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RPA, DPA, BPM, And DCM Platforms: The Differences You Need To Know

Apply Forrester's Automation Framework To Process Automation

by Craig Le Clair
March 1, 2019

Why Read This Report

Customer-obsessed transformation has pushed automation front and center, but it's difficult to choose among automation tools. Robotic process automation (RPA) is surging, but firms have invested billions in business process management (BPM) suites, now called digital process automation (DPA)-deep, and DPA-wide (low code) platforms. Enterprise architects are asking, "Should we invest in popular RPA tools, or can we reach the same business goal with DPA or dynamic case management (DCM)?" This report builds on Forrester's automation framework, applying nine core dimensions to answer process automation questions.

Key Takeaways

BPM, DCM, DPA, And RPA Approach Automation Differently
BPM platforms innovate, modernize, and continuously improve a process. RPA takes a tactical approach to isolate and remove process pain.

Nine Dimensions Point To Five Primary Automation Differences
Across nine dimensions, the biggest differences are in determinism, operating effect, robotics quotient (RQ), governance, and human-machine interaction.

BPM, DCM, DPA, And RPA Have Many Complementary Areas
The nine dimensions highlight differences in these technologies, but it's just as important to understand how they can work together.

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with Glenn O'Donnell, Chris Gardner, Rob Koplowitz, Amanda Lipson, and Diane Lynch
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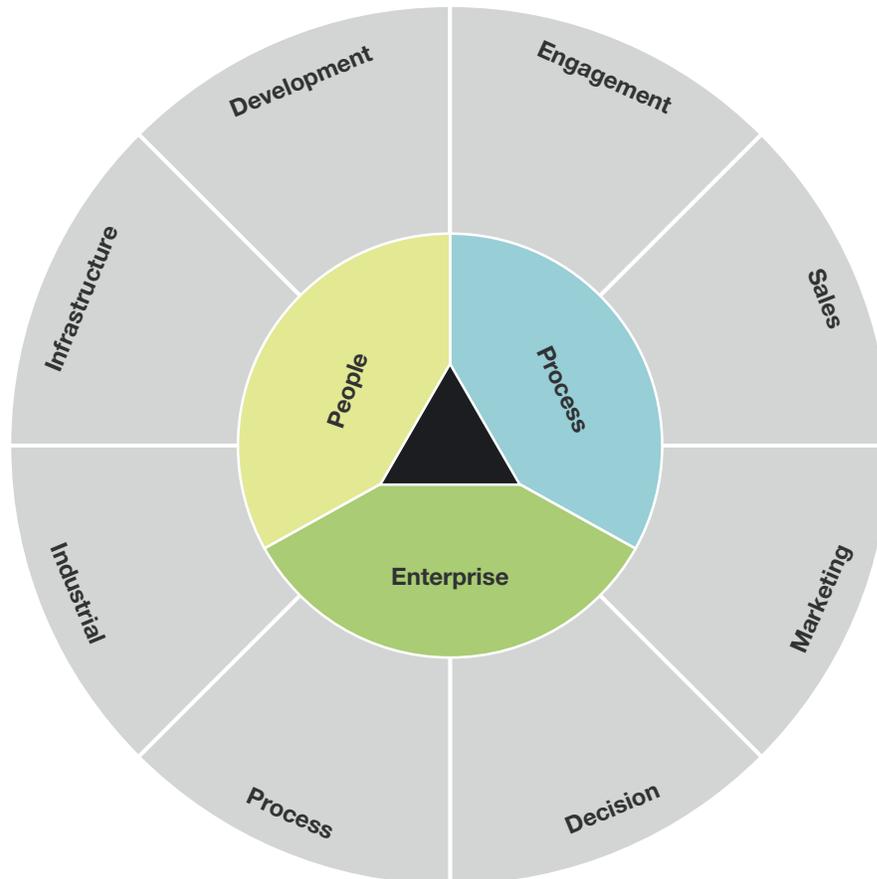+1 617-613-6000 | Fax: +1 617-613-5000 | forrester.com

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Differences Define RPA, DPA-Wide, DPA-Deep, And DCM

