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Here Come the Bots

Robotic process automation can make business processes more efficient, boost productivity and save lots of money. CIOs need to help identify RPA sweet spots and choose the right tools.

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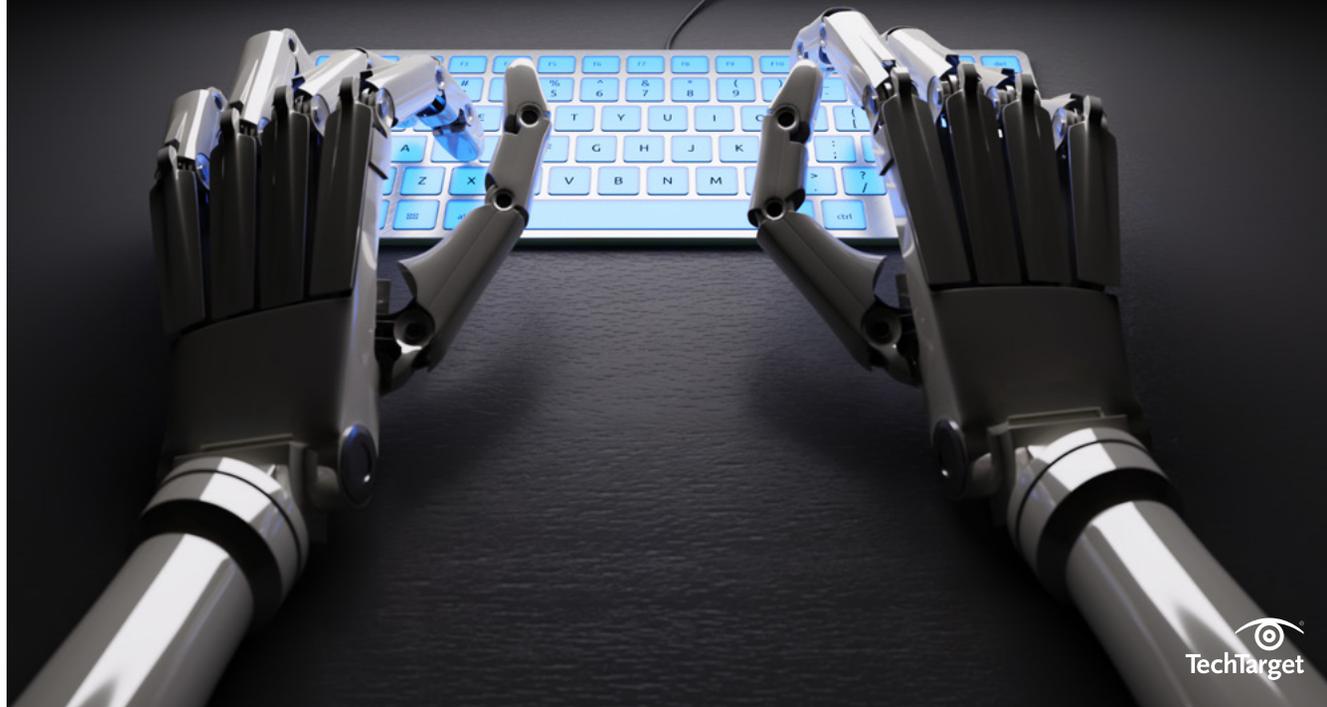
Sue Troy
Editorial Director

Robotic Process Automation: How IT Can Help

WHEN SENIOR EXECUTIVE Editor Linda Tucci set out to write this month's cover story, she knew she had a complex task in front of her. Robotic process automation—which Tucci describes as "software that automates other software"—has the potential to make business processes more efficient, boost productivity and save lots of money by enabling "virtual workers" to take on repetitive work that up until now has been done by humans. That can all be done without the odious work typical of big enterprise-level applications. But it is an emerging tech, categories and tools are still taking shape and IT departments are just starting to grasp the differences between them. Her challenges were similar to those tech journalists faced when the cloud became a buzzword in the 2007-2008 time frame, when there was no agreement within the tech community about what the term meant.

If Tucci faced this problem when reporting on the technology, consider the challenge faced by CIOs evaluating robotic process automation (RPA). Besides the conditions described above, there's also vendor hype to wade through—

a potentially confusing and frustrating process. And matching RPA to the right process is "still an art form," Forrester analyst Craig Le Clair tells Tucci. Because the technology is so new, Le Clair says, businesses risk implementing a system without the safety net that underlies mature technology implementations: change management practices, compliance risk assessment and user support, for instance.

