Workflow Quarterly

The Leadership Issue

What is a CIO's job—and what does it take to become
a best-in-class technology leader?

The Leadership Issue
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CIOs find leadership moment

Successful leadership is defined by crises. For CIOs, today's digital demands are both a challenge and opportunity.

BY RIVA FROYMOVICH

Tiffany Hall, Chief Information Officer, Cancer Research U.K.

Successful leadership is often defined by challenging moments. It's hard to recall a good business leader who hasn't faced down a crisis. When Henry Ford's early car designs failed, he lost his financial backers, and it took years before he perfected the Model T. Indra Nooyi had to evolve PepsiCo's product lineup in the midst of a financial crisis, as consumer buying and health habits changed. Ursula Burns helped turn Xerox, a company known for paper, into a digital business services provider.

For chief information officers, the crisis is now. Their moment to lead is now.

Technology is expected to change organizations more in the next several years than it has in the last several decades. "No longer are companies using technology to run their businesses," says Martha Heller, chief executive of Heller Associates, a recruiting firm in specializing CIO, CTO and CISO roles, author of two books on the CIO, and contributing editor to CIO magazine. "Technology is their business."

CIOs are best positioned and qualified to lead this transition. But the challenge is tremendous.

They must answer to boards and chief executives, innovate products, change how employees operate, attract the right talent, as well as prove that IT is driving business performance.

"My job is really helping to improve our top line, improve our bottom line, improve customer satisfaction. That's the goal. It's less about technology and more about business goals," said Douglas Blackwell, chief information officer, Horizon Blue Cross Blue Shield of New Jersey.

In this issue of Workflow Quarterly, we show how CIOs can become best-in-class leaders.

Data from a survey we commissioned by Oxford Economics identifies that CIOs must gain influence among peers, drive value for customers, focus on leadership over technology skills, and integrate IT into the entire employee experience.

That's a long to-do list. In order to complete it, CIOs are increasingly relying on workflow digitization. About 80% of CIOs surveyed say digitization is very important or critical to driving productivity and financial performance. In fact, CIOs who have made more progress digitizing workflows are more likely to achieve better business outcomes.

Take the quiz at workflow.servicenow.com/cio-quiz to determine if you're prepared for your big leadership moment.

And, say the experts, those CIOs who deliver on the promise of technology may find another promotion in their future: once pegged for the back office, CIOs are now primed to become the next CEOs.

Research Methodology

The Leadership Issue draws on a survey commissioned by ServiceNow of 516 chief information officers across 12 countries and 24 industries. The survey explores the technology leader's evolving responsibilities, influence and challenges. Alongside in-depth interviews with CIO experts, the data illustrates what it takes to be a world-class CIO today. From culture-breaker to innovator, the job description expands beyond IT. Oxford Economics conducted the survey via computer-assisted telephone interviews (CATI), during which respondents were guaranteed anonymity, could ask clarifying questions and confirmed demographic information.

Respondents by country

- **46** Australia/New Zealand
- **46** France
- **47** Germany
- **49** Italy
- **46** Japan
- **48** Netherlands
- **46** Singapore
- **45** Spain
- **45** Sweden
- **48** United Kingdom
- **50** United States

Respondents by industry*

- **50** Financial Services
- **50** Government
- **50** Healthcare
- **31** IT Services
- **35** Retail

*Industries with greatest number of survey participants

Respondents by company revenue

- **182** Over $5B
- **167** $1B–5B
- **167** $500M–$1B

Respondents by digitization stage

- **258** Far along
- **199** In the early stages
- **58** Beginning to evaluate
- Not focused on digitizing

Respondents by number of employees

- < 1,000
- 1,001–5,000
- 5,001–10,000
- 10,001–20,000
- 20,000+ employees

19	183	212	69	33

The role of a modern CIO

IT chiefs are expected to be more than technologists. The hallmarks of success today are C-suite relationships, a customer mindset and workflow digitization.

BY JOHN BYRNE

Tiffany Hall, Chief Information Officer, Cancer Research U.K.

ABOUT THE AUTHOR

John A. Byrne

John A. Byrne is the former executive editor of Businessweek magazine and former editor-in-chief of Fast Company magazine. The author of more than a dozen books on business, including two New York Times bestsellers, including his collaboration with former GE CEO Jack Welch, he is currently founder, chairman and editor-in-chief of C-Change Media.

Douglas Blackwell has spent his entire career—more than 35 years—in and around technology. He's worked in large companies and startups, in software, telecommunications, and financial services. But the path to becoming chief information officer for Horizon Blue Cross Blue Shield of New Jersey, which provides health insurance to 3.7 million people, wasn't always obvious.

"My dirty little secret is I'm really not a techie," he said. He didn't rise through the ranks of an IT organization and doesn't have a technical degree. "I'm really a business guy." His job today comes down to three things: "Improve our top line, improve our bottom line, and improve customer satisfaction."

Blackwell's career path and approach to technology leadership is characteristic of shifting expectations for the modern CIO. Where in the
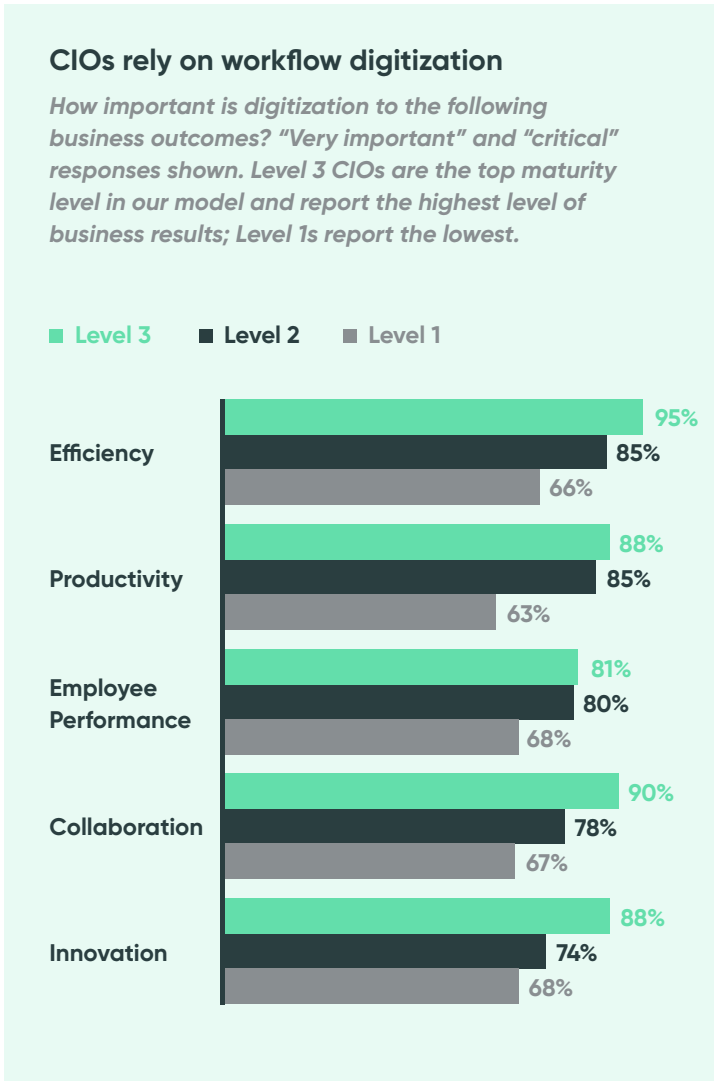
past the CIO was largely an organization's top technologist, today's most successful information chiefs are thought leaders and innovators, culture breakers and collaborators. They're less focused on back-end technology and more on the goals of customers, employees, board members, and shareholders.

