The State Of Robotic Process Automation

A Poor Man's Business Process Management, Or Possibly Something More

by Craig Le Clair
November 23, 2015

Why Read This Report

There's a lot of talk these days about a bleak future of employment where tireless robots steal all the jobs. Robotic process automation (RPA) is part of that discussion. This report provides Forrester's assessment of the current state of the RPA market, why it's often used when a business process management (BPM) or case management platform would suffice, and how close the solutions are to replacing knowledge work performed by humans. Finally, we outline a framework for enterprise architects, separating RPA providers into those that focus on targeting customers or on operational efficiency and that attack the market from a product or a service perspective.

Key Takeaways

RPA Addresses A Backlog Of Tactical Process Enhancements

Robotic process automation software that targets tech management support, customer service agents, and back-office work processes will boost productivity.

RPA Struggles To Meet Cognitive Potential

RPA applications targeting cognitive tasks are years away due to compliance and trust concerns. These use cases are more varied and occur less frequently, and they may not generate enough data to meet machine learning needs.

Vendors Take A Customer, A Back-Office, Or A Go-To-Market Approach

RPA providers target either the front or back office and focus on either products or services.

The State Of Robotic Process Automation

A Poor Man's Business Process Management, Or Possibly Something More

by Craig Le Clair
with Alex Cullen, Clay Richardson, Elizabeth Cullen, and Diane Lynch

November 23, 2015

Table Of Contents

Notes & Resources

In researching this report, Forrester interviewed Automation Anywhere, Blue Prism, Infosys, IPsoft, Kofax, Nice Systems, Tata Consultancy Services, UiPath, and Xerox. Additional inputs came from more than 25 client inquiry calls about exploring RPA solutions.

Related Research Documents

The Future Of Jobs, 2025: Working Side By Side With Robots

TechRadar™: Digitizing Operational Processes, Q2 2015

FORRESTER®

Forrester Research, Inc., 60 Acorn Park Drive, Cambridge, MA 02140 USA
+1 617-613-6000 | Fax: +1 617-613-5000 | forrester.com

RPA Plugs Process Gaps But Is No Threat To Humans Yet

Robotic process automation is the application of technology that automates workflows, primarily for administrative work. RPA software can help automate large volumes of digital manual-processing work. That's today's RPA.

For more than a decade, automation and labor arbitrage have replaced low-value service jobs, and evidence suggests that this trend will continue over the next two years. Knowledge-based, higher-value workers seem safe at the moment; their replacement has been minimal to this point. And in some cases, RPA has led to creation of even higher-skilled positions.[1] At the same time, RPA will lag behind consumer innovation, where in the past five years alone, more than 400 million individuals now use intelligent digital assistants.[2] But beyond two years, forecasts indicate that RPA software will threaten the livelihood of 230 million or more knowledge workers, approximately 9% of the global workforce.[3] Enterprise architects must help their firms prepare for this disruption by educating the business on the appropriate use and limitations of RPA.

RPA Addresses A Backlog Of Tactical Process Enhancements

RPA is gaining the interest of enterprises. It's easy to see why, as many are under immense pressure to digitize operations; the effort to successfully drive both human and technical aspects of process change is daunting. Enterprises see RPA as part of the answer, as it is:

- **An alternative to "big IT spend" for typical BPM projects.** Enterprises can achieve any benefit outcome of RPA by implementing a BPM platform. So why use an RPA approach? For many, RPA is a quick, less expensive fix. Unlike BPM, it does not require invasive integration, changes to underlying systems, or extensive employee training. One enterprise architect summed it up well:

  "We have lots of capability — business rules, and BPM, but our operations and architecture team are currently looking at RPA solutions." (Senior enterprise architect, large retail chain)

- **A low-touch approach for process improvement to brittle legacy systems.** Enterprises that employ labor on a large scale for process work can gain efficiencies by just automating repetitive human tasks for the "as is" process. For example, an international bank required staff to enter data (much of it repetitive) into 80 different systems to onboard a new client. With no change to the process flow and no extensive technology investment, the bank implemented RPA software to automatically enter most customer data. Blue Prism, Tata Consultancy Services, and Xerox all provide RPA solutions applicable to onboarding.

