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December 2018

Point of View

Smart Automation: Enabling the Future of Finance

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Executive Summary

Digital transformation and a fast-changing global business environment are putting pressure on finance to perform at new levels of efficiency, effectiveness and experience. That means finance must keep up – or ideally anticipate – the evolving expectations of its stakeholders. Finance, however, is constrained by resources and technology agility – that is, the function cannot adapt its technology platform fast enough to respond to evolving business demands. Smart automation is an emerging group of disruptive, flexible and cost-effective work methods and tools that includes robotic process automation (RPA) and cognitive automation. It is fast becoming an indispensable part of the toolkit to fix this expectation gap for those organizations with the insight and discipline to deploy it.

The finance vision: How soon can it be a reality?

Picture a finance function that runs at a 25% lower cost than it does today; responds rapidly to changing business requirements; focuses its brainpower on the highest value work; and delivers the timely insights that management, suppliers and customers expect, fulfilling its aim to be a strategic partner for the business. How did it accomplish this? By supplementing existing core systems, people, data and finance tools with new automation capabilities that allow it to perform work differently than it does today **(see sidebar** on page 3**)**.

This aspirational view is not so far-fetched. In the next three to five years, smart automation will deliver such transformative gains in efficiency, effectiveness and experience. But the route to getting there is not yet clear to all.

What is holding us back?

Businesses, like economies, are in the midst of a transition from legacy operating models to the digital age. While these operating models are becoming obsolete, companies still rely on the hard-wired process automation platforms that revolve around the ERP and legacy core systems, fixed business rules and human task automation. The rate of change in business, though, exceeds most organizations' ability to adapt these systems and platforms. Because of the complex nature of these technologies, IT organizations are challenged to improve and update them fast enough to meet business demands. The result is an expectation gap around technology agility that is sizable and growing.

As business transformation accelerates, the opportunity cost of the technology agility gap increases. Said another way, the value and competitive advantage of having a smart and adaptable business technology platform is growing.

Smart automation is an emerging family of automation technologies that are part of the foundation for digital transformation **(see sidebar** on page 2**)**. They share a set of traits focused on speed of implementation, cross-functional flexibility and cost-effectiveness that set them apart from traditional ERP and process-specific tools. When used together in the right way, smart automation can help finance close the technology agility gap and realize its future vision.

Understanding smart automation

The Hackett Group defines smart automation as optimized execution of work through five specific tools and technologies: robotic process automation, intelligent data capture, conversational interfaces, cognitive automation and orchestration. Smart automation works in conjunction with ERP, core systems and best-of-breed solutions, but it is distinct in that it is a toolkit made up of new, cross-functional and cost-effective technologies that can be put in place rapidly to fill gaps in current capability.

The following table defines and illustrates the key attributes and benefits of smart automation technologies:

Technology	Role/description	Example	Key attributes	Primary benefits
Robotic process automation 	**Mimics transactional human computer work** Software (robots or bots) that emulate human execution of routine – primarily clerical/administrative – tasks on business applications	Robot reads, collates and updates vendor information on multiple systems.	• Performs rule-based tasks on structured data • Is typically applied at a user interface level • Operates using existing applications, systems and processes • Works with almost all user applications/systems • Does not require significant integration and is less expensive than an ERP or workflow tool	• Enables full-time equivalent (FTE) reduction/redeployment • Accelerates processes • Improves quality, accuracy and control • Increases responsiveness
Smart data capture 	**Extracts information from structured and/or unstructured data in analog files, documents and images** Includes technologies such as optical character recognition (OCR), handwriting recognition, speech-to-text, machine reading and image recognition	Reads and classifies unstructured invoices, which may be in the form of a contract or statement of work	• Reads and captures large volumes of analog or digital inputs • Digitizes/converts it into a format suitable for downstream processing • Combines capture activities with classification and tagging activities	• Enables FTE reduction/ redeployment • Accelerates processes and turnaround • Improves quality, accuracy and control • Produces enhanced insight
Conversational interfaces 	**Mimics human spoken and written interaction** Technologies that focus on linguistic interaction with people, particularly chatbots and virtual assistants. These often build on machine learning, natural language processing and natural language generation (NLG) to enhance human-to-machine and machine-to-human communication.	Virtual agent receives and responds to buyers' invoice queries.	• Understands human queries in a realistically human way (by voice-to-text chat) • Enables organizations to scale up customer/ supplier/employee engagement capabilities around the clock • Leverages AI and machine learning to steer and optimize conversations based on history and new insights about caller requirements	• Enables FTE reduction/ redeployment • Improves responsiveness • Delivers a better customer experience • Increases contact coverage and enables personalized service at scale • Enables omnichannel delivery
Cognitive automation 	**Imitates human judgment and perception** Technologies that process unstructured, complex or high-volume information to provide insights, judgments and predictions	Pattern recognition tools to identify anomalous payment patterns; predictive modeling to generate more accurate budgets and forecasts	• Uses data to identify patterns and make recommendations • Predicts events or outcomes • Prescribes or recommends decisions • Is dynamically adaptable, making it contextually aware and operational in real time • Powered by a range of AI technologies often combined with machine learning so the automation can improve over time	• Improves quality, accuracy, control and risk management • Produces new insights • Enables new capabilities and services • Equips employees to deliver greater value • Automates nontransactional activities that previously required judgment and expertise
Orchestration 	**Coordinates execution of work** Coordinates work executed by established systems, human workers and smart automation tools. In particular, enables ticketing, case management and performance improvement.	Monitors invoice receipt and adjusts pace of data capture and RPA activity when exception volume exceeds a level that resources cannot handle	• Monitors work taking place in an environment • Identifies a resource constraint • Takes action or applies resources to address the constraint • Makes process changes dynamically based on what is happening in the environment (e.g., slowing robotic processing when the process generates a higher than normal number of exceptions) • Links together the different systems and workers needed to perform a process (as opposed to individual automations that are usually at task level)	• Accelerates processes • Improves quality, accuracy and control • Optimizes use of assets • Controls and manages dynamically the process at scale • Reduces downtime • Smooths the use of operational resources

What does the future of finance look like?

The finance function of the future works in a smarter, more efficient way:

- It automatically captures, classifies and understands all incoming paperwork, invoices and emails, and updates the enterprise resource planning (ERP) system and systems of record.
- Its virtual assistants talk with key suppliers to answer a wide range of queries.
- It predicts delinquent customer payments and automatically activates remediation.
- Bots crunch through transactional backlogs in accounts payable processing, cash application and reporting near instantaneously.
- Finance experts in controlling, audit, planning and other areas focus on these activities, rather than crunching data and correcting mistakes.
- It aligns talent along end-to-end processes and can direct them more dynamically to work on the issue of the day or a particular area of focus.
- It generates rich and accurate budgets and plans, using multiple parallel AI techniques based on all the data available to the organization.
- It recognizes and unblocks process bottlenecks caused by paperwork and unstructured data, using rapid and effective case management capabilities that link human and digital workers.

These technologies are not employed in a linear fashion where one must be in place and mature before the others are introduced. Rather, they represent a mixed toolkit of technologies that continues to evolve. This means finance can start with any one of them and then add others to extend the overall automation of the process, i.e., it doesn't have to wait on the development of a larger master plan.

Smart automation tools are interdependent, and their impact on digital operations grows exponentially when they work in concert. Following is an example of how smart automation improves performance and increases agility in the receipt, handling and payment of invoices.

Company A's finance organization has used OCR software to read and capture data from structured invoices – that is, invoices received in a standard format with purchase order, product number and description, quantity, unit price, tax and other information in defined locations. Invoices received in other formats (exceptions) required human processing. The company conducts trials of new intelligent data capture technology with capabilities for learning how to recognize and capture data presented in nonstandard formats, allowing it to automate receipt of both structured and unstructured invoices.