"It's a totally different skillset," said John D. Halamka, the prominent former CIO of Harvard Medical School and executive director of the Health Technology Exploration Center. "You need to be a project manager, a politician, and a communicator."

A new survey of 516 CIOs from 12 countries and 24 industries, conducted by Oxford Economics and commissioned by ServiceNow, pinpoints how the role of the CIO has transformed. For instance, nearly two-thirds of CIOs (63%) say that business and leadership skills are more important than technology skills. Sizable majorities say that core CIO responsibilities include collaborating with the chief human resources officer on talent strategies (77%) and with the CEO on setting organizational roadmaps (69%).

The research also demonstrates what it takes to become that best-in-class executive: The most successful CIOs are those who are further along at digitizing workflows, or drawing on those business skills to build consensus and action around automating and integrating work processes through advanced technology.

CIOs who lead organizations with the most workflow digitization are more likely than the ones that are the least digitized to be highly successful at increasing operational efficiency and speed to market (48% versus 32%), developing new products and services (46% versus 24%), attracting new customers (45% versus 24%), and attracting and retaining top talent (45% versus 15%). But across the CIOs polled, regardless of how well they grade their current performance, they see workflow digitization as important to advancing their organizations' efficiency (95%), innovation (95%), productivity (96%), financial performance (96%), employee performance (95%), and collaboration (95%).

CIOs rely on workflow digitization

How important is digitization to the following business outcomes? "Very important" and "critical" responses shown. Level 3 CIOs are the top maturity level in our model and report the highest level of business results; Level 1s report the lowest.

■ Level 3   ■ Level 2   ■ Level 1

Efficiency
Level 3: 95%
Level 2: 85%
Level 1: 66%

Productivity
Level 3: 88%
Level 2: 85%
Level 1: 63%

Employee Performance
Level 3: 81%
Level 2: 80%
Level 1: 68%

Collaboration
Level 3: 90%
Level 2: 78%
Level 1: 67%

Innovation
Level 3: 88%
Level 2: 74%
Level 1: 68%

For example, digitization has enabled Siemens, the global industrial conglomerate, to not only sell high-speed trains to Spanish railway operator Renfe, it can also sell on-time performance.

Sensors on the trains monitor motors and other systems, and the data is fed into predictive-maintenance software that alerts operators to potential failures. Equipment is repaired or replaced before it fails, and as a result, the railway has almost completely eliminated delays. Because of that, Renfe can guarantee service between Madrid and Barcelona will be on time, and 40% of the air travelers between the cities have switched to trains, said Helmuth Ludwig, Siemens CIO.

"Our customer gains because we can support them with a digitally enhanced offering," Ludwig said.

Based on data analysis and interviews with several information chiefs, we can identify the key attributes needed for CIOs to position themselves to advance workflow digitization and deliver higher-level business outcomes.

Simplify the basics to grow IT's impact

Even as leading CIOs focus on the digital makeover of their organization, their first job is still to make sure the technology infrastructure is up and running smoothly. "You've got to get those essentials right to create the right foundation for the things that are more transformational and more strategic," said Tiffany Hall, CIO for Cancer Research U.K., the world's largest independent cancer charity. "Nobody is going to be able to think about the role of technology to fundamentally change the way an organization works if the IT network is down or the phones don't work."

The challenge is to ensure that keeping the trains running doesn't get in the way of efforts to launch new transformational initiatives. This is especially difficult when it comes to dealing with legacy computer systems, which are usually essential to the day-to-day operations of a company.

Brad Wheeler, CIO at Indiana University, highlights the delicate balance transformation brings. "Every time you layer something else on top of [legacy systems], you're creating complexities and vulnerabilities, and you increasingly constrain your ability to innovate," he said.

That's why CIOs have to identify strategies that simplify how their organizations manage the basics, so that they focus more time on delivering impact.
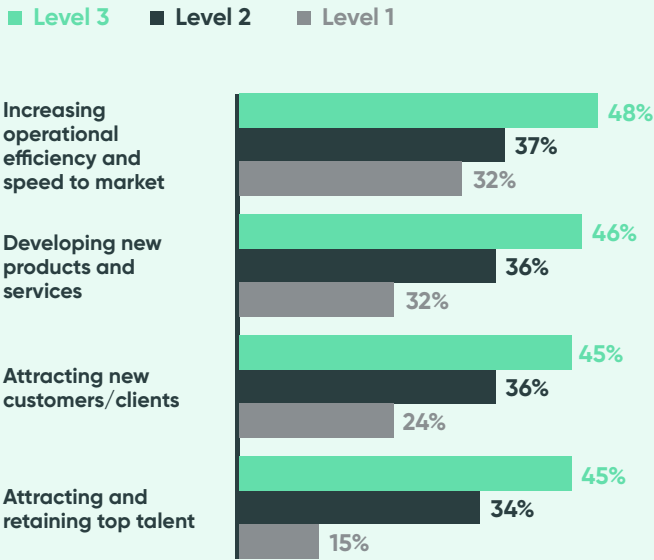
Some CIOs have standardized procedures for the delivery of basic technology services that run a business. This approach reduces the likelihood that a process problem will lead to a project's failure, and creates more time for an IT unit to focus on innovations that can grow the business.

Sometimes, a simple organizational change can help CIOs manage these often-competing demands. At Horizon Blue Cross, for instance, CIO Blackwell splits the responsibilities

CIOs achieve results through workflow digitization

CIOs who have adopted greater levels of workflow digitization are also more likely to report highly successful outcomes.

How successful is your organization in the following areas? "Highly successful" answers shown. Level 3 CIOs are the top maturity level in our model and report the highest level of business results; Level 1s report the lowest.

■ Level 3   ■ Level 2   ■ Level 1

Increasing operational efficiency and speed to market
- Level 3: 48%
- Level 2: 37%
- Level 1: 32%

Developing new products and services
- Level 3: 46%
- Level 2: 36%
- Level 1: 32%

Attracting new customers/clients
- Level 3: 45%
- Level 2: 36%
- Level 1: 24%

Attracting and retaining top talent
- Level 3: 45%
- Level 2: 34%
- Level 1: 15%

between two key lieutenants. "The first [team] we call 'transform,' and the second we call 'perform,'" Blackwell said. One team focuses on strategy, architecture, and vision; the other is in charge of infrastructure, operations, and application development. This structure has given Blackwell the freedom to manage flexibly.