Two-thirds of global services decision makers at enterprises say they're currently engaged in digital transformation; 16% say they've completed it.[1] In 2019 and beyond, automation technologies will take center stage in these programs.[2] A broad set of tools is in play. To improve processes, enterprise architects must choose among a growing number of process automation options as a foundation of such transformations. Established tools like BPM suites, now called DPA-deep, are evolving as RPA, DPA-wide, and DCM expand capabilities and infuse machine learning for "smarter" process execution.[3] With this expansion, choices are even more confusing. Forrester has introduced its automation framework to guide your strategy and buying decisions (see Figure 1).[4]

FIGURE 1 Process Automation Is One Of Eight Major Categories Of Automation

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BPM, DPA, RPA, And DCM Take Different Process Approaches

BPM goes after deep, complex processes. DPA takes a lighter, viral approach with a customer- journey perspective. RPA ignores both deep process and the customer and digs into tactical efficiency. But the differences go further:

› **DPA-deep aims to transform and improve a business process.** BPM projects have a small number of highly skilled designers. Narrow, deep, and complex processes are the focus.[5] BPM helps enterprise architects understand where to innovate and how to standardize a process and provides metrics and tools for continuous improvement. Multiple design surfaces help skilled developers build UIs, create and model tasks, manage API connections, and develop reports. Most output to business process modeling notation formats to share process data. RPA platforms, by contrast, have a single design studio to build bot scripts and aren't adequate for digital transformation projects.

› **DPA-wide is designed for the masses.** The goal of DPA is to extend process design beyond small, highly skilled development groups to business users. Hundreds of users and applications are the design target. Projects for DPA should be managed by the business and delivered using low-code platforms and Agile methods. Also, DPA envisions customer access to applications through mobile or web front ends. As a result, the category is more associated with design thinking and customer journey optimization than DPA-deep is.

› **RPA is the ultimate low-touch approach for process improvement.** RPA assumes that the process will stay as-is and builds bots that replace low-value human hours. Populating tables, quality and testing, desktop consolidation, and replacing data entry tasks are typical targets. For example, an international bank required that staff enter data (much of it repetitive) into 50 different systems to onboard a new client. With no change to the process, the bank implemented RPA software to enter the customer data. Unlike BPM or DPA, RPA doesn't require API-based data integration, changes to underlying systems, or extensive employee training.

› **Case management provides human flexibility.** Many use cases move through a predicable set of transitions that resemble a use case. Investigations, incidents, and many service requests, for example, can be modeled this way. These tend to be less structured and more dynamic than typical BPM process flows. As a result, case workers can modify the process within certain guardrails. Leading BPM providers offer case frameworks, while specialist providers have excelled in government and legal applications.[6]

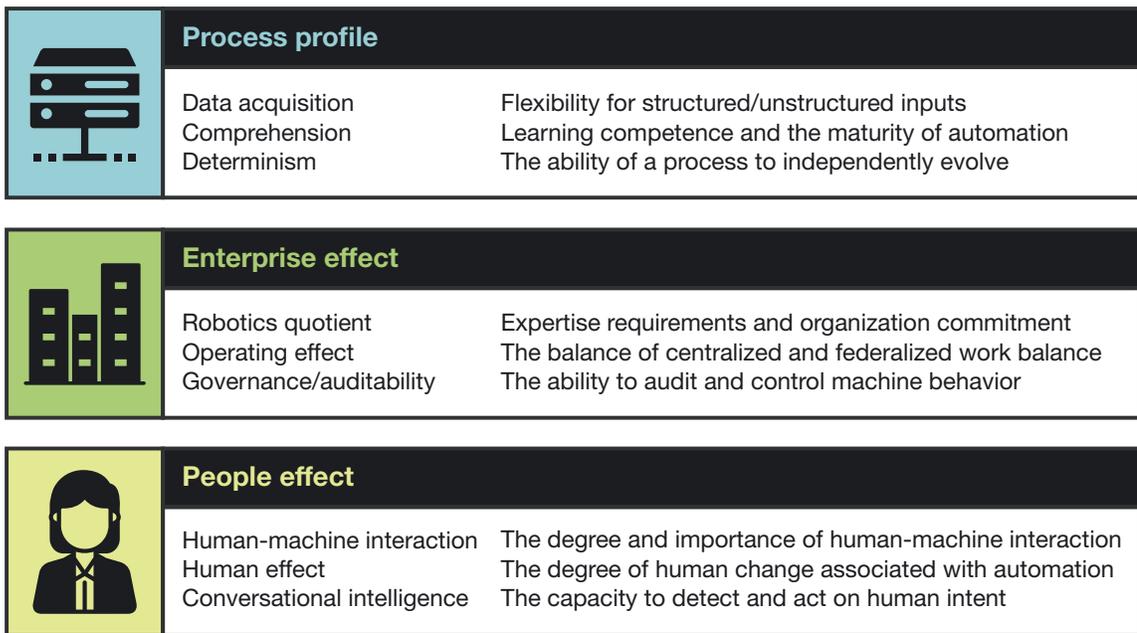## Automation Dimensions Put A Fine Point On The Differences