And then there's the concern that business units will implement RPA without involvement from IT. That would be a big mistake, Tucci says. Read on for advice around establishing IT's role in RPA projects and hear from two execs who have been down the RPA implementation path.

Elsewhere in this issue, we examine how Lucas Metropolitan Housing Authority upgraded its obsolete on-premises infrastructure. And Nationwide Mutual Insurance's Guru Vasudeva explains his IT department's lean management system and how he measures its value. ■
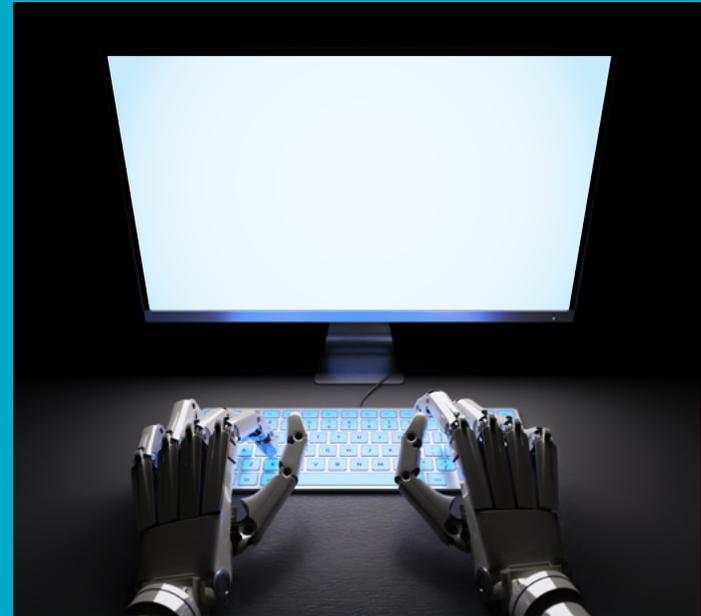
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Drudgery Begone With Robotic Process Automation

Robotic process automation can eliminate or speed up routine tasks now performed by humans. Finding RPA sweet spots and the right tools is the CIO challenge.

BY LINDA TUCCI

WHEN IT VETERAN Allan Surtees joined Gazprom Energy as head of delivery in 2014, he spent time with each of his business partners at the U.K. gas and electric supplier, talking to them about their perceptions of the IT function and what they wanted from technology. "Their perception was IT didn't innovate and didn't offer them much," he said.

During his first three months on the job, Surtees also sat down with employees and watched them work. "I observed straightway that a lot of them were doing work with data that gets manually copied and pasted from one system to

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another. It's what they call 'swivel chair' work—clicking on multiple systems, getting data from one source and putting it into another, where people are actually stuck four or five hours a day just doing this boring, manual nonsense," he said. "I immediately saw there was an opportunity for RPA."

RPA, or robotic process automation, has a sexy ring to it these days, especially in the C-suite and company boardrooms. And why not? There's a lot about this emerging technology to pique a boss' interest. RPA technology—defined in simple terms as software that automates other software—promises to improve efficiency, boost productivity and save money by helping with or entirely replacing the manual, routine and often error-prone digital processing jobs still done with human labor at many companies.

Better yet, RPA tools, like the one Surtees put to use at Gazprom Energy, promise to do so without the heavy lifting associated with other types of business software used for automating enterprise work—ERP implementations, for example, or business process management (BPM) suites.

The software robots of RPA ilk—virtual workers, if you please—interact with computer systems the

ALLEN SURTEES, *Gazprom head of IT, targeted "swivel chair" work for RPA.*

way most employees do, at the presentation layer through the user interface, requiring minimal code-based programming or deep back-end systems integration. As one vendor put it, RPA software can be a good fit for tasks that wouldn't be cost effective to automate through more brute-force ways at the service-oriented architecture (SOA) layer.

Claims processing, integration of new employees, help desk support, customer service: The makers of RPA platforms say their lightweight tools will automate—and disrupt—how routine work gets done in just about every industry and across departments, from finance to HR to IT operations. In a widely quoted study published in 2013, McKinsey estimated that as many as 140 million "knowledge workers" could be replaced by 2025 through the use of RPA and its AI-centric relative—cognitive or intelligent automation.

FINDING THE RIGHT RPA TARGET

In the meantime, CIOs interested in using RPA tools for automating IT operations, or who find themselves under pressure from the business to deploy virtual workers, will have their work cut out for them, say analysts who follow the field.

