

Robotic process automation (RPA) is a technology that has been around for several decades, but recently its adoption has increased dramatically. This Market Spotlight examines what is driving this acceleration in usage, how RPA is evolving toward a "bot economy," and how these developments can help organizations realize business goals.

Toward the Bot Economy: Taking Robotic Process Automation to the Next Level

June 2018

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Introduction: Digital Transformation and RPA

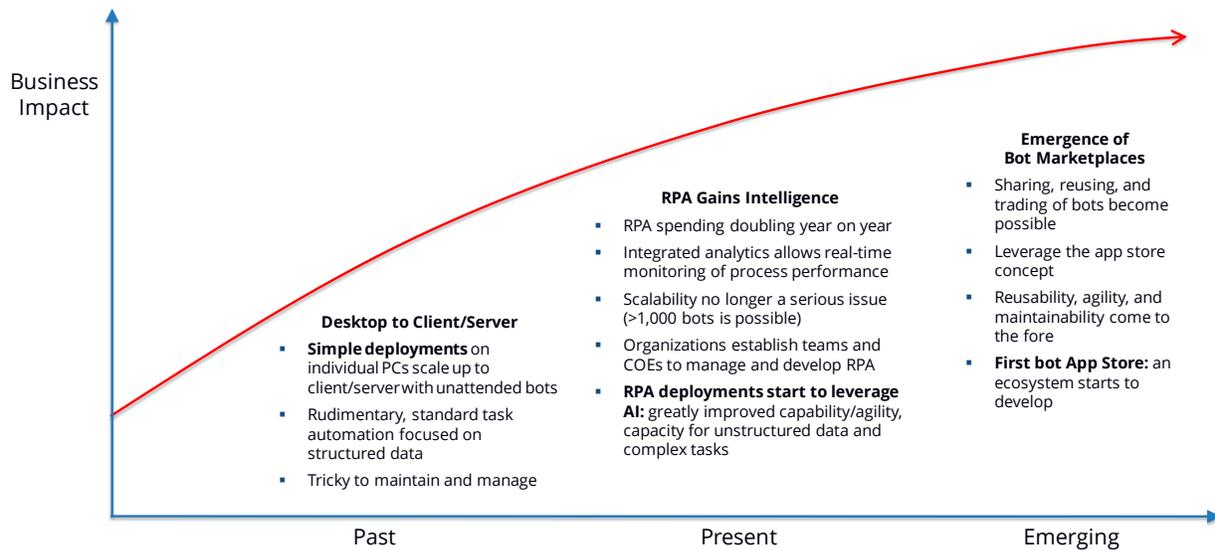
Around the world, organizations are striving to take best advantage of digital technologies such as artificial intelligence (AI), cloud, and big data to transform their businesses, enabling new levels of innovation, automation, and customer experience. IDC research shows that over 80% of medium-sized and large businesses have put digital transformation at the heart of their strategic goals, often driven directly by the CEO.

This need for transformation is driving tremendous growth in adoption of these foundational technologies and in applications of the technologies that can help meet business goals such as improved customer relations and process reengineering for innovation, agility, and efficiency. One such application area is robotic process automation (RPA), an approach that has seen tremendous growth in recent years. It has evolved quite radically from its desktop PC roots and is now entering a new phase based on reusable, tradable bots (see Figure 1).

AT A GLANCE

WHAT'S IMPORTANT

Many organizations now find real benefit and ROI from RPA — with the costs of processes sometimes halved, error rates reduced, and time to execute common processes reduced, potentially to as little as one-tenth of previous execution times.

FIGURE 1: PHASES OF RPA EVOLUTION

Source: IDC, 2018

From Desktop to Client/Server

RPA software automates standardized, rules-based, repetitive, and high-volume processes traditionally executed by knowledge workers. The idea that such processes could successfully be automated first emerged in the late 1980s and early 1990s.

Early applications running on users' PCs generally aimed to mimic user actions — particularly, moving data between separate host systems (e.g., between order entry and finance). These applications were often difficult to maintain because the attached systems kept changing asynchronously, creating a constant need for retraining. Consequently, early RPA efforts were difficult to scale and manage, and the business case was often not compelling.

Fortunately, these challenges have been addressed over the years. Many organizations have found real benefit and ROI from RPA — with the costs of processes sometimes halved, error rates reduced, and time to execute common processes reduced, potentially to as little as one-tenth of previous execution times. IDC research shows that RPA is now well established in paper process-intensive industries, most notably banking, financial services and insurance, and telecommunications. RPA has considerable potential in the public sector (including healthcare), which is seeing an increase in adoption of the technology. Our research has revealed 30–60% cost savings in several cases and up to 80% reductions in costs per transaction.