Forrester's automation research has introduced nine dimensions that can describe any form of automation (see Figure 2). Our visualization of the dimensions resembles an audio equalizer (see Figure 3). Each scale can be somewhere between high and low. It's important to note that high in the scale

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doesn't mean "good" and low doesn't mean "bad" — it simply indicates where the technology falls on the dimension's spectrum. Process, enterprise, and people ratings for the RPA, DCM, DPA-deep, DPA-wide, decision management, and chatbot platforms can explain differences to the business and align an automation technology to the right use case (see Figure 4).

FIGURE 2 The Forrester Framework Defines Nine Critical Dimensions To Compare Types Of Automation

Process profile

Data acquisition	Flexibility for structured/unstructured inputs
Comprehension	Learning competence and the maturity of automation
Determinism	The ability of a process to independently evolve

Enterprise effect

Robotics quotient	Expertise requirements and organization commitment
Operating effect	The balance of centralized and federalized work balance
Governance/auditability	The ability to audit and control machine behavior

People effect

Human-machine interaction	The degree and importance of human-machine interaction
Human effect	The degree of human change associated with automation
Conversational intelligence	The capacity to detect and act on human intent

FIGURE 3 An Equalizer Chart Plots An Automation Technology's Profile

Example: RPA

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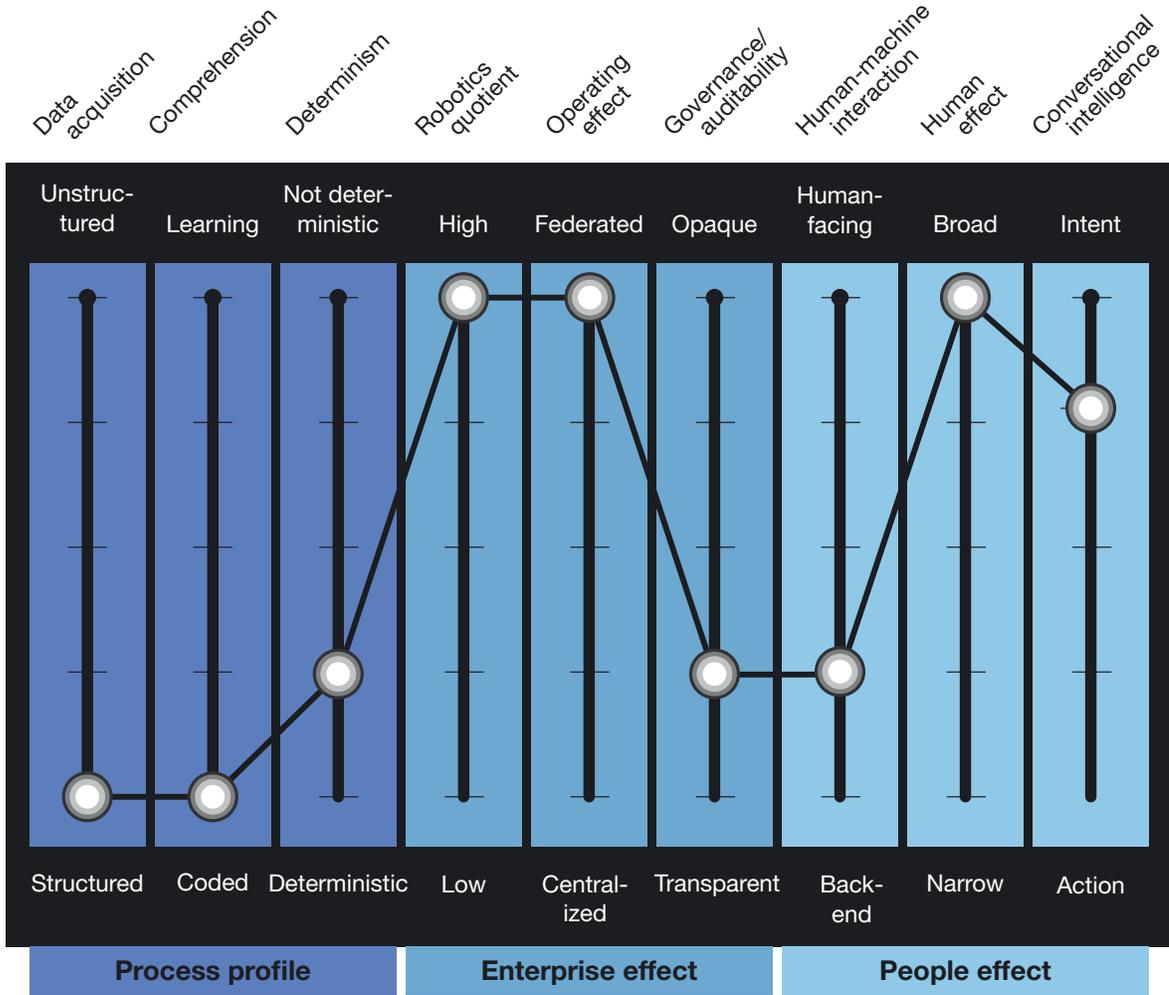
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FIGURE 4 An Equalizer Chart Contrasts Process Technologies With Select AI Components

Technology	Function	Vendor sample	Equalizer
DPA-deep (BPM)	Multiple design environments for overall process orchestration and continual improvement; targets narrow range of deep processes such as customer onboarding, invoice processing, and claims management	Appian, Bizagi, and Pega	