Other CIOs report creating digital councils or empowering C-level peers to co-lead transformation projects, creating an organizational governance that empowers more people to take responsibility for a business' future through technology.

Learn to lead without authority

CIOs who effectively and efficiently run their operations gain the trust and credibility of other business leaders. But the highest-performing CIOs don't stop there. Instead, they establish strategic partnerships and cross-team projects to collaborate. They align the goals of IT with the goals of the business.

In fact, 93% of CIOs who are most advanced at digitizing workflows say that their organizations are mostly or highly effective at increasing communication between IT and the workforce about business-process changes. Only 38% of the least advanced companies agree.

A first step is "to own the change management of a program that gets some visibility with peers," said Isaac Sacolick, author of the book Driving Digital: The Leader's Guide to Business Transformation Through Technology and the president of consulting firm StarCIO.

That can mean partnering with the chief operating officer on a project that reduces costs or with the chief human resources officer on an initiative that increases employee retention. "When you put that together with execution," Sacolick said, "you have a platform to go back to other executives and ask: 'How can I help you? What are your challenges?'" And proven success on one project earns trust and demand for more collaborations.
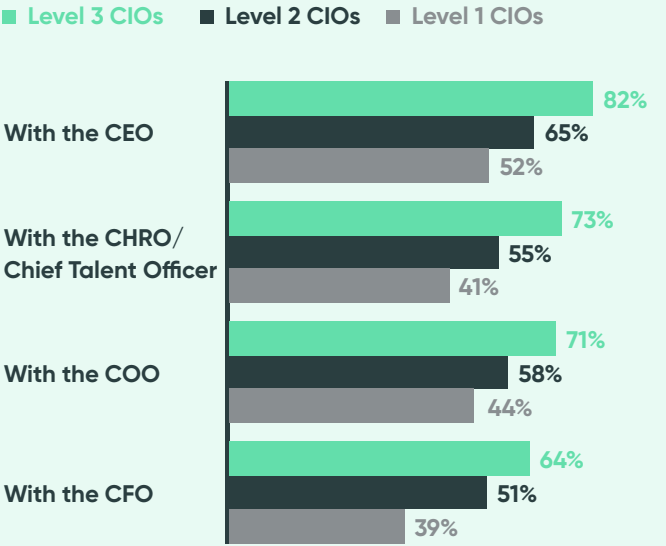
Hall, the Cancer Research U.K. CIO, uses a collaborative approach. Team members work closely with other departments to better identify and understand the problems they're trying to solve. They call in support from the rest of her team as needed for advice and resources. The teams begin with the most receptive departments first, and successful projects create allies in those units who spread the word. According to Hall, positive results have piled up. "Success breeds success," she said.

This idea is also on display at JPMorgan Chase, where the team of global CIO Lori Beer is working with the HR department to put into place a new software-as-a-service platform that is meant to transform every process. The technical and HR teams are "locked at the hip," Beer said, from designing the system that provides employees with mobile access to acquiring and implementing the technology.

"We help them get the tools and capabilities they need to serve the employee population," Beer said. "And we work side by side with them on transforming the whole way we look for talent."

Strong C-level collaboration is key to CIO success

Please rate the effectiveness of your collaboration with each of the following. "Effective" and "highly effective" responses shown. Level 3 CIOs report highest levels of business results; Level 1s report lowest.

■ Level 3 CIOs   ■ Level 2 CIOs   ■ Level 1 CIOs

With the CEO
82%
65%
52%

With the CHRO/Chief Talent Officer
73%
55%
41%

With the COO
71%
58%
44%

With the CFO
64%
51%
39%

Cultivating those connections across the C-suite, and down the organization, is often challenging, though. Other business units may see the CIO as simply a supplier of IT services and tech teams with a zeal for digital transformation.

"The majority of things you have to get done are without authority, just influence," said Wheeler, the Indiana CIO. "You buy a lot of coffee and a lot of drinks to build successful professional relationships. Then, when you need to push something through that's a little bit more difficult, you have a basis to work from."

Halamka, the former Harvard Medical School CIO, learned this lesson shortly after he was named to the post. In a hurry to make a big splash, he decided he wanted to get rid of all the organization's servers and move those systems to the cloud. "I had three advisers in a room with me and they all said if you do that, you're going to lose the entire war, not the battle," he recalls. "You need to go out and listen to people and ask them what our strategy should be and then we can go forward with a collaborative plan in three months."

Three months later, he had won a consensus to retire the use of Novell and Lotus Notes and move the school to web-based services. "It was the plan of the company and not the plan of John," said Halamka. "There was total buy-in, and in one year we finished all of it."

Lean on the CEO to foster shared accountability

While CIOs need to lead digital transformation projects, they often need the commitment of the CEO to bring other executives on board.

Siemens has formalized this through a process called IT North Star, where IT works work with the CEOs of different units to talk about new opportunities made possible by technology. Rather than waiting for business units to come up with projects on their own, the meetings allow the CIO to "be a partner in identifying opportunities and potential challenges on the business side with your specific IT background and competence," said Ludwig.

Tiffany Hall, Chief Information Officer, Cancer Research U.K.

Crucially, the meetings only take place when the CEO can attend. Other executives come, too—leaders representing finance, sales, manufacturing, and R&D are regular attendees—but it won't happen without the CEO. For Ludwig, that's the key to making these projects company-wide efforts and not just IT's responsibility.

"My personal conviction is if you want to go as a company through a digital transformation, it can only be driven by the CEOs of the businesses," Ludwig said.

At JPMorgan, too, Beer was appointed by CEO Jamie Dimon to sit on the firm's operating committee—the first CIO to do so.

"I can't tell you how often Jamie [Dimon] will talk about that—the importance of having technology have a seat at the table, because that's fast-tracked decision-making," said Beer. "It also helps me when I'm trying to message the technology organization about how this company values the role technology plays. It's a huge ability for us to attract talent with a CEO like Jamie."

Martha Heller, the CIO recruiter adds: "A CIO who enters a culture that is caught in the past and whose CEO is not cognizant that everything is different in the digital age would be well advised to not join that company."

Drive innovation from the outside

Ultimately, digitizing work processes isn't just about satisfying current operational demands. It's a matter of addressing the organization's goals and meeting future competitive threats.

One way to keep a step ahead of the mind-boggling pace of technological change is to partner with outside firms. "I'm in the business every day, and I still don't know everything that's going on," said Blackwell. "It's impossible to catch up. To make their businesses successful, the guys we partner with have to be on top of these changes." Strong relationships with these outside partners is a growing necessity; 68% of CIOs in our survey have effective or highly effective collaboration with external providers—more than even the CEO (64%).

For Alan Boehme, chief technology officer for Procter & Gamble, this means looking beyond the mainstream tech companies and finding new players who are pushing technology in new directions. "Sometimes you have people who are still looking at traditional suppliers and vendors and are not moving forward and employing tech from startups," he said.