For starters, the term RPA, much like cloud a decade or so ago, is foggy. Robotic process automation is used indis-

criminately to cover a wide range of capabilities, from tools that have been around for decades such as screen scraping and desktop scripting, to the artificial intelligence skills of a Watson system, whose 27 or so technologies include RPA. And the capabilities of the tools marketed as RPA are opaque, according to Gartner analyst Cathy Tornbohm.

"Learning the difference between the plethora of automation and new cognitive tools and how to evaluate the 'sweet spot' of each tool in context has proven difficult and confusing," she wrote in a report on uses for robotic process automation published last year.

But CIOs face bigger challenges with RPA besides sorting through vendor hype, Tornbohm told SearchCIO in a recent phone interview from her home base in the U.K. "What RPA is doing is spotlighting things that should have been automated but haven't due to an accident of history," she said.

Automating such routine, rules-based work was perhaps too costly, complex or time-consuming. Robotic process automation technology can function as a catalyst for digital transformation, Tornbohm said. CIOs could use the "sexiness of robots" to highlight areas that are

CATHY TORNBOHM,
Gartner analyst: RPA can spur digital transformation.

good candidates for automation and develop an "enterprise automated roadmap" for their business partners that may or may not include RPA.

"What IT can do, very usefully, is help companies understand what should be automated with RPA—and what

> ### "What RPA is doing is spotlighting things that should have been automated but haven't due to an accident of history."
>
> —CATHY TORNBOHM

should maybe be outsourced, or done as a service, or even through another tool that has all the rules written into it," Tornbohm said. Another hurdle she has observed? "Organizations often have poor insight into 'what good looks like' for an end-to-end process and optimal processing options."

Indeed, matching RPA to the right process is "still an art form," said Craig Le Clair, principal analyst specializing in enterprise architecture at Forrester Research. Best practices are in their infancy. The immaturity of RPA deployments, he said, means that CIOs are at risk for implementing software without a framework that addresses critical elements for RPA success. Those elements include change management; compliance controls; robust user support; and the

process links, or "bridges," to what many believe represent the real payday in business automation—the super cutting-edge cognitive automation tools that combine machine learning, natural language processing, big data analytics and other computing tools to simulate human brain power.

Moreover, in any consideration of RPA, Tornbohm said, CIOs need to provide a reality check on one of the technology's biggest selling points—that it can be implemented by the business. "These tools are not as easily done by business people as they are purported to be, and you actually do need some coding background to do the scripting. Even writing a macro in Excel is not that easy," she said. IT needs to monitor the bots, provision the servers, help with security and make sure the solutions are designed well.

DOWNSTREAM BENEFITS TO RPA

Analysts will get no argument on IT's role in robotic automation projects from Surtees, who came to Gazprom with one RPA implementation under his belt. While at O2 UK, a Telefónica company, he worked closely with leading RPA vendor Blue Prism to further develop, test and implement its automation tool.

"This is not a tool the business can just go wild with and start creating processes left and right to automate because it would be chaos. It has to be properly controlled," said

Surtees, who served as head of IT at Gazprom until July when he left to become director of robotic process automation at Alsbridge Inc., a global sourcing, benchmarking and transformation advisory based in Dallas.

> ## "This is not a tool the business can just go wild with and start creating processes left and right to automate because it would be chaos."
>
> —ALLEN SURTEES

"The people who are trained to be robotic process automation designers, developers, process analysts, whatever, must follow the same delivery rigor as an IT department would," he said. That includes creating a process design document that meticulously describes what the subject matter expert does on a day-to-day basis. "Sometimes the task is in the subject matter expert's head, and you have to make sure you capture every scenario, not just the happy parts, as we say, but all possible exceptions." (See "Tricks of the RPA Trade.")

At Gazprom, Surtees chose a simple process—the han-

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Tricks of the RPA Trade

IN A RECENT report on robotic process automation, Forrester Research analyst Craig Le Clair advised companies getting started on RPA to focus first on "repeatable tasks that search, collate, update [and] access multiple systems"—and ones that make simple decisions. He is finding that many companies eager to use RPA to reduce labor costs lack a well-defined set of principles and best practices. Here are some guidelines he's gathered from interviewing RPA and machine learning vendors and customers.

- **Identify data entry and review tasks that cross multiple systems.** Le Clair cites a mortgage origination process that involved three employee groups interacting with and requiring training on 15 systems. The implementation of robotic process automation (RPA) robots, which review captured data, eliminated one entire group and cut down the systems employees needed to be trained on to seven.

- **Be prepared to dive into process minutia.** Programming a software robot requires knowing exactly where to grab a particular field on a screen and which events will trigger an action. Plus, if a screen changes orientation or a user skips a field, it will throw off the bot.