But RPA is not confined to industry-specific processes: Most industry sectors with a substantial back-office operation are candidates for RPA. IDC research indicates that the finance function is the business area that has most commonly deployed RPA to date and that 60–80% of finance and accounting (F&A) processes can be automated in full or in part through RPA, with cost savings of 20–40%. Other cross-industry candidates for automation are customer service, such as complaints handling, and HR processes, such as employee onboarding.

IDC has seen larger and more mature organizations establish centers of excellence (COEs) for RPA, often linked to their business change efforts, to establish and disseminate knowledge around the enterprise. In the most mature organizations, RPA can transition from a siloed, line-of-business solution to a strategic enterprisewide investment.

Another interesting and powerful development of the RPA concept is the expansion from front-office use cases to end-to-end automation that may begin at the front office and flow through to the back office. For example, a bot's acceptance of a sales order triggers an automated series of back-office operations ranging from order processing to the shipping and delivery of the ordered products.

RPA Gains Intelligence

Technology advances have helped tackle issues of governance, scalability, maintainability, and management. RPA solution architectures have developed around the concept of a "bot," a standalone software module that replicates human behavior and is centrally managed and run server-side in a virtualized environment. This development has had several important consequences:

- » Bots can run "unattended" and be fired up and shut down on demand for scalability.
- » Bots can be daisy-chained to perform more complex tasks.
- » Parallel dev/test and production environments can be established.

Enterprise-class features such as change audit trails and access security are now part of today's RPA solutions. Performance monitoring tools and bot-related analytics have also appeared and grown in power and usability. With a centralized architecture, advanced analytics has become an enabler for operational improvement (e.g., provisioning, performance and utilization monitoring, and security) and business improvement (e.g., measuring ROI from the RPA investment).

The most recent technological advance, which is helping significantly drive the usability and applicability of RPA, is the incorporation of machine learning (ML) technologies. ML allows RPA systems to more easily work with semistructured and unstructured data, such as inbound emails and printed invoices. If the signature on an invoice is not where the software expects to see it, the software can adapt; if the format of the purchase order varies, the software can adapt. This "intelligence" considerably extends the potential of the solution.

But beyond this first-level intelligent RPA, we can see much greater potential; there are now tried and tested AI solutions with the capability to detect "intent" or meaning. For example, an inbound customer email could be a complaint, a compliment, or a simple comment — and each should be processed differently. One transportation company IDC has spoken with classifies inbound communications into over 40 different categories. AI software can classify documents automatically, and then the RPA bots can act accordingly.

In general, AI expands RPA capabilities profoundly in the key dimensions of agility, maintainability, and flexibility. Therefore, most RPA vendors are linking up with AI software vendors or building in their own techniques.

The Emergence of Marketplaces: Toward the Bot Economy

The most recent development in RPA software is the realization that the use of plug-and-play bots running on a common platform can provide new ways to accelerate and simplify organizations' implementation of RPA. In particular, bots can be developed and then shared across departments or cooperating organizations. Further, they could be sold by one organization to another organization or developed by independent service providers that could sell and configure bots for their clients. As with packaged software in general, this can lead to economies of scale and potentially lower cost. It should also result in higher quality, as the develop-once, deploy-many model naturally leads to higher levels of QA.

The natural conclusion of this thinking is what could be termed the "bot economy." While this idea is still in its infancy, we could draw inferences about its potential by looking at a parallel case. IDC has extensively studied the "app economy" created around the Salesforce platform. Salesforce, the well-known CRM company, not only encouraged third parties to create apps that could run on its platform but also went further. In a parallel development to the consumer app stores of Apple and Google, the company allowed customers and partners to list compatible apps on its systems in an app marketplace. Salesforce created mechanisms to buy and sell the apps between its customers and for its customers to buy from other solution provider partners. Thousands of apps are now available through its AppExchange.

Even though many of the apps in the marketplace are free to download and use, the Salesforce AppExchange is economically and strategically successful, extending the reach and power of the CRM solutions on offer. Now a decade old, the AppExchange has seen some 5 million installs in Salesforce customers, proving the power of the concept and the demand for value-adds. A substantial partner economy has grown up around the platform, extending the power of the solution, giving new revenues to partners, and extending the utility and potentially the quality of the solutions to customers that benefit from economies of scale in not having to buy one-off custom extensions for common problems.

In IDC's view, a bot marketplace would have characteristics similar to those of the more general "app economy" that has developed in the Salesforce ecosystem and around mobile phones:

- » Platforms are used as a software distribution model.
- » Both free and paid apps (bots) are available, which gives a bigger impetus to the platform.
- » Bots distributed through the platform plug into and extend the functionality of the underlying RPA solution.
- » A direct channel for providers and consumers to conduct transactions is created.
- » An "economy" is created that expands the number of participants because of ease of distribution and consumption.