DPA-wide	Design environments for light process support; targets broad range of operational processes developed by business experts to improve efficiency and customer experience	Bizagi, K2, Mendix, and OpenText	
DCM	Multiple design environments; targets narrow set of less structured and deep processes that follow case and state transition patterns such as incidents, investigations, and service requests	Appian and Pega	
RPA	Creates software bots that mimic human behavior for low-value repetitive tasks in finance, HR, and lines of business	Automation Anywhere, BluePrism, and UiPath	
Chatbot	Understands a conversation via auditory or textual methods; two main tasks: understanding the user's intent and producing the correct answer or triggers an action	[24]7.ai and IPSoft	
Digital decisioning platforms	Digital decisioning platforms combine analytics, business-rules management, and business process automation; targets insight-to-action cycles for individual customers, informed offers, and services	Decisions, FICO Blaze Advisor, and IBM	

The Process Dimensions Show The Biggest Gaps

DPA-deep, DCM, and DPA-wide have roots in early workflow products that first digitized and managed paper-based use cases. Each new generation made programmers and process developers more efficient, but process design was always the focus. RPA's roots are different. They stem from desktop technologies that built macros and used screen scraping and light automation. These origins have led to differences in managing processes. Process dimensions show:

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› **Data acquisition: DPA-deep, DCM, and DPA-wide need help with unstructured data.** Before automation can do its job, data needs to enter the system. The data acquisition dimension describes the acceptable input. On one end of this scale are tools that accept highly structured data. RPA, for example, can process data only when it's available in a structured or tagged format. But close partnerships with text analytics providers give these tools an edge over the others. Chatbots are very different in this dimension. They take in largely unstructured data (e.g., humans texting/talking) and apply a mix of coded/deterministic and learning/nondeterministic behaviors to process it.