- **Design RPA processes with expert employees who know the steps better than anyone.** One caveat: When it comes to testing RPA, it may be better to use "the worst and dullest" rather than the process experts. The experts are the most likely to be offended by the automation of tasks they have mastered to perfection.

- **Keep compliance and legal teams in the loop.** RPA is good at generating reports needed for compliance, and combined with analytics, RPA can cut down on compliance reporting. But using bots to perform human work can also introduce a new category of risk if the processes are not mapped correctly. ■

dling of meter readings. "They come in on a single file, and you can have hundreds and hundreds of meter reads coming on a daily basis," he said. The meter readings are not always accurate or in the right format, and the person handling them often spent about four hours a day on the task, Surtees said—reviewing the meter reads, running a process that marked them as valid or invalid and manually inputting the valid ones into the back-end systems. "They never touched the invalid stuff because they didn't have time," he said.

Under the new automated process, which went live in the spring, there is zero human touch. "The files come in to the server; the robot goes and gets them, runs the same little program to say whether it is valid or invalid and then processes the valid ones. When it finds incompletions, it actually goes to the back-end system or goes externally to find the right data and corrects it internally as well," Surtees explained.

The invalid meter reads get deposited in a file for an employee to handle. "We re-edited that [part of the] process so the robot ... filters them into a certain order as well, making it easier for the person who picks up the invalid processes to work on them," he said. Anomalies are often resolved by simply calling the customer.

The benefit was striking. In the first two weeks that the automation went live, the employee was able to validate about 130 invalid meter reads.

"That means we do not have to rebill the customer in those cases," he said. A service rep takes about six minutes to rebill a customer. Multiply that by the 130 resolved meter readings, and it adds up to another 10 hours of work saved. That is a large downstream benefit, Surtees said. He stressed that Gazprom's RPA journey, as he calls it, is not about eliminating jobs but freeing up people for more valuable work. "That was made very clear upfront. This is about creating more space for people to actually help us grow."

BYPASSING BACK-END INTEGRATION WORK

Indeed, one of the mistakes business people make when thinking about robotic process automation technology, according to Gartner's Tornbohm, is to see it exclusively as a mechanism for cutting costs—labor costs, in particular. "It is more interesting to think of RPA [as expanding] revenue. So, for example, using RPA to make more of your product available on the internet for self-service," she said.

IT people, especially those with an automation background, come to RPA technology with their own biases, dismissing it as a screen scraping tool when it is "so much more," Tornbohm said, and also predisposed to other automation strategies.

"IT will say, 'Shouldn't this be SOA or an API?' and it

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probably should, but you're not going to get around to that in the next five years. If you haven't been able to address the problem and there isn't a commercially available tool to deploy in under six months, then RPA can be a great answer," she advised. "IT can be a great help by not being a barrier."

Robin Gomez, director of operational excellence at Radial, a business process outsourcing firm, needs no lectures on RPA. He started looking at RPA about four years ago when costlier integration methods were not on the table. Radial, based in Melbourne, Fla., does work for large retailers. Its contact center is a mix of systems it has developed and has acquired, plus the ones clients bring.

"We are the epitome of the swivel chair. We have agents who are handling five to 10 different brands, and each of these brands may have different systems they are leveraging," Gomez said. It was not uncommon for agents to have 30-plus windows open. Making matters more complex, clients are constantly changing applications as they seek to keep up with the rapidly evolving retail market.

About four years ago, he began looking for ways to reduce or elimi-

ROBIN GOMEZ, *BPO firm Radial: RPA allows agents to focus on business issues.*

nate the agents' manual slog of trawling through screens and data for the right information. While the aim was to bring together all the selling channels for "more of a next-gen CRM functionality" and so-called 360-degree view of the customer, neither Radial nor its clients were willing to make the investments required of deep integration on the back end, he said.

"The question became how was I going to make it feel like we're integrated at the desktop [without being] really integrated from the back end," Gomez said.

Using software from RPA provider OpenSpan, acquired in April by Pegasystems, Radial started with "simple things," such as assisted customer search. Robotic software captures the data customers have already entered—information, such as their order number, that customers often find themselves repeating to an agent—and presents it to the agent.

"So the agent is engaging with the customer right now, rather than spending upward of a minute—and in some cases two minutes—just going through the verification process," Gomez said. The agent's focus on the customer is key today, as self-service options expand and improve.

"When customers are reaching out to agents, it is because they have a problem. I don't want our agents struggling through system usage; I want the system to present information automatically for them so they can focus on the issue at hand," he said.