- **A way to eliminate API headaches for data integration.** RPA minimizes coding for building web services APIs to access databases or legacy systems. In one application, under the control of a BPM solution, RPA was able to grab data from thirty-year-old green screens. In this case, the enterprise used OpenSpan. One global bank put it this way:

"In essence, we are looking at automation as a way to better plug gaps in the organization, but we appreciate that this is not BPM, which is potentially 10 years away from broader process improvement across all areas." (Business architect, global bank)

- **An alternative to the BPO labor-arbitrage approach.** RPA steps in as direct competition to traditional business process outsourcing (BPO), as both approaches eliminate the need for low-value labor. Although BPO providers are jumping on the RPA bandwagon, it threatens their growth. By turning to RPA, enterprises can avoid today's BPO headaches, namely disruption due to shifting to more-optimal labor locations, the overhead attached to outsourcing, and questions about quality and poor communication.
- **An easy-to-consume pricing model.** RPA often costs a fraction of the salary of the staff it replaces, and it's positioned as a license, which makes it easy to see the savings compared with Bill's salary in the call center or back office. Many vendors license "per robot" in terms of bands (e.g., $10,000 per robot per year, compared with an employee salary of $40,000 per year). Users can deploy RPA tactically and, unlike traditional BPM products, it can meet specific ROI goals for a portion of a complex process, making a simpler business case. These benefits threaten to disrupt the BPM market.

RPA Is Struggling To Meet Cognitive Potential

Enterprise architects can view RPA progress on a spectrum that starts with tactical digitization and ends with advanced cognitive functions that can manage exceptions (see Figure 1).