"A standing CIO has to have the willingness to step away and take a fresh look at how things are done," he adds. "A CIO needs to be a little more adventurous and to trust new people and new thoughts."

Another way to stay on top of new technologies like artificial intelligence or blockchain is reverse mentoring, say Michael Schrage, a research fellow at MIT Sloan School's Center for Digital Business.

"Even Bill Gates had his own private coach," he said. "When Lou Gerstner was CEO of IBM, he had his own private tech guy. That's important because it's not obvious that somebody who was cutting edge at 35 and grew up with traditional enterprise architecture and big iron systems is the appropriate person to stay up to date at age 50 and be in charge of digital transformation."
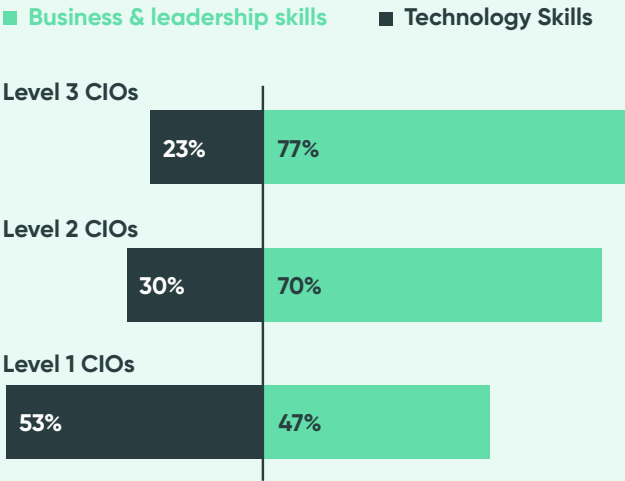
Tackle the challenges to digital maturity

The obstacles of performing at the highest levels are numerous. At least 40% of the CIOs surveyed by Oxford Economics cited a shortage of skills, a lack of budget or time, inadequate technology, and the lack of an effective management plan as impediments to achieving their goals. And 37% also cited ineffective collaboration.

Attracting and retaining scarce technical talent is one of the biggest challenges for CIOs leading a digital transformation. Beer, the JPMorgan Chase CIO, has adopted a variety of strategies that combine hiring, training and retraining, and creating new opportunities to engage existing technical staff.

The company's work with the Technological Social Good program helps engage young employees by giving them
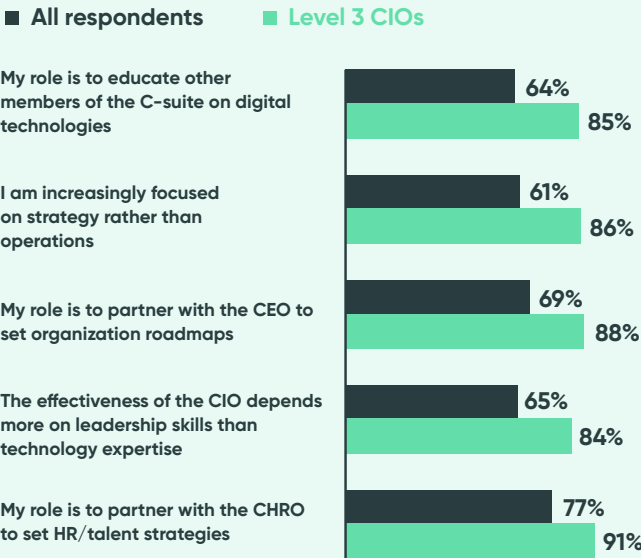
Advanced CIOs see their role differently

Which is more important for a CIO today? Respondents could select one. Level 3 CIOs report highest levels of business results; Level 1s report lowest.

■ **Business & leadership skills**   ■ **Technology Skills**

Level 3 CIOs
23% | 77%

Level 2 CIOs
30% | 70%

Level 1 CIOs
53% | 47%

The Role: business leader, influencer, strategist

A majority of CIOs say their role has evolved beyond serving as a top technologist. But the top-performing CIOs, who we call Level 3, have positioned themselves firmly as business visionaries.

To what extent do you agree with the following statements about your role? "Agree" and "strongly agree" shown. Level 3 CIOs report the highest level of business results in our maturity model.

■ **All respondents**   ■ **Level 3 CIOs**

My role is to educate other members of the C-suite on digital technologies
64% / 85%

I am increasingly focused on strategy rather than operations
61% / 86%

My role is to partner with the CEO to set organization roadmaps
69% / 88%

The effectiveness of the CIO depends more on leadership skills than technology expertise
65% / 84%

My role is to partner with the CHRO to set HR/talent strategies
77% / 91%

responsibility for projects while still new to the firm. The teams involved have helped more than 1,200 nonprofits build software applications.

Beer has also built a team of experts in machine learning and artificial intelligence in Palo Alto with the expectation of recruiting more AI specialists from nearby Stanford University. "There are so many things we do to build our talent pipeline," Beer said. "Talent takes on many more forms than just hiring."

Ultimately, becoming a best-in-class CIO is a leadership challenge. Jim Collins, author of the management classic Good to Great, said that CIOs see what needs to be done, whether it's protecting the organization from cyber threats or making it easier for people to share information across the enterprise. Then they have to persuade others to make them happen.

Indeed, 64% of the CIOs in our survey agree or strongly agree that their role is to educate other members of the C-suite on digital technologies.
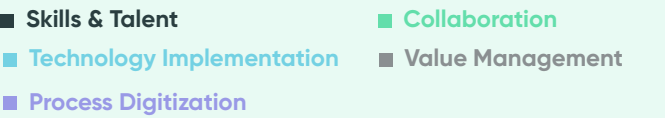
"It's the art of getting people to want to do what must be done," Collins said. "If you do that as a CIO, you are doing a great service and really leading your enterprise."

Collins envisions the day when more CIOs emerge to become the next generation of CEOs. "If you think about what a CEO has to think about—which is where are you going to place your big bets, how are you going to protect your flanks, how will you make the most of your success— it's the same role a world class CIO should be playing. These are things that are at the highest strategic level."

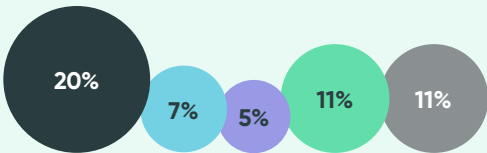## Organizational talent is the major challenge to CIO leadership

Many CIOs would be ranked at a higher maturity level, except for one variable. Most often, that variable is ineffectiveness in building a recruitment or retraining plan to acquire the necessary skills in their organization.
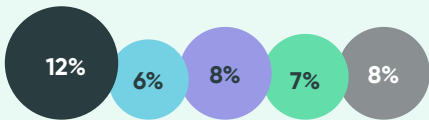
What constrains CIOs on the verge of greater outcomes?