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RPA LEARNINGS

Surtees also views RPA software as a substitute and sometimes a stopgap solution for major systems integration work. At O2 UK, which has deep pockets, architects insisted his team do a proof of concept for a BPM tool before rolling out RPA. "The costs of taking [the BPM approach] were probably 10 times higher than implementing Blue Prism," he said. At Gazprom Energy, which is in the midst of a business transformation project, RPA has proved to be a cost-effective tactical solution in the interim, he said.

Still, both Surtees and Gomez caution that robotics automation implementations are not without challenges. For ex-

Robotic Process Automation Tips From Gartner

Uses for RPA working with structured data

- Automate an existing manual task or process with minimal process re-engineering.
- Reduce or remove head count from batch data input and output or data rekeying.
- Link to external systems that cannot be connected via other IT options.
- Avoid system integration projects or specific new major application development.
- Replace individual "shadow or citizen IT" desktop automation with enterprise-wide automation.

Four questions for evaluating RPA

- How efficient are your processes?
- How effective are your processes?
- What other general technology or business options are available to process this activity?
- How are IT and process leaders working together to deploy RPA? ■

SOURCE: *USE CASES FOR ROBOTIC PROCESS AUTOMATION: PROVIDING A TEAM OF 'VIRTUAL WORKERS,'* BY GARTNER'S CATHY TORNBOHM

ample, after putting robots on a cluster of virtual machines shared by other applications at O2, Surtees learned the RPA software needed its own server with all its virtual machines on it to ensure good performance.

At Radial, network capability was an issue, not so much internally but to support the BPO provider's large work-from-home contingency. "We migrated from a Citrix environment over to a VMware Horizon environment, and we've had to work through that," Gomez said, citing initial "slowness challenges." Browser compatibility was also an issue, and then there are the systems' nuances to account for, he said. "It's not as easy as flipping a switch and saying we've

integrated the system and now we can automate it; we have to look at the particular system of a client and how we're going to integrate it across what we're doing." Still, RPA work continues apace.

"We've automated about 60-plus systems; we still have about 90 to go. So we have a lot of work ahead of us, but at the end of the day, we're getting better at what we're doing."

As for cutting jobs, Gomez said he hasn't. RPA has increased efficiency. The company has been able to reduce its large seasonal ramp-up in hiring, but the core workforce hasn't been downsized. "I don't see it as a job-eliminating technology, and I don't think the company does." ◾

Craig Patterson
CIO
Lucas Metropolitan Housing Authority

Move to Cloud Boosts Services, Cuts Costs

THE PROBLEM: The Lucas Metropolitan Housing Authority (LMHA) plays a vital role in the city of Toledo and Lucas County, Ohio, providing affordable housing for some 10,000 families. When Craig Patterson, owner of a technology consultancy specializing in government work, took over as LMHA's acting IT director in 2015, the agency's mission was crippled by decrepit technology —failing servers, software applications so old vendors no longer supported them. The two-person IT staff lacked the skills to make upgrades. Initiatives, including tech support for employees in the field and mobile analytics, were at a standstill.

THE STRATEGY: Patterson focused on the fundamentals, proposing to rip out the on-premises infrastructure and replace it largely with cloud-based systems. Upgrades included moving to a cloud-based unified communication system; replacing thin clients using preinstalled Windows XP with new thin clients without an embedded OS; adding mobile devices; and switching from 20 on-premises servers to the Citrix Cloud built on Microsoft Azure Government. "The trust and credibility" attached to Microsoft and Citrix proved essential to convincing higher-ups to sign off on the transformation, Patterson said.

THE RESULTS: Revamping the technology was just a start, said Patterson, who was named CIO on Aug. 1. He developed video tutorials for employees. Vendors that balked at submitting electronic invoices quickly came around after realizing they were paid in 15 days instead of the 60 days it took under the old system. Paper use was cut by 75%. Now, LMHA personnel are exploring on-site services powered by cloud-based apps that can be accessed by the Authority's new mobile devices. They're also exploring online payments and document submissions by residents, including pay by phone. —MARY K. PRATT

GURU VASUDEVA

Nationwide IT Managers and Directors Get Lean

At Nationwide Insurance, lean practices are not only changing how work gets done; they're also changing how work gets managed.

BY NICOLE LASKOWSKI

NATIONWIDE MUTUAL INSURANCE Co.'s IT is in the midst of a cultural shift. The CIOs at the insurance firm have been marrying Agile and lean practices and applying those practices not in pockets but across the whole organization—from front-line software developers to senior-level executives. And it's paying off.