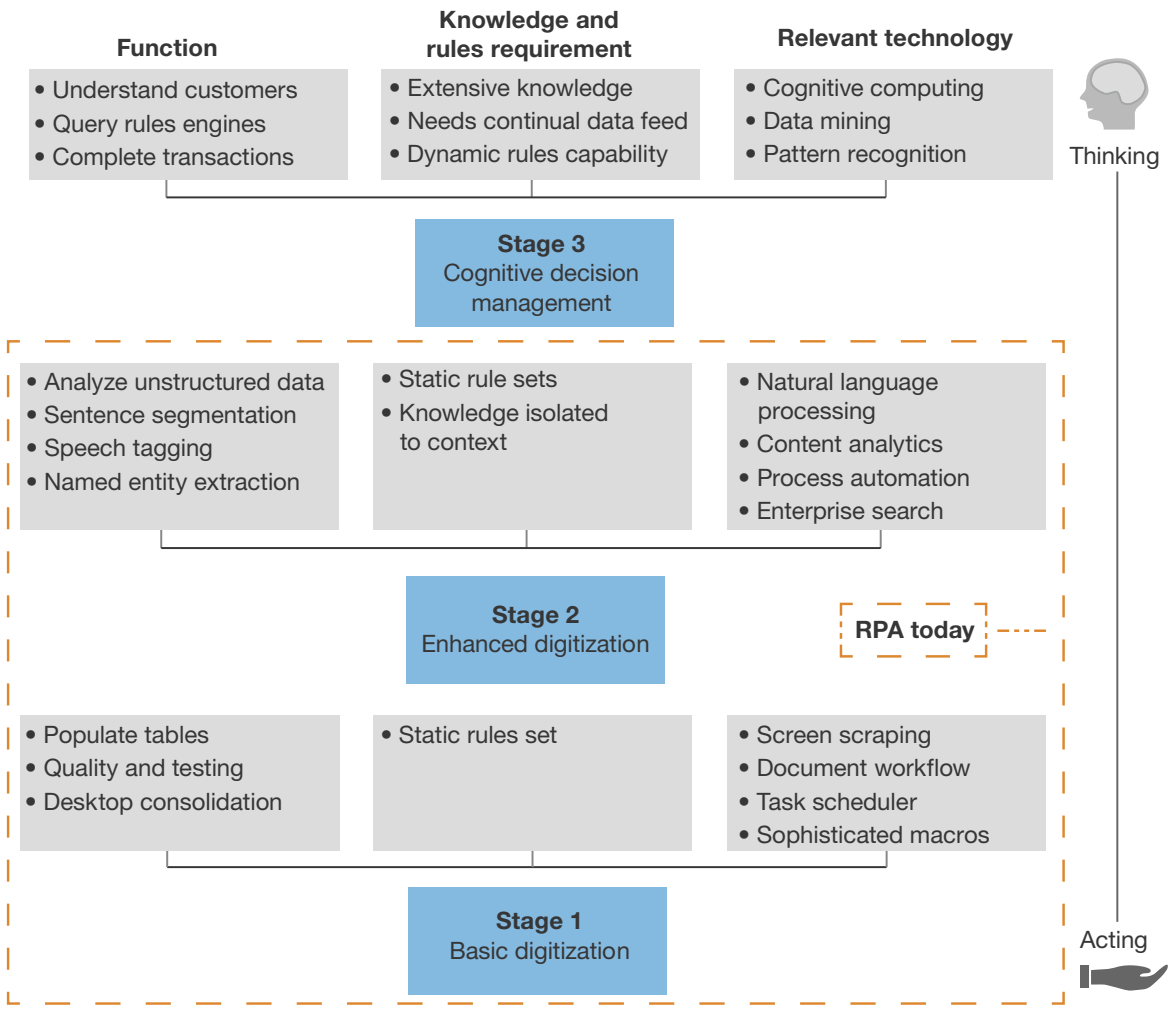
- **Stage 1: RPA software focuses on digitizing operational processes.** Populating tables, quality and testing, desktop consolidation, and replacing data entry tasks are the goals of enterprises at stage 1. These use cases require no external knowledge or data, and rules are static. Relevant, well-vetted technologies include task scheduling, document workflow, and screen scraping.
- **Stage 2: RPA taps into unstructured data with content analytics.** Analyzing unstructured data, speech tagging, and sentence segmentation help plug more-difficult digital gaps. RPA software garners all external knowledge from the target document or data set, and rules remain static. Content analytics and natural language processing begin to add intelligence to the process.
- **Stage 3: RPA taps into external knowledge to make decisions.** Stage 3 is a break from the highly structured, algorithmic limitations of stages 1 and 2 and has the potential to alter the knowledge-worker labor market.[4] But here's the challenge: Exception management tasks, the target use cases, are varied, lower volume, and require extensive knowledge for machine training that may be difficult to obtain. Neural network approaches, like Google DeepMind and IBM Watson, need large data sets to be effective.[5]

  In addition, a lack of trust and change management roadblocks stymie cognitive advancement. Enterprise are sometimes reluctant to deploy even stage 1 RPA products. Compliance and audit requirements can be challenging. For example, in life sciences, federal regulations impose strict

rules for managing passwords that an RPA technology cannot easily meet. Yet even the generally conservative property and casualty (P&C) insurance companies are piloting digital agents and underwriters. IPsoft reports that four P&C firms are piloting its Amelia platform to use natural language understanding to ingest manuals and chat logs.[6] However, cognitive progress is mixed. According to a different RPA provider:

"We have seen nothing real in the cognitive area, but lots of conversation. Harder decisions are just kicked to an exception queue." (Senior product specialist, RPA vendor)