- ■ **Skills & Talent**
- ■ **Technology Implementation**
- ■ **Process Digitization**
- ■ **Collaboration**
- ■ **Value Management**

Disqualifying metric from Level 1 to Level 2

20% of Level 1 CIOs would be Level 2 if they were "somewhat effective" at recruitment and retraining.

20% 7% 5% 11% 11%

Disqualifying metric from Level 2 to Level 3

12% of Level 2 CIOs would be Level 3 if they were "mostly effective" at recruitment and retraining.

12% 6% 8% 7% 8%

CIO leadership around the world

CIOs in the U.S. outpace peers in other countries.

Where do the best-in-class technology leaders work? CIOs in the U.S. are on average more advanced than peers worldwide in expanding their role to align technology with the business through workflow digitization—and are driving far greater value as a result.

Three out of every eight CIOs in the U.S. are operating at the most mature levels, based on a survey and analysis of 516 CIOs from 12 countries and 20 industries conducted by Oxford Economics and commissioned by ServiceNow. That's a higher ratio than in any other country in the survey. Japan came in second with 30% of their companies at Level 3, the highest level in our maturity model, and Spain came in third with 29%.
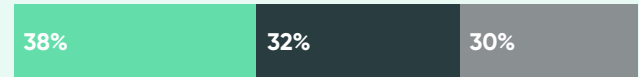
There are a few reasons that may explain the trend: U.S.-based CIOs have consistently strong relationships with C-level peers; they are more likely to see their organization as prioritizing digitizing workflows (82% in the U.S. versus 64% in other countries); and are far more likely to define their role as focused on strategy over operations (78% versus 59%). But among the most significant variables may be that CIOs in the U.S. have substantially increased IT's budget dedicated to digitization (82% versus 51%).

In other measures, three out of every five U.S. CIOs were more likely to have digitized more than 60% of their workflows, second only to Australia/New Zealand with 61%. Of the other countries, 51% reported similar levels of digitization. U.S. companies are also more likely to have effective talent and skill strategies: 68% said they identify talent shortfalls, compared with 49% of the others, and 66% said they promote a culture of innovation to attract and

CIO maturity by country

■ Level 3 CIOs   ■ Level 2 CIOs   ■ Level 1 CIOs

United States
38% | 32% | 30%

Japan
31% | 41% | 28%

Spain
29% | 58% | 13%

Australia/New Zealand
22% | 50% | 28%

Sweden
22% | 36% | 42%

United Kingdom
19% | 48% | 33%

Singapore
17% | 48% | 35%

France
15% | 52% | 33%

Germany
8% | 47% | 45%

Netherlands
8% | 38% | 54%

Italy
6% | 49% | 45%

Ravi Bala, Chief Information Officer, Prudential Financial, Customer Office

In Australia and New Zealand, more than three in five CIOs are far along in the digitization of their organization's workflows, as their roles have become more strategic. In particular, CIOs at 57% of ANZ companies polled say they have digitized human resources functions to a great extent, compared with 38% in other countries. ANZ CIOs trail only the U.S. in focusing more on strategy than operations—72% in ANZ, 78% in the U.S., and 58% on average in other countries. As a result, they have been "highly successful" at increasing speed to market (48% versus 36% of others).

CIOs in Japan prioritize digitizing workflows more than most (78% versus 65% on average in other countries), and have focused investments on tools for collaboration to increase teamwork and innovation. But they struggle more than leaders in any other country at retaining customers and winning repeat business (59% versus 80% others) and developing new products and services (70% versus 84% others). More than a quarter say inadequate technology and a lack of data is the biggest obstacle.

CIOs in Singapore, like in Japan, place equally high priority on digitizing workflows (78% versus 65%). While they trail most peers in proportion of workflows that are currently automated, they have high expectations and have among the most aggressive plans to digitize over the next three years. However, they are far more focused on the basics of digitizing IT processes (67% versus 56%). It's not surprising then, that they rate their effectiveness in collaborating with partners and suppliers among the highest.
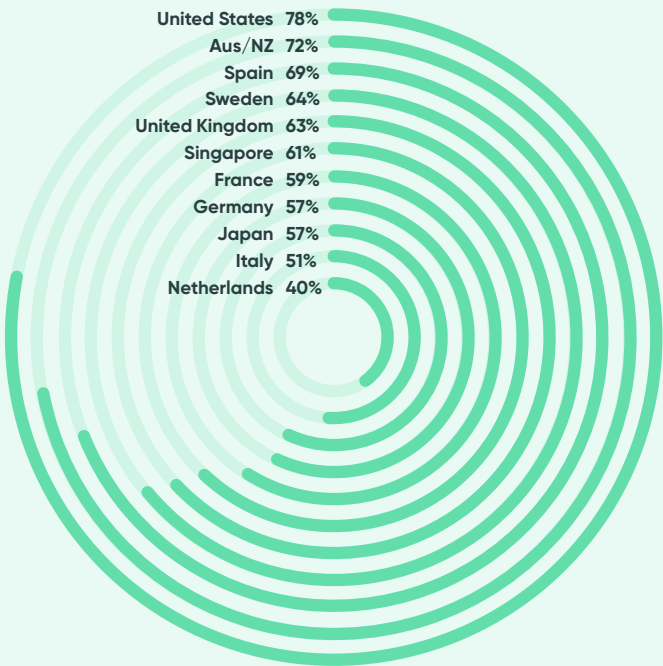
Mixed picture in Europe

CIOs in Spain are the European leaders. Spain has a greater portion of Level 3 CIOs relative to elsewhere in the region, followed by Sweden, the U.K., and then France. However, technology leaders in Sweden, the U.K., and France are more confident in the outcomes their efforts are producing in specific areas. For example: CIOs from Sweden and France are more successful at retaining customers and winning repeat business (87% each versus 69% Spain), and CIOs in Sweden and the U.K. are more successful at attracting new customers and clients (89% Sweden, 88% U.K., versus 80% Spain). But CIOs in Spain excel in other areas of digitization: They are leaders in measuring the value of their digitization efforts and say that they are

retain talent, compared with 52% of others. U.S. CIOs are also more effective in connecting business performance metrics with their digitization strategies: 68% say they adjust their strategies based on goals (versus 54% of others), and 74% say they use data to understand and influence long-term outcomes (versus 61% of others).

The payoff for this digital strategy is significant for companies at the forefront. U.S. CIOs are more likely to say they are highly successful at attracting new customers and clients, retaining those customers, and developing new products and services.

APAC CIOs set to advance

CIOs in Australia and New Zealand, Japan, and Singapore are making significant advancements to lead their organizations through digital transformations and align IT's goals with their broader organization.

constantly researching new areas where IT and business functions can collaborate in new ways (69% versus 51% others).