› **Comprehension: DPA-deep, DCM, and DPA-wide are slow learners today.** The potential to autonomously update algorithms from refreshed data and experience is the great potential of AI. Today, RPA, BPM, DCM, and DPA platforms have no native comprehension support, but this is changing. Case management has become closely linked with predictive analytics to drive the next-best-case action. RPA platforms are embedding machine learning and chatbots directly into their platforms. BPM providers are stepping up decision management through access to external data repositories based on machine learning.[7]

› **Determinism: DPA-deep, DCM, and DPA-wide get from point A to point B differently.** A highly deterministic system follows a specific, predefined workflow that doesn't expect deviation: Do A, then B, then C. BPM is a good example. A process map clearly defines all paths. RPA is deterministic as well, as decisions or steps are coded directly in the bot. Case management allows a human to alter the process flow in real time and is less deterministic than BPM or RPA. A decision management system may use machine learning to adjust a process based on probabilities (i.e., it will evolve more independently than the others).

The Enterprise Dimensions Show Variance For RQ And Federation Needs

This grouping of process technologies (DPA, RPA, DCM, and BPM) are use case-agnostic. They were all designed to automate previously unknown tasks or workflows for hundreds of divergent processes. As a result, enterprise effects will vary, depending upon the target use case. But in general:

› **Robotics quotient: RPA requires a bit more robotic aptitude.** Some automation requires a thorough understanding of the internal gears to use it, while just about anyone can use others. We define this aptitude as robotics quotient (RQ). The enterprise perspective for DPA, BPM, and DCM requires a low degree of RQ to engage with it. RPA, by contrast, requires a higher RQ. New issues such as credential security, new management platforms for controlling robots, and change management are all required RQ skills.[8]

› **Operating effect: RPA and DPA push responsibility to the business.** As you implement more automation, you transform the employee or customer experience, and sometimes both. Some, like a call center RPA bot, may just eliminate an annoying and repetitive task (i.e., may have little operating effect). Others, like a new decision management system for loan origination, might

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eliminate an entire department. Independent of any use case, RPA and DPA shift responsibility for design, development, and maintenance of the function being automated to the employee or customer. BPM and DCM maintain those responsibilities in a centralized application group.

› **Governance/auditability: RPA and DPA are more transparent.** Once you implement automation, you need to manage and control it to meet compliance and risk needs. On one end of this dimension, humans have complete control of all decisions with clear audit ability. RPA and DPA fall here. They have a significant degree of transparency and verification to make sure the system is running right. BPM and DCM — due to more sophisticated rules management and use of predictive analytics — are more difficult to govern and audit, but they're far more transparent than decision management that relies on machine learning algorithms.

The People Dimensions Show That RPA Has Stronger Human Effects

As you automate, you change humans' experiences. Some automation systems communicate directly with humans, while others prefer to speak only to other machines. Some automation dispenses with people entirely. We can judge this in the people dimensions:

› **Human-machine interaction: BPM likes machine communication.** Human-machine interaction outlines to whom (or what) the automation is talking. BPM has limited human interaction. The design environment may construct custom forms to collect data from humans, but mostly, BPM speaks to other systems and has extensive APIs and connectors to do so. RPA has no human interaction without help. It works by controlling desktop and web applications, so it's system focused. Chatbots, by contrast, can't function without human input.

› **Human effect: It's more dramatic with BPM and RPA.** Automation will affect customers and employees differently. BPM is often used to modernize a process. This means it will have an impact on organizations and people. RPA is a more direct effect. It can replace low-value human tasks and often replaces people.[9] DPA gives humans more autonomy to improve their work but has more modest human effects.