Finance then introduces robotic process automation to handle manual tasks related to processing the received invoices, such as verifying that the vendor is already in the system. If the vendor is not in the system, then the bot may be programmed to perform certain other tasks related to adding the new vendor. Together, intelligent data capture and RPA reduce the need for manual work and speed the time to processing.

The organization extends smart automation to its invoice handling processes by adding conversational interfaces that allow buyers or others to query the system about invoice status. This alleviates the need for human workers to respond to such inquiries and increases responsiveness. Orchestration technology adds the capability to monitor invoice processing. When it observes an unusually high number of exceptions generated by the bot, it can slow processing temporarily to allow human workers to clear the backlog of exceptions – or, it can add or reallocate resources to clear the backlog more quickly.

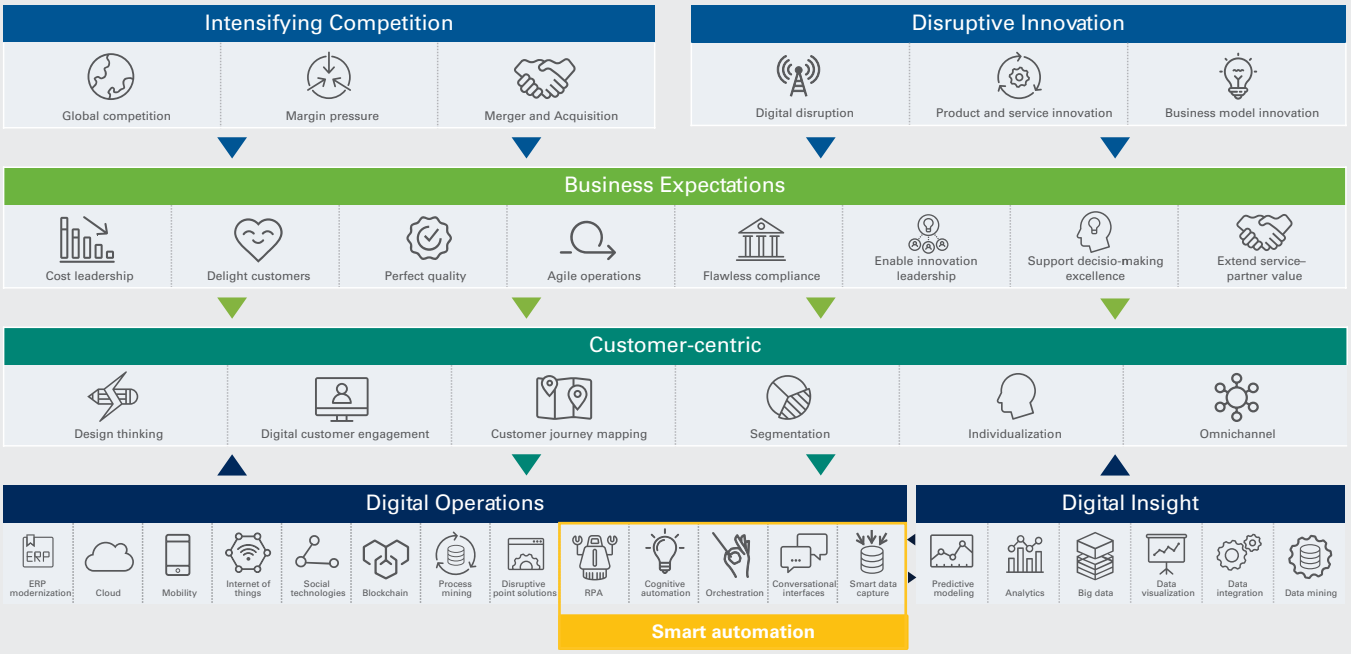
Finally, the company adds cognitive automation that can aid in making payment decisions based on financial or other needs. For example, it recognizes factors such as the presence of a 10% discount for early payment and the company's cash target to facilitate decisions about whether to take the discount. If the company is on track to achieve its cash target for the period, then it automates early payment in order to realize the discount.