There would also be differences:

- » Unlike with apps, business will not seek end-to-end solutions in a bot marketplace. They will seek customizable building blocks that can be interconnected to create custom automations to meet their unique process implementation needs.
- » Apps are largely standalone, whereas bots could form links in potentially complex process chains.

An example may be illustrative. The procure-to-pay (P2P) process (see Figure 2) is found in almost every business, often spanning multiple IT systems and functional departments. For many companies, this process is ripe for further automation to enable both more effective procurement practices and considerable efficiency gains.

FIGURE 2: PROCURE-TO-PAY PROCESS — SIMPLIFIED VIEW



Source: IDC, 2018

The way companies perform P2P is generally similar, and thus off-the-shelf bots that perform the common tasks could help considerably in automation. Types of standardized bot actions that could be combined as part of P2P automation could include:

- » Updating vendor information
- » Creating a sales order from a purchase requisition
- » Updating the material master record on receipt of delivery
- » Reviewing outstanding purchase orders for payments coming due
- » Allocating payments against outstanding invoices

IDC can foresee that this concept could considerably extend the reach and power of RPA systems if those systems come to be seen as enabling platforms as well as total solutions. For example, prebuilt bots could include functionality that requires specialists to design and build, such as ML/AI techniques. Much will depend on the willingness of partners — solution providers and systems integrators — to speculatively develop bots that they think their customers would potentially buy. The rewards could be considerable.

Considerations

RPA software holds considerable potential for helping organizations with their key business goals, especially if the idea of the bot marketplace takes hold. However, when setting strategies for RPA adoption and use, potential buyers and their suppliers must be cognizant of several key considerations:

- » **Understand your processes.** Many organizations don't know their processes in depth, but automation requires knowledge: how many steps, which branches (options) are used most often, etc. In a process that humans use regularly, there may be important undocumented workarounds that are not known to the process designers or managers. Users may be referring to information or applications alongside the key transactional apps and so on.
- » **Assess the skills you're likely to require.** IDC has found that initial implementation is only the first step in establishing a solid RPA strategy; it's also important to confirm that your solution can command ongoing support. Whether you're doing the implementation yourself or through a software or service provider, you need access to the right resources and experience in your RPA deployment for such tasks as designing and maintaining integrations into other tools and applications across your business, leveraging AI capabilities, and providing comprehensive troubleshooting.
- » **Harness intelligent automation.** As RPA expands to incorporate ML and analytics, don't settle for standard, old-fashioned RPA; instead, look to leverage recent advances in technology. As with all new technologies, an enterprise's requirements will change over time; be certain that your provider — either through direct or indirect channels — can keep pace with RPA's capabilities and can do so in the languages and geographies where it will have the greatest impact.
- » **Look toward the bot economy.** The popularity of the Salesforce AppExchange derived from its ability to help enterprises deploy and scale their solutions quickly and easily. IDC believes that a similar marketplace devoted to bots could deliver comparable benefits. Consider making use of prebuilt and third-party bots for your RPA platform: This could allow you to automate more processes, more quickly, through more areas of your business to derive the greatest possible value from your RPA deployments.

Conclusion

It is now demonstrably clear that RPA software can deliver measurable customer service improvement, increased business agility, and operating efficiency gains. Payback can come in less than a year in many cases, and deployments can yield results in weeks rather than years. Consequently, the number of organizations utilizing RPA is increasing rapidly.

But cost is not the only business benefit. RPA can improve the speed and quality of many processes both by reducing errors and by allowing staff such as customer service reps to focus on more difficult, higher-value tasks that lead to greater customer satisfaction and revenue growth. The on-demand scalability of an elastic bot infrastructure means that staff levels can be geared to average workloads rather than peaks. In one banking example, turnaround time for inquiries was reduced by over 60%, and completion times for another process were reduced from several days to a matter of hours.

Further, new approaches based on AI methods, particularly ML, are increasing the power and range of applicability of RPA solutions, and this increase is set to continue.

The next stage in RPA's evolution is visible with the advent of the tradable bot. This development has the potential to drive an evolution in the RPA ecosystem, with solutions and service providers contributing "off the shelf" bots to a marketplace linked to an RPA platform, thus increasing the range and quality of the solutions available to RPA customers and, perhaps most important, accelerating the time to value.

IDC expects that many more organizations will be drawn into using RPA in the coming months and years thanks to the maturing of the market and the continued technology evolution. IDC would advise any medium-sized and large organizations that have not yet considered RPA, or that have previously considered and rejected it, to take a fresh look.

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