› **Conversational intelligence: This is an early stage for the group.** BPM, DPA, and DCM automations perform a set series of tasks, driven by schedulers or an event system. They're low on the scale for conversational intelligence. RPA is scaled higher, as several vendors have now embedded AI-driven chatbots into their platforms. Vendors like NICE and Pegasystems, for example, have chatbots that apply text analytics to agent-assisted interactions to help judge the customer's true intent.[10]

BPM, RPA, DPA, And DCM Have Complementary Areas

It's important to understand the differences among these technologies, but it's just as important to know how they can work together. Forrester sees silos of automation developing in enterprises — and it's a disturbing trend. Take the view that:

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› **RPA works independently of, or in conjunction with, DPA-deep and DCM.** Primary BPM and DCM vendors like Appian, Bizagi, IBM, and Pegasystems have all entered the RPA discussion. At least for now, they view RPA as an easy extension rather than a competitive solution. For example, Citizens Bank has combined Bizagi's BPM solution with Automation Anywhere's RPA solution in its commercial lending process.[11] The bank has deployed bots to create cases and gather data from websites and legacy systems for a case file.

› **BPM and RPA have three primary integration points.** BPM provides an end-to-end process view. Steps are set up as queues where humans get and return work (see Figure 5). The RPA bots won't build this orchestration layer, but they can replace or augment the humans that do the work. BPM is also good to route around bot failures, perhaps to a human queue, and to coordinate digital workers and other cognitive services. RPA nicely augments the API integration provided by DPA-wide solutions. A process step will often trigger a web services call to another system. But BPM lacks an integration solution for legacy apps and websites that have no APIs or for which data integration is too costly. RPA bots can act as middleware that can access data from core systems through the existing UI.

› **Combining or coordinating BPM and RPA centers of excellence can be valuable.** Enterprises are rapidly building automation centers that start with RPA. The objective? Reduce the risk, chaos, and proliferation of RPA tools. Many of these firms already have BPM centers of excellence. These have expertise in process assessment, which is critical to applying RPA in the right spot. They shouldn't create an either/or approach but rather provide a cohesive view to help the business align a use case with the right automation.

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FIGURE 5 BPM And RPA Are Complementary
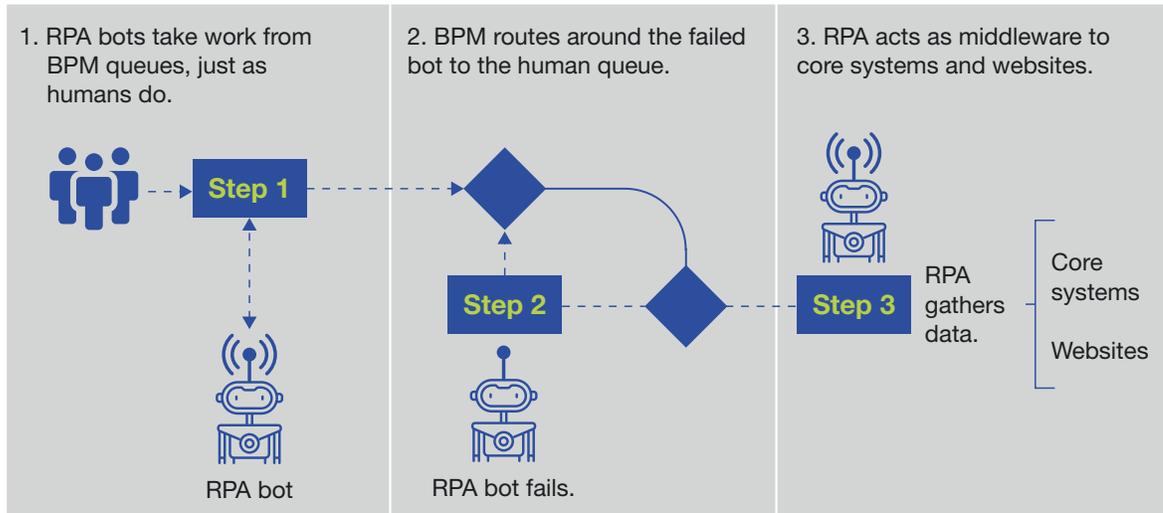
Recommendations

Align Process Automations With The Right Use Cases

RPA's growth is staggering, with the market expected to grow to $2.9 billion by 2021.[12] Enterprise architects have decades of sunk investment in BPM and case management, and now interest is growing in low-code platforms and emerging cloud options for process orchestration. It's more challenging than ever to pick the right process automation approach. But it helps if you:

› **Use the automation principles to understand your needs.** The nine dimensions compare different automation technologies across process, enterprise, and people aspects. And they also can help you understand your business requirements. Use the dimensions to understand what automation you need. If your process involves structured data, is deterministic, involves repetitive tasks, and must be transparent, then RPA would be the right solution. If you deal with unstructured data, look to text analytics. If you want to communicate with humans, look to chatbot platforms. If you want to augment human decision making, look to machine learning.