With smart automation, Company A is able to respond faster to change than traditional automation and processes would have enabled. Moreover, it achieves this level of agility faster than it would have by updating traditional automation solutions **(see sidebar** on page 6**)**. In other words, it has moved quickly to close its technology agility gap.

Smart automation is part of the foundation for digital transformation

Digital transformation is often narrowly viewed through the lens of the technology innovations that enable finance's transition to a digital service delivery model. In actuality, technology is only one piece in a larger puzzle comprised of interacting and interdependent forces, which also include changes in the external business environment, internal business expectations and a reorientation of service delivery centering on the customer. The totality of the digital transformation landscape can be depicted in four layers (Fig. 1).

FIG. 1 Digital transformation landscape

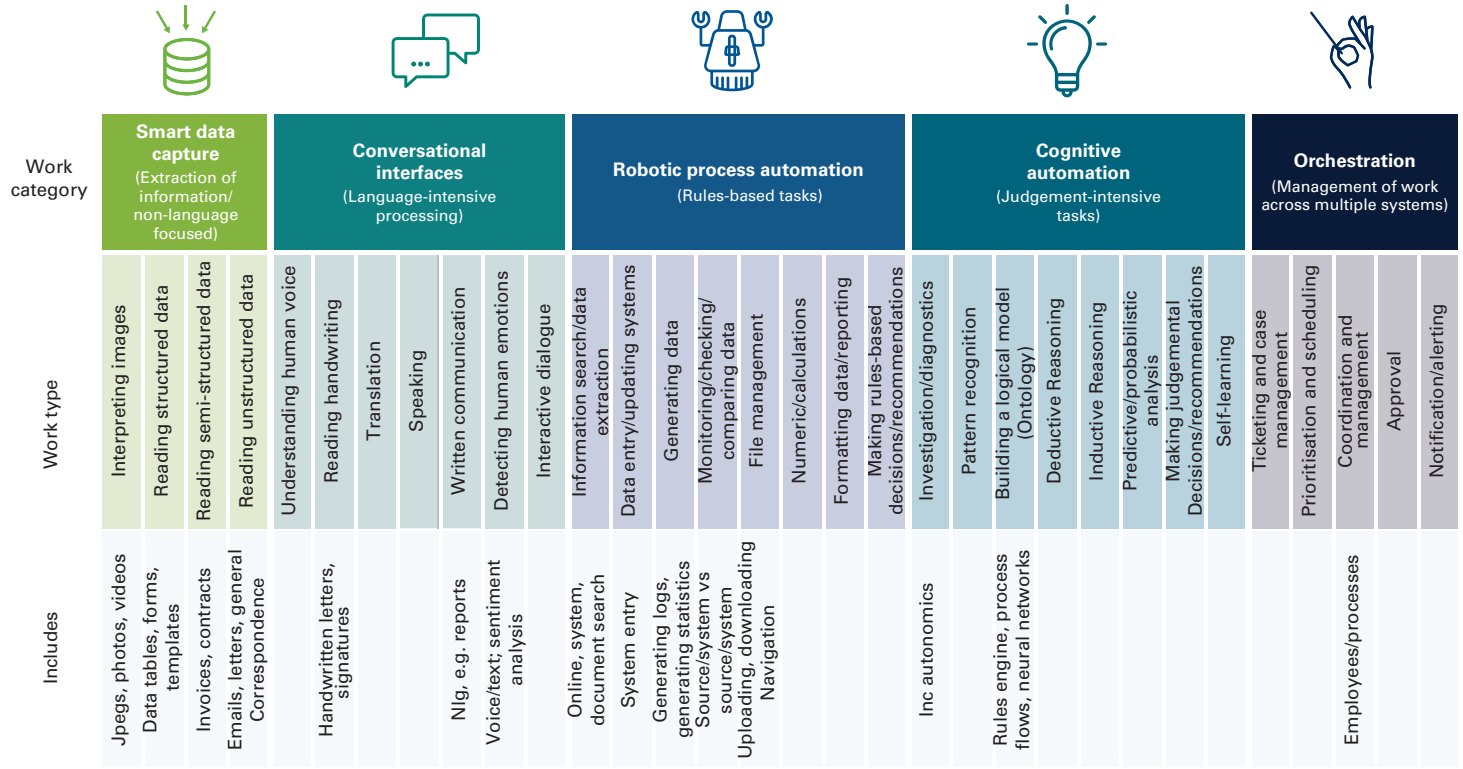


To make this transition, finance must master a number of technologies and skills (the fourth layer) – some well-established and others still emerging. One of two foundational building blocks at the base of the transformation landscape is made up of technologies that enable digital operations. The most impactful of these are evolving traditional technologies, such as ERP, best-of-breed finance-specific point solutions and process mining, in conjunction with newer entries that have reached technical maturity, such as cloud, RPA and mobility/social applications. On the horizon are emerging technologies with the potential to deliver on the promise of smart automation, such as conversational interfaces and cognitive automation. Next-generation innovations, such as blockchain, are further off but highly promising. Digital insight is the second foundational block, comprising technologies such as analytics, data mining and data visualization. While depicted as two discrete technology types, in practice some technologies span operations and insight. Process mining, for example, relies on analytical techniques, while the information source for big data may be smart data capture or internet of things technology.

Finding the right and best opportunities to introduce smart automation