Other European countries show promise but have some catching up to do. For example, 54% of CIOs in the Netherlands say they are far along in the digitization of workflows, but are held back by lower levels of collaboration with the CFO, CHRO, and COO. Meanwhile, Italy has the lowest percentage of Level 3 CIOs of any country, 6%, as technology leaders in the country also report the lowest ratio of workflow digitization in their organizations today (39% versus 54% on average elsewhere). In both the Netherlands and Italy, CIOs are least likely to say they are increasingly focused on strategy rather than operations.
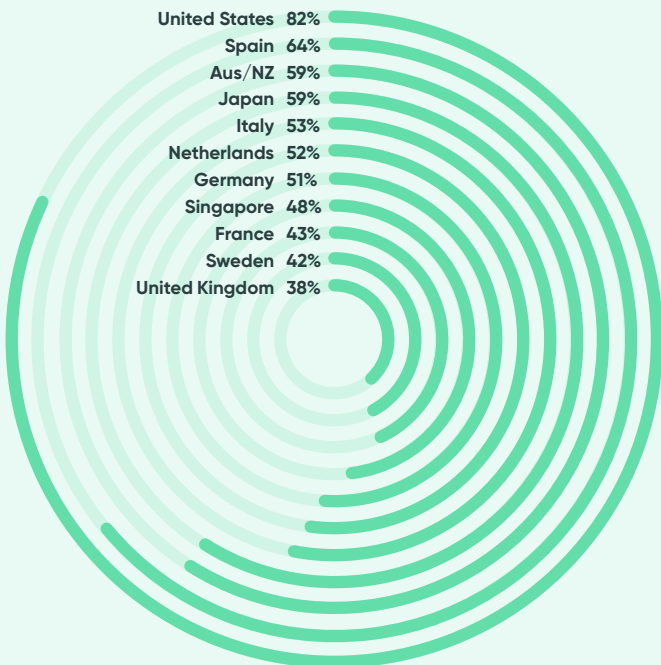
CIOs focus more on strategy in US, ANZ, Spain

To what extent do you agree with the following statement about your role: I am increasingly focused on strategy, rather than operations. Strongly agree and agree responses shown.

United States	78%
Aus/NZ	72%
Spain	69%
Sweden	64%
United Kingdom	63%
Singapore	61%
France	59%
Germany	57%
Japan	57%
Italy	51%
Netherlands	40%

CIO budget for workflow digitization

Have you significantly increased IT's budget dedicated to digitization strategy? "Strongly agree" and "agree" responses shown.

United States	82%
Spain	64%
Aus/NZ	59%
Japan	59%
Italy	53%
Netherlands	52%
Germany	51%
Singapore	48%
France	43%
Sweden	42%
United Kingdom	38%

The CIO role by industry

CIOs are focused on different strategies to overcome challenges to success.

CIOs across five major industries are grappling with different challenges that are limiting their ability to digitize workflows and drive value for their organizations, according to a survey of 516 CIOs conducted by Oxford Economics and commissioned by ServiceNow.
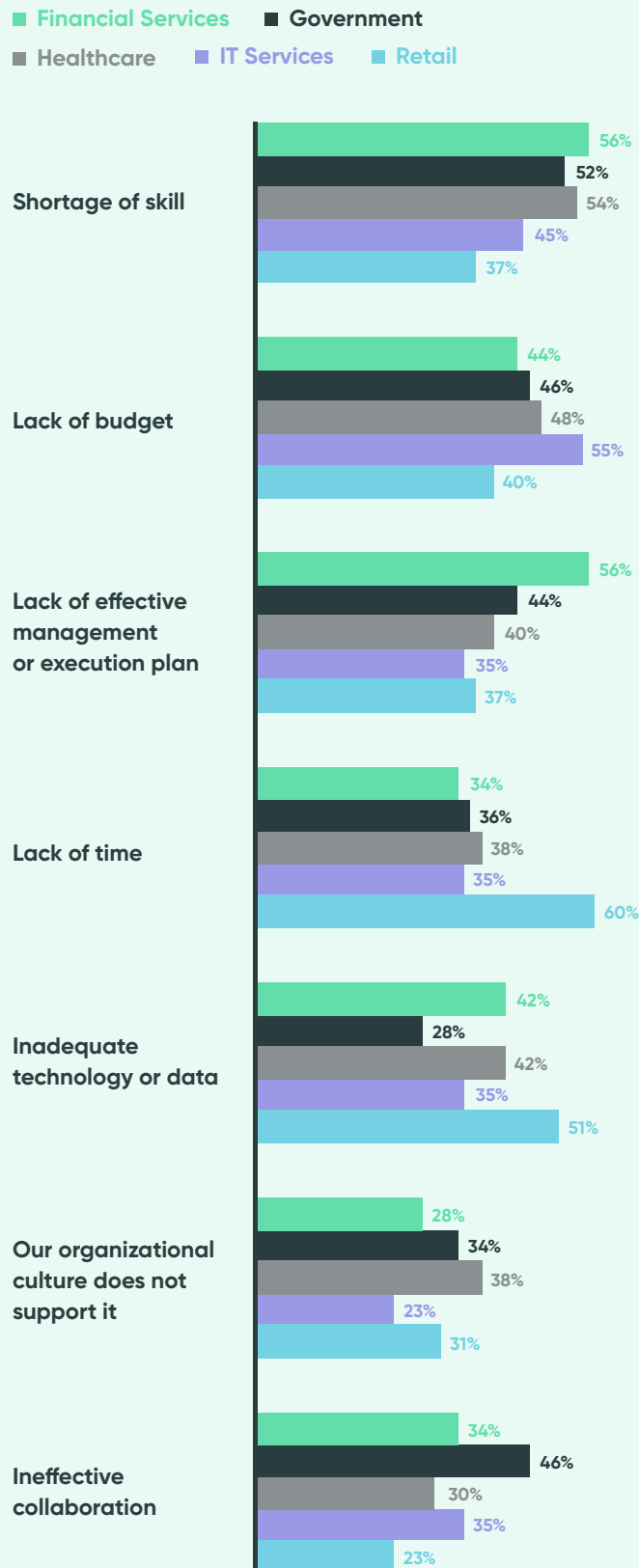
Financial sector CIOs are more likely than others to cite a lack of an effective management plan (56% rank it as a top-three challenge to digitizing workflows, versus 42% on average across other industries). CIOs in retail say they lack the time (60% versus 40%) and adequate technology or data (51% versus 41%). CIOs in IT services see limited budgets as a greater challenge than others (55% versus 46%). CIOs in healthcare are more likely to cite a non-supportive organizational culture (38% versus 30%), and also cite a shortage of skills (54% versus 45%). Public sector CIOs are more likely to see ineffective collaboration as a challenge (46% versus 36%).

This may be why these technology executives are emphasizing—and see themselves as effective in—strategies that can build momentum to counter these challenges.