FIGURE 1 RPA Will Advance Through Three Stages To Emulate Human Action

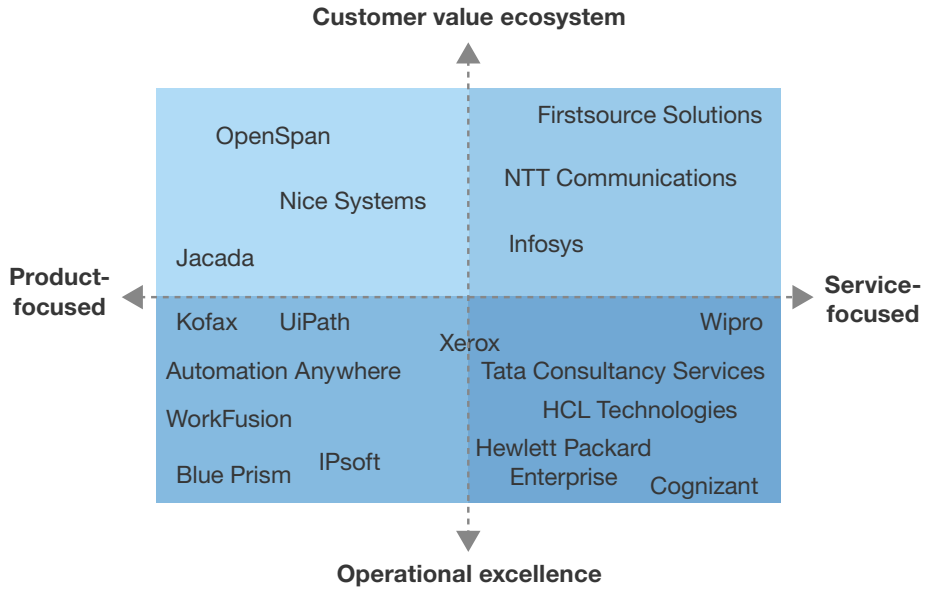


RPA Vendors Take A Customer, A Back-Office, Or A Go-To-Market Approach

RPA vendors target either front- or back-office functions. An RPA vendor can go to market as a service offering, as part of a BPO practice, or as an enterprise software vendor (see Figure 2). Forrester sees:

- **Software vendors that target the back office.** Potential customers often shortlist product vendors Automation Anywhere, Blue Prism, and UiPath for back-office requirements.[7] These vendors tackle desktop consolidation, data integration, and data entry. But most RPA today is still pretty simple — focused on mundane but important transactional work. Algorithms make simple decisions based on well-defined requirements. Blue Prism, for example, delivers software robots to execute manual back-office administrative processes. A bank can use the product to process a customer's request for a second credit card (perhaps for a spouse) by logging into various systems (enabling a background check, checking balances, or creating an order in a PCI-compliant manner), all the while following the business rules that a human worker would.[8] Another bank was able to automate Visa's chargeback code, a complex rule set, using Blue Prism.
- **Software vendors for front-office customer service processes.** While most vendors find a fertile market in the back office, several software vendors have excelled in contact center environments where an agent requires human and machine multitasking. Customer service agents often span multiple windows and web applications, few of which are integrated with each other. Cumbersome process flows, rekeying of data, and lack of integration add up to lengthy call times, reduced accuracy, and an overall increase in customer frustration. OpenSpan, for example, combines unattended (headless) RPA routines with RPA modules that interactive with the agent. Jacada and Nice Systems also have products for customer-facing uses cases.
- **Service companies that target the back office.** Operational excellence that starts in the back office is the dominant area for most RPA service providers, with activities including procure-to-pay, quote-to-cash, HR administration, claims processing, and hundreds of similar processes. Although RPA eats into labor-arbitrage revenues, BPOs have accepted the inevitable. Customers want automation for cost saving and business agility. Potentially, RPA can automate as much as 40% of BPO human labor, according to Sue Watts, chief operating officer for Xerox Global Capabilities. Tata Consultancy Services and Xerox both have product and service ambitions.
- **Service providers that support the front office.** RPA service vendors tend to be larger BPO firms like Hewlett Packard Enterprise, Infosys, Tata Consulting Services, and Xerox. Most have RPA proprietary capabilities or partner with an RPA product vendor. Others, like Firstsource Solutions, Infosys, and NTT Communications, have a front-office focus.
- **New cognitive vendors that could emerge as software or service providers.** RPA vendors got their start scraping 3,270 screens in the dark corners of tech management. They are now moving up the cognitive scale. Expect new entrants, based first on cognitive competence, that work down toward digital efficiency. New-entrant vendors like WorkFusion are a great example.[9] But most RPA vendors will partner with cognitive engines like Intel Celeron for text analytics or with emerging cloud analytics from Amazon Web Services, IBM, and Microsoft.