Identifying and pursuing the right opportunities is essential to realizing the benefits of smart automation and closing the technology agility gap. Smart automation focuses on different types of work, such as data entry, voice interaction or pattern recognition. Answering the question of where to introduce smart automation starts with an understanding of the work that is to be automated because the characteristics of these work types lend themselves to different smart automation technologies. The Hackett Group uses its Digital Work Model (Fig. 2) to decompose the spectrum of work types – ranging from highly repetitive transactional extraction and entry activities to complex analysis and prediction – that organizations can automate using each key element of smart automation.

FIG. 2 The Hackett Group's digital work model depicts examples of smart automation opportunity



These varied work types are scattered across all processes. Even for organized and standardized processes, work types are rarely neatly segmented in an end-to-end process, so getting clarity on the specific opportunities for work automation is the first and most important step in any smart automation journey. It is important to understand that for a particular company every process will have a unique set of smart automation opportunities – therefore, the work automation map will differ from process to process and company to company (Fig. 3 on page 6).

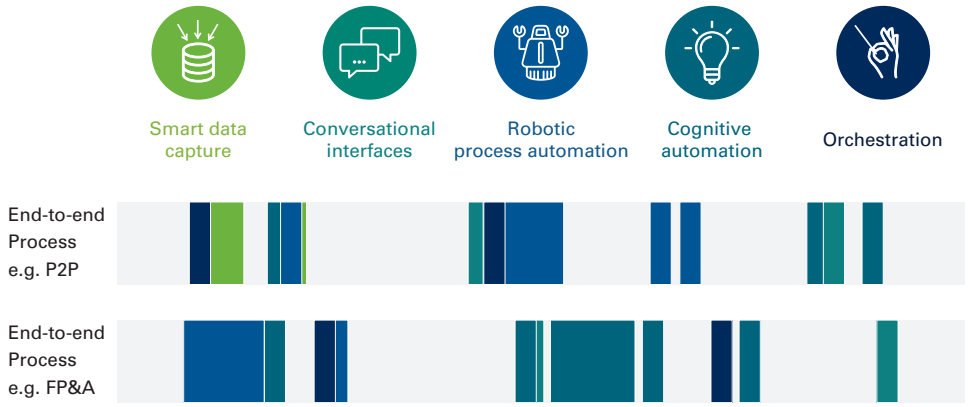
How smart automation differs from traditional automation

Traditional automation solutions – such as those driven through ERP applications or process-specific core systems – typically require projects with extensive planning, substantial resources, lengthy implementation cycles and extensive reliance on the IT function. On the other hand, smart automation:

- Is easier and cheaper to maintain than traditional technologies.
- Allows the organization to start small and then build complexity and scale.
- Includes flexible tools that can be used across multiple functions.
- Is owned and driven by the business and supported by IT, rather than the other way around.
- Employs agile, hybrid methodologies, including short, iterative and collaborative development cycles that enable faster implementation and benefits.