For instance, financial sector CIOs are more likely to effectively share a culture of innovation with external partners and increase budget for digitization, which could help them drive innovation from the outside. Retail-sector CIOs are more focused on building specialized teams that can advance digitization, while those in government are more likely to effectively present the results of their programs to leadership. Healthcare executives lean on their relationship with the CEO and are focused on improving onboarding.
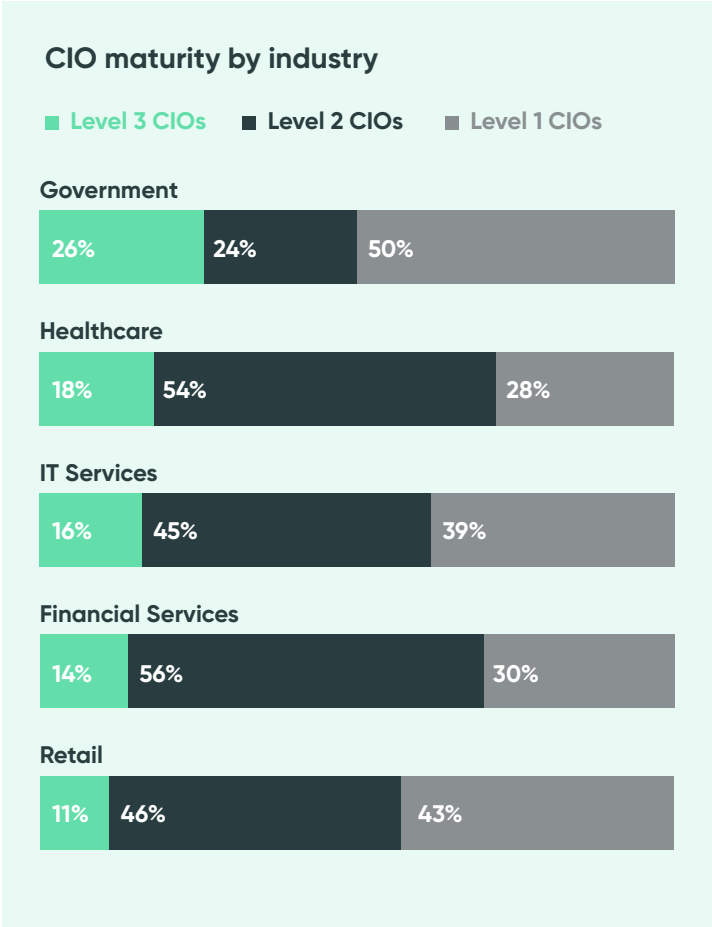
Challenges to digitization by industry

What are the top challenges your organization faces in digitizing workflows? Respondents selected three choices.

■ Financial Services ■ Government ■ Healthcare ■ IT Services ■ Retail

Shortage of skill: 56%, 52%, 54%, 45%, 37%

Lack of budget: 44%, 46%, 48%, 55%, 40%

Lack of effective management or execution plan: 56%, 44%, 40%, 35%, 37%

Lack of time: 34%, 36%, 38%, 35%, 60%

Inadequate technology or data: 42%, 28%, 42%, 35%, 51%

Our organizational culture does not support it: 28%, 34%, 38%, 23%, 31%

Ineffective collaboration: 34%, 46%, 30%, 35%, 23%

Despite their differences, CIOs across all five industries identify skills and talent as critical priorities. A strong relationship with the CHRO and an increased focus on executive collaboration are possible solutions.

The most successful cohort of CIOs in our survey has changed ways of working to increase collaboration and innovation (90% versus 39% others) and promoted that culture of innovation to attract and retain top talent (88% versus 44% others). And the most digital organizations are already seeing results: respondents in this leader group are more likely to say they are highly successful at attracting and retaining top talent (45% versus 26% others) and at developing new products and services (46% versus 31% others). CIOs in all industries could learn from these digital leaders.

CIO maturity by industry

■ Level 3 CIOs ■ Level 2 CIOs ■ Level 1 CIOs

Government

| 26% | 24% | 50% |

Healthcare

| 18% | 54% | 28% |

IT Services

| 16% | 45% | 39% |

Financial Services

| 14% | 56% | 30% |

Retail

| 11% | 46% | 43% |

Measuring CIO leadership

Learn how researchers ranked 516 CIOs, and take a five-question quiz to see how you compare.

A s a CIO, are you positioned to advance workflow digitization and business value? How would you measure your influence and accomplishments in your organization against peers from around the world?

Based on survey data, researchers at Oxford Economics created a maturity model to answer those questions. They've examined the most important capabilities for the modern CIO, incorporating input from industry leaders, and ranked the 516 survey respondents based on their answers.

Tiffany Hall, Chief Information Officer, Cancer Research U.K.

The top-performing CIOs, roughly 20% of the survey pool, are at the most advanced stage of maturity, Level 3. They consider themselves mostly effective or highly effective on five core metrics:

Technology implementation: Using advanced technologies in innovative ways.

Process digitization: Constantly re-evaluating business processes for opportunities to apply digital technologies.

Collaboration: Partnering with other departments or business units through seamless communication and cooperation.

Skills and talent: Building recruitment and retraining plans to acquire or develop skills needed to move forward.

Value management: Measuring outcomes against defined goals with the intent to adjust strategies.

Level 2 CIOs are at the middle stage of maturity, considering themselves at least somewhat effective on these five metrics. Roughly 45% of the CIOs in the sample are at this stage.

Finally, Level 1 CIOs are the least advanced and account for the remaining 35% of the sample. Most fail to get effective scores on any of the five core areas, and a tiny fraction of the laggards are mostly or highly ineffective on every single metric.

How rare is it to hit it out of the park? Even among the highest performing CIOs who reach level 3 status, only four could claim they are highly effective in every area. So even among the leaders, there is room for growth.

Take the quiz

Answer the same five quick questions to track your maturity level. Upon completion, you'll receive recommendations for how to advance to the next level.
workflow.servicenow.com/cio-quiz

In-demand CIOs

A top CIO recruiter shares advice on the capabilities CIOs need today.

Martha Heller, Chief Executive, Heller Search Associates

Watch the video

▶

workflow.servicenow.com/in-demand-cios

The most sought after skills in a CIO have changed dramatically as the position has evolved in recent years. Martha Heller, a veteran recruiter for IT execs, the chief executive of Heller Search Associates, which specializes in the CIO, CTO and CISO roles, and an editor of CIO magazine for the past 20 years, has witnessed this firsthand.

Heller works closely with CEOs and boards of directors to help them find the right tech leader for their organizations. She spoke with Workflow Quarterly about what she hears most often from CEOs, what her ideal CIO resume looks like, and how she knows whether someone has the skills necessary to succeed these days.

Edited excerpts:

How has the role of the CIO changed?
The skill required for the CIO was software development. They had to be able to deploy large, off-the-shelf packaged software to the betterment of a company's processes and employee productivity. They had to be good budget managers because companies were finding that they were spending more and more money on technology. And they had to be good people managers because IT organizations in the late '90s started to grow.

Today's CIOs need to understand their markets, they need to understand their competitive landscape, they need to be able to convince a wide range of executives who are stuck in an industrial-era way of thinking to think differently about their companies and to recreate their business for a digital age. So business acumen is probably the most important skill for today's CIO. With that comes communication, change management, influence, interpersonal skills, relationship building.