FIGURE 2 RPA Providers Target Different Spaces



Recommendations

Take A Hard But Skeptical Look At RPA

RPA is a fertile area for hype. What could be better? RPA has it all: the age-old angst of robots running the world, the application of Internet of Things (IoT), and big data, as well as the resurgence of artificial intelligence. Look beyond the hype and get several mission-critical "data center based" transactional processes up and running with RPA. Smart enterprise architecture professionals will:

- **Focus on stage 1 and stage 2 wins.** Look to stage 1 for quick wins. Stage 2 content analytics can also be low-hanging fruit for document-oriented process. Providers are happy to offer proof of concept before commitment. Take them up on it.
- **Develop an automation strategy.** RPA's strongest feature is rapid, noninvasive deployment. This should not translate to tactical, opportunistic problem solving. Develop an automation strategy that aligns with the business (i.e., not just a tech management automation strategy). Attack it as you would any other strategic program.
- **Not ignore the post-deployment reality.** You can deploy RPA quickly, but what does it look like when you have 1,000 robots executing transactions? What features of the RPA management console monitor performance? Be sure to examine total cost of ownership and maintenance, particularly continuous training requirements.

- **Strive for compatibility with existing BPM and DCM solutions.** RPA works independently of or in conjunction with traditional BPM and dynamic case management (DCM) solutions from vendors, such as Appian, IBM, or Pegasystems, that to this point have not entered the RPA discussion. For example, the BPM model will have steps external to the process, and the RPA step can be one of those. An RPA step can sit on a BPM queue and wait for execution. Look to RPA as an easy extension, as opposed to a competitive solution.
- **Have an open mind for stage 3.** True RPA cognitive apps are at least a decade away.[10] Yet providers are pushing hard to make cognitive investments and partnerships. For example, IPsoft is known for technology management support (i.e., software testing) but is now moving to broader business processes. It has launched a natural-language, artificial intelligence platform called Amelia that combines automation of repetitive tasks with human understanding.[11] Similarly, Tata Consultancy Services' emphasis on nonlinear programming is a promising direction. Look for RPA providers to use the growing list of IBM Watson APIs.
- **Use services providers to help locate repeatable processes.** The back office is a fragmented sea of disjointed tasks. Service companies must sort through and find repeatable process (i.e., find things to robotize). Often, the hardest part of implementation is discovering the process to automate. Service-led vendors are good at this.
- **Not avoid the real answer, which may be process transformation.** While today's RPA implementations drive economies in existing operations, there's a tendency for businesses to be seduced by tactical fixes that ignore the need for real process change.

Engage With An Analyst

Gain greater confidence in your decisions by working with Forrester thought leaders to apply our research to your specific business and technology initiatives.

Analyst Inquiry

Ask a question related to our research; a Forrester analyst will help you put it into practice and take the next step. Schedule a 30-minute phone session with the analyst or opt for a response via email.

Learn more about inquiry, including tips for getting the most out of your discussion.

Analyst Advisory

Put research into practice with in-depth analysis of your specific business and technology challenges. Engagements include custom advisory calls, strategy days, workshops, speeches, and webinars.

Learn about interactive advisory sessions and how we can support your initiatives.

Supplemental Material

Companies Interviewed For This Report

Automation Anywhere

Blue Prism

Infosys

IPsoft

Kofax

Nice Systems

Tata Consultancy Services

UiPath

Xerox

Endnotes

[1] Since turning to RPA to close its books, Wolters Kluwer has reinvested the money it saved into hiring a number of financial analysts to analyze profits, revenue, planning, and forecasting. Pilot Travel Centers used to spend 3,200 hours manually tracking and paying for orders; after implementing RPA, it was able to significantly reduce its full-time employee staffing. Source: Vipal Monga, "The New Bookkeeper Is a Robot," The Wall Street Journal, May 5, 2015 (http://www.wsj.com/articles/the-new-bookkeeper-is-a-robot-1430776272).