Most finance organizations do not have a choice between traditional automation and smart automation. In practice, they will continue to rely on and invest in ERP, core applications and best-of-breed tools. These will provide the foundation, leaving smart automation to support, accelerate and enable process improvements where traditional solutions are too expensive or time-consuming to adapt.

FIG. 3 Each process presents a unique blend of smart automation opportunities



A prudent approach to smart automation will start by scanning end-to-end processes – such as customer-to-cash (C2C), procure-to-pay (P2P) or account-to-report (A2R) – to understand the different type of work that is being carried out and highlight the telltale issues and indications of opportunity:

- Labor-intensive bottlenecks and resourcing headaches indicate opportunities to improve efficiency.
- Slow processes, errors and work inaccuracy indicate opportunities to improve effectiveness.
- Unresponsiveness and poor experience indicate opportunities to improve customer or user experience.
- Underused or unused data and documentation indicate opportunities for the organization to act with maximum foresight and intelligence.

Based on an initial scan, finance can then apply formal evaluation criteria to home in on the specific activities that provide the most potential. This must be followed by a deep-dive analysis of opportunities in detail – down to screen and keystroke level – enabling the scoring of opportunities based on benefits and feasibility and the prioritization of a road map.

The Hackett Group has analyzed and identified the typical high-potential opportunities for deploying smart automation across key finance processes, including C2C, A2R, planning and performance management, and business analysis. This analysis reveals a complex map of opportunities that reflect the gaps in typical legacy technology capability. **Fig. 4** on page 7 provides an example of this patchwork of opportunities – in this case based on an extract of the C2C process.

FIG. 4 Smart automation potential in the customer-to-cash process (illustrative extract)

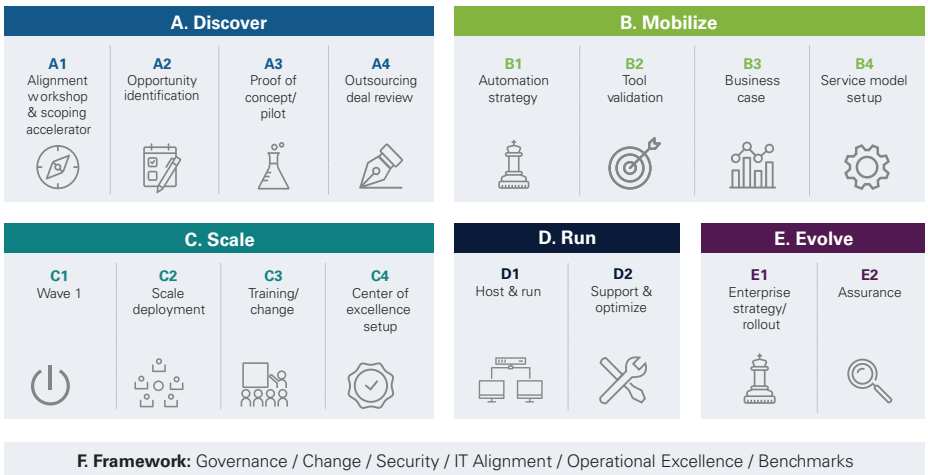
Level 1		Level 2	Smart data capture	conversational interfaces	RPA	Cognitive automation	Orchestration
C2C	Order management	Receive customer request	High	Medium	High		High
		Quote order		Medium	High		High
		Validate/verify order			High		High
		Commit order			High	Medium	High
		Communicate promise date			High		High
	Setup/ maintain customer master	Review order request			Medium	High	Medium
		Create customer contact data			High		High
		Update customer master data			High		High
		Setup electronic payment information			High		High
		Assign commercial classification			High		High
		Create customer pricing profile			High		High
	Credit function						
	Customer billing						
	Collection						
	Cash application/ accounts receivable						
	Dispute management						

Next steps

Identifying the initial opportunities for smart automation is only the start of a longer journey. Introducing smart automation requires commitment and sponsorship to drive through the required business change, good governance to coordinate the many different inputs required and a program of capability building as the scope and ambition of automation grows.

