is not a case of RPA or ARA. It is a matter of best fit to requirements, often with the two types of technologies being deployed side by side.

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Everest Group is a consulting and research firm focused on strategic IT, business services, and sourcing. We are trusted advisors to senior executives of leading enterprises, providers, and investors. Our firm helps clients improve operational and financial performance through a hands-on process that supports them in making well-informed decisions that deliver high-impact results and achieve sustained value. Our insight and guidance empowers clients to improve organizational efficiency, effectiveness, agility, and responsiveness. What sets Everest Group apart is the integration of deep sourcing knowledge, problem-solving skills and original research. Details and in-depth content are available at www.everestgrp.com.

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