Agile and *lean* are terms familiar to CIOs. Agile, working iteratively rather than sequentially, is often cited as an important characteristic for digital transformation efforts. And lean practices, which stem from lean manufacturing methods pioneered by Toyota, have often been

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applied to IT departments looking to eliminate waste. But the lean/Agile story at Nationwide isn't just about reforming how work gets done; it's also about how work gets managed.

In this SearchCIO Q&A, Guru Vasudeva, senior vice president and CIO of program and application services at the insurance firm, based in Columbus, Ohio, describes the key elements of the department's lean management system and how he's measuring the economic value it brings.

One thing to note: The IT department at Nationwide is centralized, so IT resources are pooled. Vasudeva said centralization is a helpful—but not necessary—organizational structure for a lean management system to succeed. What's more important is IT alignment so that the same practices are implemented across the board.

(This interview has been edited.)

What is a lean management system? And how does it work?

The lean management system is a set of practices that managers, directors, executives and CIOs should embrace that helps us manage the production system using lean techniques. For that we use primarily four practices:

1. **Leader standard work.** If you ask me, 'What does a CIO in application and program management services do?' I have a checklist that says what I'm expected to do every week, every month, every quarter. I do a self-assessment on them

and then I publish it to the whole organization. That helps to make it clear to people what a leader is expected to do. I expect the same thing from my direct reports, and they expect the same thing from their direct reports.

2. **Visual management system.** We have about 25 big blue-chip programs going on across the company. Every week, me and my leaders—the head of project management, the head of software development, the head of requirements and testing—look at how we're delivering on those projects and what roadblocks we can remove as a leadership team. We have a board in a conference room where the top 25 programs are listed, along with [questions such as] what is the standard? How is the staffing? How healthy is the leadership? Are there any technical issues? Are there any cross-boundary issues? It's not in a report that comes out every month in a spreadsheet nobody looks at. Instead, there is collaboration.

3. **Accountability board.** All of the big things I ask my direct reports to do—these are VPs that have large teams and global responsibilities—are managed using an accountability board. It tracks what they're working on, if they're focused on delivering projects or continuous improvement, if there are deliverables due to the board or to external stakeholders and if there are there any people issues. We spend 20 minutes on that topic every week.

4. The gemba walk. In Japanese, gemba means "where the work happens." The idea originated from manufacturing. Before manufacturing departments embraced lean, managers would sit in their offices, they would have some kind of report and that's how they would manage the production. But they never visited where the work was happening. … The idea of the gemba walk is that you, as a leader, have to routinely visit where the work is happening. Doing so takes the emphasis off of who is the most productive employee and places it on what is the most productive process. All of my directors are expected to visit the software development team every day. All of the executives who manage those directors are expected to visit those same teams at least once a week. And my direct reports, my VPs, are expected to do random checks across their large teams.

How did you overcome the challenge of scaling the program?

We did small experiments first. It worked in small Agile teams, and we thought if it works in small Agile teams, can similar practices of bringing Agile and lean together work with project managers? How about how we collect requirements? Does it have to be six months of documentation floating around in emails, or can you actually get it done in two weeks by bringing the key stakeholders in a room to work through the key decisions? We started with small experiments, we got buy-in from early adopters and then we kept on building the momentum. And then we challenged ourselves: If it works here, why can't it work everywhere?

How about measuring the economic value?

It is different in different types of work. You have to know the value stream. So, in the case of software development, we use three metrics to measure our economic value:

1. Productivity, which is the number of lines of code you produce [and] how much effort in labor hours it takes to produce it.

2. Quality. How many defects are you introducing? And we compare that to what we used to do before introducing all of lean and Agile practices.

3. The hourly labor rate. My hypothesis when we started this was if we had standardized processes across the software engineering lifecycle, we could leverage entry-level talent to do a lot of the work. That's a great way to infuse new energy into the company.

We have proven that, indeed, it is possible, and, as a result, you can have an hourly labor rate that is balanced. Last year, I tracked around $28 million of annualized savings just from software engineering. ∎

A   Artificially Intelligent Attorney

An artificially intelligent attorney is a legal expert system that attempts to replicate and improve upon the abilities of a human legal research assistant. ROSS Intelligence is an example of an AI attorney. Built on IBM's Watson cognitive computing platform, ROSS relies on self-learning systems that use data mining, pattern recognition and natural language processing to mimic the way the human brain works.