For now, the most important step is the first step: acknowledging the pain points that indicate a technology gap and then mobilizing to understand how smart automation technology can help close that gap.

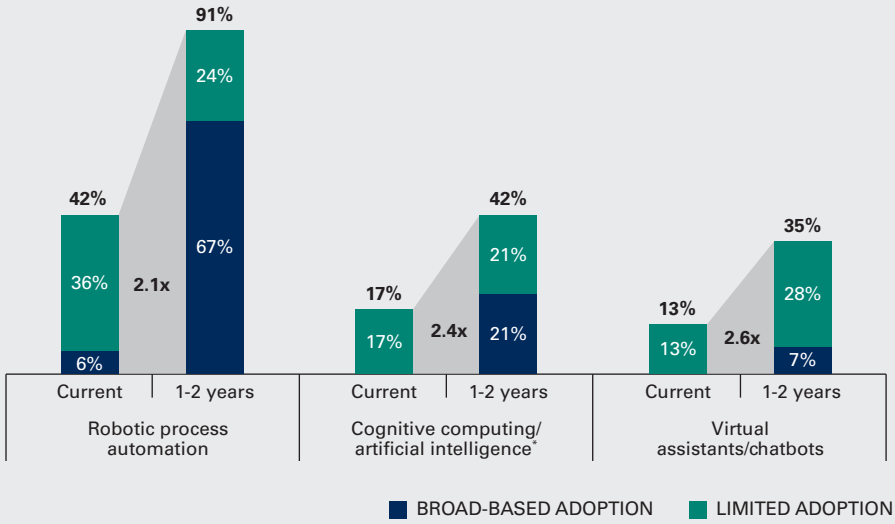
FIG. 5 The Hackett Group's Smart Automation Road Map sets out the primary challenges that organizations will need to master for this journey



Smart automation adoption trends and opportunities in finance

Until recently, finance has been relatively slow to adopt emerging smart automation technology to this point, but The Hackett Group's data suggests we are now on the cusp stage of exponential growth. The 2019 Key Issues Study revealed a significant projected increase in technology adoption, particularly for RPA (**Fig. 6**). Two-thirds of finance executives expect their organizations to use RPA on a broad-based (enterprise-wide) basis within one to two years. Broad-based adoption of other smart automation technologies like cognitive computing and virtual assistants will remain lower, but experience significant growth in adoption over the next one to two years.

FIG. 6 Current and projected technology adoption in finance



* Including machine learning, natural language processing, speech recognition, expert systems, augmented reality

Source: Key Issues Study, The Hackett Group, 2019

About the authors

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Mr. Dorr has over 20 years of experience in consulting, research and advisory roles in information technology strategy, enterprise application suites and business process reengineering. Before being named to his current position, he was senior enterprise research director. Prior to joining The Hackett Group, he held a number of senior management positions, including vice president of IT at a global manufacturing company, where he was also a member of the executive leadership team.

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Mr. Kumar's career spans over 23 years of international experience in business services transformation and globalization. His work has focused on design, build and operations of global, multi-function shared services organizations. Mr. Kumar has worked with and advised global companies in developing global shared services strategy, organizational design of the service delivery model, risk and compliance assessment, outsourcing, building and operating global centers, and M&A integration. Mr. Kumar worked in corporate, consulting and outsourcing provider organizations before joining The Hackett Group, including an executive position at a leading global engineering and design firm, where he led the global shared services and outsourcing organization.

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Paul Morrison leads the smart automation practice at The Hackett Group. His work helps clients maximise the benefits of RPA and cognitive automation, often as part of a larger digital transformation. This includes the development of RPA strategy and pilots, and live implementation, based on The Hackett Group's Smart Automation Routemap. Paul has 20 years' advisory experience, extending beyond automation into benchmarking, innovation and outsourcing, and covering both IT and business processes. Based in London, Paul works with clients across Europe and globally.

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