› **Mind the "rule of five" for RPA deployments.** RPA uses simple rules: Grab a cell from a spreadsheet or database, compare it with a number, and then open another app and post a value to a core system. Tasks that meet our rule-of-five principle for RPA process assessment (i.e., fewer than five decisions) are ideal.[13] But what if you have a hundred or a thousand rules that you often update? In that case, look to a BPM or case management solution with embedded rules management.

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› **View RPA as an emerging platform for AI progress.** Enterprise architects can view RPA progress on a spectrum that starts with tactical digitization and ends with advanced cognitive functions that can manage exceptions. RPA will incrementally embed machine learning and chatbot support to expand value and use case coverage. Use RPA to develop your RQ and formalize roles in your automation center and operating model.

What It Means

The Framework Guides Every Process Challenge

Automation is exploding on the scene, poised to radically alter the lives of those it touches. But noise is polluting the market, as every process technology now claims that it includes AI. While a handful do (to various degrees), the lack of an automation framework opens all automation technologies to misguided interpretation. The Forrester automation framework lays out a model upon which enterprise architects can distinguish among process automation alternatives and then develop, position, and deploy them. With a sound foundation in place, you can help filter out the market silliness and identify the technologies that truly will reshape your world.

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Supplemental Material

Companies Interviewed For This Report

We would like to thank the individuals from the following companies who generously gave their time during the research for this report.

Bizagi   UiPath

IBM

Endnotes

[1] Source: Forrester Analytics Global Business Technographics® Global Business And Technology Services Survey, 2018. For more on this trend, see the Forrester report "Challenge Traditional Leadership To Win At Digital Transformation."

[2] For more on Forrester's predicted future of automation, see the Forrester report "Predictions 2018: Automation Alters The Global Workforce."

[3] This report presents the state of AI-infused RPA and discusses to which use cases this combination best applies for now. See the Forrester report "Look To Four Use Case Categories To Push RPA And AI Convergence."

[4] To learn about Forrester's automation framework, see the Forrester report "Digital Transformation Demands A New Automation Framework."

[5] For a deeper review of BPM and DPA differences, see the Forrester report "Refocus Process Automation To Rescue Your Digital Transformation."

[6] Forrester has written extensively about case management systems. See the Forrester report "The Forrester Wave™: Cloud-Based Dynamic Case Management, Q1 2018."

[7] Forrester interviewed IBM's BPM group, which is launching an AI-based integration with the BPM portfolio, in December 2018. UiPath and Automation Anywhere are integrating machine learning into their RPA platforms.

[8] For a review of RQ in detail, see the Forrester report "RQ: Assess Your Readiness For Working Side By Side With Robots And AI." Refer to the RPA operating model to understand specific competencies required for RPA. See the Forrester report "RPA Operating Models Should Be Light And Federated."

[9] Forrester's market forecast for RPA shows growth to $2.9 billion by 2021. This is based on elimination of more than 4 million cubicle workers. In other words, expect a dramatic human effect. See the Forrester report "The RPA Market Will Reach $2.9 Billion By 2021."

[10] Intent helps determine the unrestrained voice of the customer (VOC). For more information, see the Forrester report "Unlock The Hidden Value Of Chatbots For Your Customer Service Strategy."

[11] Source: a case study provided by Bizagi. The BPM solution digitizes incoming application data via forms and workflow execution. This allows RPA to complete the end-to-end process digitally.

[12] Forrester's forecast for the market shows strong growth for the next five years. See the Forrester report "The RPA Market Will Reach $2.9 Billion By 2021."

[13] For more information on the rule of five, see the Forrester report "Use The Rule Of Five To Find The Right RPA Process."

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