B   Bug Bounty Program

A bug bounty program, also called a hacker bounty program or vulnerability rewards program, is a crowdsourcing initiative, often run by software vendors and websites, that provides monetary rewards to individuals that find and report software bugs. Bug reports must document enough information for the vulnerability to be reproduced. Bug bounty programs are often initiated to supplement internal code audits and penetration tests.

N   Neural Network

In IT, a neural network is a technology system patterned after the operation of neurons in the human brain. The technology is used in applications such as handwriting recognition for check processing, speech-to-text transcription, weather prediction and facial recognition. A neural network involves a lot of processors operating in parallel and arranged in highly interconnected tiers. They are adaptive, or able to modify themselves as they learn.

P   The Phoenix Project

The Phoenix Project is a novel about IT written by Gene Kim, George Spafford and Kevin Behr. It uses a narrative approach to illustrate strategies for solving business problems that are complicated by interdependencies. Apart from being a rare genre of literature—IT-focused fiction—the book can be considered a manual for helping IT managers change the way employees think about how they work. ∎

Exploring the API Economy

APIs ARE INTEGRATION enablers with mighty potential for digital transformation. They will "both destroy and create new businesses and new business models, changing the face of virtually all industries" wrote 451 Research analyst Carl Lehmann in a June report.

FORTY-SIX

Percentage of global telecommunications businesses that said creating APIs is a high/critical mobile priority this year

SOURCE: FORRESTER'S GLOBAL BUSINESS TECHNOGRAPHICS MOBILITY SURVEY, 2016; N=3,631

API TOP GROWTH DRIVERS

54% Mobile is a top driver in the coming two years

44% Internet of things

28% Enterprise integration
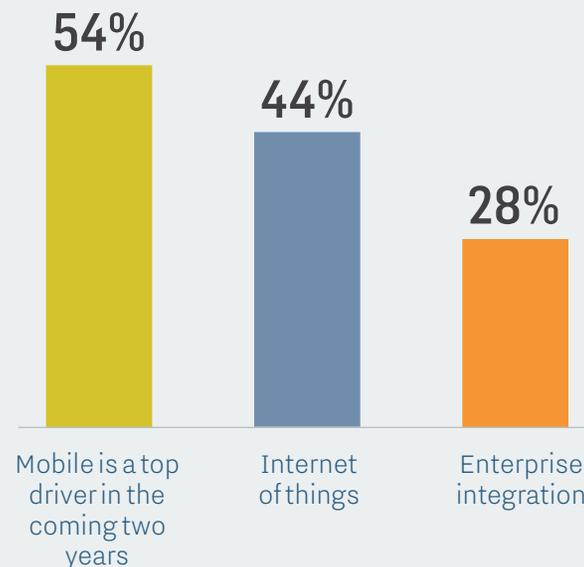
SOURCE: "THE STATE OF API 2016," SMART BEAR SOFTWARE; N=2,329

TOP CHALLENGES OF API TECH

Tool security is one of the biggest challenges to address in the next two years

41%

Easier integration between tools

39%

SOURCE: "THE STATE OF API 2016," SMART BEAR SOFTWARE; N=2,329

42%

Data and analytics companies commercializing data by exposing an API to the data for systematic or real-time access

SOURCE: FORRESTER'S GLOBAL BUSINESS TECHNOGRAPHICS DATA AND ANALYTICS SURVEY, 2016; N=403

Mary K. Pratt
Technology journalist

Corporate Boards View CIOs With New Eyes

FOR NEARLY 20 years, recruiter Shawn Banerji has seen corporate boards seek out high-tech company CEOs when they wanted a technology perspective.

These boards for years generally dismissed the idea of bringing on CIOs, believing IT executives lacked the commercial, business and strategic vision required to help steer companies, he said.

But Banerji, managing director of the technology officers practice at Boston-based Russell Reynolds Associates, an executive search firm, started to notice a change about three years ago, as boards started to grapple more and more with cybersecurity, digital transformation and burgeoning technology budgets.

"That started to create some momentum to bring CIOs onto the board," Banerji said.

Several years ago, Banerji conducted just one or two searches annually for corporate boards seeking CIOs. Now, he said he's conducting five to 10 a year and expects more in the future, as an increasing number of Global 1000 companies look for such talent.

HOW CIOS ADD VALUE TO BOARDS

Current statistics on the issue are difficult to find, but several leaders in this space confirmed they, too, see a growing number of corporate boards seeking CIOs to serve. They said boards need the unique insight into the transformative qualities of IT that successful CIOs can bring to the boardroom.