[2] Source: James Manyika, Michael Chui, Jacques Bughin, Richard Dobbs, Peter Bisson, and Alex Marrs, "Disruptive technologies: Advances that will transform life, business, and the global economy," McKinsey Global Institute, May 2013 (http://www.mckinsey.com/~/media/mckinsey/dotcom/insights%20and%20pubs/mgi/research/technology%20and%20innovation/disruptive%20technologies/mgi_disruptive_technologies_executive_summary_may2013.ashx).

[3] There's a lot of talk these days about the bleak future of employment: Claims that robots will steal all the jobs are commonplace in the media and in academia. For a review of Forrester's take on the future of jobs, see the "The Future Of Jobs, 2025: Working Side By Side With Robots" Forrester report.

[4] For more information on Forrester's projection of how many jobs will be lost to automation, see the "The Future Of Jobs, 2025: Working Side By Side With Robots" Forrester report.

[5] In January of 2014, Google acquired DeepMind, an artificial intelligence firm that specializes in machine learning, advanced algorithms, and systems neuroscience. It develops technologies for eCommerce and games and aims to develop computers that think like humans. Source: Geoff Duncan, "How DeepMind's Artificial Intelligence Will Make Google Even Smarter," Digital Trends, January 30, 2014 (http://www.digitaltrends.com/android/google-deepmind-artificial-intelligence/).

[6] According to a senior executive at an RPA vendor, unlicensed agents are the target, as they have a well-defined scope of knowledge, while licensed agents depend more on tribal knowledge.

[7] UiPath partners with BPO giants Capgemini and Cognizant. The product is the enterprise-class UiPath Back Office Automation Suite. Source: "Back Office Robotic Automation: Enterprise Ready Back Office Robotic Command Center," UiPath (http://www.uipath.com/back-office-robotic-automation).

[8] The Payment Card Industry Data Security Standard (PCI DSS) is a set of requirements designed to ensure that all companies that process, store, or transmit credit card information maintain a secure environment. This essentially includes any merchant that has a Merchant ID (MID).

[9] WorkFusion was conceived in 2010 at MIT's Computer Science and Artificial Intelligence Lab. The founders realized they could apply the technologies they were developing at the Lab to enterprise knowledge work. WorkFusion's platform lets users automate the sourcing, training, and quality control of online workers performing knowledge processes. Source: WorkFusion (https://www.workfusion.com/company/about-us/).

[10] Several promising directions for cognitive applications are in play. For example, cognitive computing vendor Digital Reasoning aims to allow employees to use natural language questions to summon insights from big data lakes. Other cognitive computing solutions like IBM Watson and Palantir turn data into dialogue with employees, too, helping to augment workers' capabilities. For more information on how computerization will replace routine tasks at scale, see the "The Future Of Jobs, 2025: Working Side By Side With Robots" Forrester report.

[11] Machine learning is a subfield of computer science and evolved from the study of pattern recognition in artificial intelligence. Machine learning uses algorithms that can learn and make predictions on data.

IPsoft Amelia is a virtual agent that analyzes natural language, understands context, applies logic, infers implications, learns, and senses emotions. As a result, it is vastly different from existing low-level virtual agents that only repeat scripted passages. Source: IPsoft (http://www.ipsoft.com/what-we-do/amelia/).

FORRESTER®
CHALLENGE THINKING. LEAD CHANGE.

We work with business and technology leaders to develop customer-obsessed strategies that drive growth.

PRODUCTS AND SERVICES

- Core research and tools
- Data and analytics
- Peer collaboration
- Analyst engagement
- Consulting
- Events

Forrester's research and insights are tailored to your role and critical business initiatives.

ROLES WE SERVE

Marketing & Strategy Professionals

CMO
B2B Marketing
B2C Marketing
Customer Experience
Customer Insights
eBusiness & Channel Strategy

Technology Management Professionals

CIO
Application Development & Delivery
- Enterprise Architecture

Infrastructure & Operations
Security & Risk
Sourcing & Vendor Management

Technology Industry Professionals

Analyst Relations

CLIENT SUPPORT

For information on hard-copy or electronic reprints, please contact Client Support at +1 866-367-7378, +1 617-613-5730, or clientsupport@forrester.com. We offer quantity discounts and special pricing for academic and nonprofit institutions.