Experienced CIOs can bring a range of skills, from their expertise with governance to their in-depth understanding of the IT organization and its budget to their experience working with business leaders across the entire enterprise, said Martha Heller, president of Heller Search Associates, an IT recruiting firm in Westborough, Mass., and author of *Be the Business: CIOs in the New Era of IT*. "Boards that don't appoint CIOs are at a disadvantage," she said. "They're missing out on board-level governance of an area that has the potential to make or break a company."

Like Banerji, Heller said corporate boards in the past sought out CEOs of high-tech companies when they wanted to gain technology insight. Recently, however, they have-

started to reach out to CIOs.

"Boards have come to realize, to their credit, that high-tech CEOs are not what they want. They want a CIO. A high-tech CEO knows his or her niche in the market; they don't have the breadth and depth that a CIO has," she said.

Boards often first seek out CIOs in response to something negative, Heller observed. They experience or see a competitor experience a cybersecurity breach, or they fall behind in leveraging technologies.

Richard Chambers, who as CEO of The Institute of Internal Auditors often works with boards, said a growing list of regulations, legislation and best practices require boards to demonstrate more oversight of risk.

"And there's nothing that jumps out at you more than technology risk," he said.

Yet most board members don't have a strong enough technology background to fully assess their companies' cyber-risk profiles, he said. Without an IT expert on the board, members may overly rely on management's [assessment of technology risk](#).

"They won't have anyone in the room to speak up and say, 'What about X or Y?' If you don't have

RICHARD CHAMBERS,
audit expert: Boards lack the chops to assess cyber-risk.

someone on the board who is able to stimulate that kind of conversation, as a board, you're at the mercy of management in how they characterize performance, risk and the assurances they're given," Chambers said.

But technology risk expertise is not the only reason to put CIOs on corporate boards, Chambers said. "A good CIO is one who not only has the technology background and the cyber expertise, but also has a keen sense of business strategy and strong business acumen."

WHY CIO BOARD PRESENCE IS STILL LOW

Not everyone sees a growing demand for CIOs to serve as directors, however.

Paul DeNicola, a managing director of PwC's Governance Insights Center, cited data showing that less than 5% of public company board members have a technology background.

However, that doesn't mean boards aren't seeking out the expertise, DeNicola said. PwC data showed boards are increasingly relying on consultants to help them navigate the complex technology landscape. In 2012, 27% of boards used an outside adviser to advise them on IT, but the figure jumped to 45% in 2015.

"That tells me that trying to put a CIO on the board isn't the top priority," he said.

But the situation could change, he added. "Companies,

particularly companies in a high-profile public-facing business, may choose to put CIOs on the board in the future, but the more pervasive trend now is using advisers."

Heller and Banerji agreed the numbers of CIOs on corporate boards are still relatively low, despite rising interest in having more technology oversight. Heller estimated less than 20% of boards have CIOs on them.

And even if more corporate boards want to add CIOs, they face challenges doing so. Observers say that many CIOs lack the experience and expertise required to sit on boards—in particular, boards at the large companies that are the ones currently seeking them out.

"They're looking for a business person who has experience with large-scale transformation and has a commercial orientation and governance experience," Banerji said. "They're looking for people who have gone through and faced similar challenges and opportunities and the same scope, scale and complexity [that] they're facing in their current organization.

"The challenge is that many operating CIOs do not have meaningful experience interacting with boards," he added, "even if it's just within their own company." ∎

RPA ROI and Beyond

"We have estimates that show … if you deploy RPA in finance and accounting, you can save 60% to 67% on onshore costs."

SARAH BURNETT, *vice president of research, Everest Group*

"The foundation beneath the programming of any robot in the back-office is very detailed step-by-step process documentation. Robots are only developed to do what

is in the process document, which must include every keystroke and screenshot documenting an actual human's journey to complete the process."

RITA BRUNK, *robotics and automation transformation lead, Genfour*

"ITO/BPO firms who are holding back right now because they see RPA as a threat to their existing revenues would find it difficult to win more clients in the future—even if they build their RPA capability over time."

RAJESH NAIR, *group head of the Robotic Process Automation Practice, Xchanging*

"An example of one RPA process is where we take data from one application and match the data against specific rules from another application. Prior to RPA, the process was being done with 15 full-time employees. [It] is now being done by three robots."

SIDDHARTHA SINGH, *senior vice president and head of BPO, NIIT Technologies*

"RPA is predominantly being run and championed by the operations side of the world, not the IT side."

SREEKANTH LAPALA, *senior vice president and global head of Outsourcing Transformation Services, VirtusaPolaris*

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