However, and here's the rub, they still need to be good technologists. The best CIOs working today are able to talk to their boards about transformation, about business models, about markets, and then they need to be able to turn around and talk to their vendors about their architectures and whether this new product is really plug-and-play in their environment. The need for a CIO to be technical today is just as great as it was back in the '90s.

What are CEOs looking for in tech leaders?

CEOs are looking for CIOs who can be a part of their executive committees, be strong business leaders who will build collaborative partnerships with other members of the executive committee.

They're looking for CIOs who not only have a history of attracting and developing talent, but who can partner with the HR organization to bring a talent development program and a talent development capability to their businesses. They're looking for CIOs who can take the metrics and business outcomes that are held dear by executives in sales and marketing and operations and bring those right into the IT organization so that this us-and-them dynamic that often exists between IT and the rest of the business will be a thing of the past.

CEOs are looking to their CIOs to be part of a transformational team to change the entire culture of the company, to change the business model, to change the operating model to leverage emerging technologies to create something that the CEO has never seen before.

CEOs who have always relied on certain levers to grow their business now have a brand new lever—emerging technology—that they don't know very much about. They're looking for their CIOs to be an enterprise leader who will drive the dramatic cultural change to create a successful business for a new era. Oh, and also email has to work.

What are boards looking for in tech leaders?

The language of the board is the language of finance. So the responsibility of CIOs when presenting to boards of directors is to wrap information security investments in financial terms that will give boards the confidence that their technology infrastructure is safeguarded.

Boards of directors are also very interested in CIOs who have the experience of transformational leadership. That transformation might be taking a legacy, fragmented, costly, insecure infrastructure and making it more robust, or that transformation can be taking the businesses that we've been in for 100 years and changing that business.

And they're looking for CIOs who will be able to be a part of an executive leadership team to drive transformational leadership so that the company can continue to thrive in a dramatically different environment.

What do you look for in a CIO candidate when you're recruiting?

When it comes to CIO candidates, I have a favorite resume. That starts with a bachelor's degree in computer science, followed by an MBA. I love to see an early start in a large consulting firm, because I want to see a CIO who has developed a point of view on customer engagement, a point of view on IT strategy, a point of view on project management. Then I like to see that newly minted consultant move into industry. I want to see a steady trajectory of upward mobility from a lead developer role to a manager role, to a director, to a VP, and then finally to CIO.

What I also love to see is somebody who has spent time out of the IT function and has spent time in a P-and-L leadership role and even in a sales role, although I will admit that kind of blended experience is quite rare. I would like to see a candidate who has neither spent 20 years all in one company, nor have they spent two years apiece in 10 companies.

What I'm also looking for when I interview candidates is that you have an approach to stakeholder engagement. When I ask you how you fixed the relationship between IT and its business partners, I don't want to hear, "I sat down and talked to some people." I want to hear that you have a point of view, that you have a methodology for engaging a broad range of stakeholders and getting them all on the same page.

A CIO can fix a legacy infrastructure or reskill an organization all on their own and remain insular. I want to see CIOs who have partnered with their head of sales, who

have partnered with the head of customer service to co-create a solution that benefits the company.

I'm also looking for a CIO who has a wonderful track record in talent development. CIOs who have partnered with universities, who have partnered with other organizations to develop intern programs, to develop talent, are of paramount importance to our clients.

Are there any new skills that have emerged lately?
CIOs have always been in the business of automating the processes and automating workflows. Today, with robotic process automation, machine learning, and artificial intelligence, automating processes has shifted into digitizing workflows. A CIO's ability to digitize workflows is of paramount importance to a company's growth because when you free human beings of manual tasks, you allow them to think in more innovative ways. You allow them to think in more analytical ways, and you're creating a workforce of thinkers and change agents from a workforce of manual workers. That's a new skill required for today's CIOs.

The biggest mistake a CIO can make is to introduce new technologies without understanding the way people work. When you lay new technologies over old ways of working, all you get is expensive technology and a lot of frustration. What CIOs will do is understand what digitization technologies are available, understand how people work in their companies, and then marry the two. But if you go in with a shiny new technology toy looking for a place to apply it, you will not improve employee productivity and you will not help your company grow.

How do you know whether a CIO has the right mindset?
When we interview a candidate, we ask them what was the challenge you were facing when you joined your company and what did you do to overcome that challenge. If they lead with technology and say, "I put in artificial intelligence," we know we have somebody who is a technologist first.

Martha Heller, Chief Executive, Heller Search Associates

We're looking for CIOs who talk about the business challenges, the productivity challenges, the workflow challenges their companies were facing. We look for CIOs who try to solve those challenges without going to technology first. What we're looking for is a healthy marriage between technology knowledge and workflow productivity knowledge and a CIO who's able to put the two together.

Meet the experts

Influential CIOs and business experts share advice on how to succeed
as a technology leader today.

Chris Bedi
on speed, data, and experience

Chief Information Officer, ServiceNow

"The key is figuring out a way to build that horizontal fabric
so that the employee doesn't feel the complexity."

Helmuth Ludwig
on value metrics

Chief Information Officer, Siemens

"We want to make the life of our Siemens team colleagues,
which is around 380,000 worldwide, easier."

Lori Beer
on bold goals

Global Chief Information Officer, JPMorgan Chase

"[When] people can see the power of the platforms coming
together to deliver and orchestrate a new product or
service, that's when they can start believing."

Ravi Bala
on collaboration

Chief Information Officer, Prudential Financial, Customer Office

"We've got to understand why the transformation exists
or is being called upon."

Jason Blackman
on employee experiences

Chief Information Officer, Carsales.com

"We now realize that as much as we invest heavily in our customers, we've also got to invest in ourselves, so that our processes and capabilities internally don't fail to meet that customer expectation at some point in the future."

Pat Wadors
on HR and IT together

Chief Talent Officer, ServiceNow

"HR and IT are better together because: one, we care about servicing the employees; two, we're business focused; and three, everything that we do touches every employee every day that they're here, and we might as well make it worth it."

Tiffany Hall
on innovation

Chief Information Officer, Cancer Research U.K.

"We should be change leaders."

Meet all the experts

Read more advice from CIOs and leadership experts.
workflow.servicenow.com/cio-experts

CIO-CHRO partnership

CIOs are reinventing employee experiences with the CHRO, and finding new ways to drive and measure value.

ServiceNow CIO Chris Bedi and Chief Talent Officer Pat Wadors talk about the IT-HR collaboration.

Watch the video

▶

workflow.servicenow.com/cio-chro-collaboration

Video transcript:

Chris Bedi: I think IT and HR really have to come together and I know you and I partner a lot.

Pat Wadors: One of my best belonging moments in this company and with you was when we did the whiteboard on the employee training map.

CB: That was great. We were talking about employee experience and then, I don't know how, we just started to draw. And first it was, these were your words, not mine, we need to codify an employee journey. Because I said, "Well, what's the tech involved at each step?" We had it all done and I was feeling pretty good about it and he said, "Well, we're missing something."

PW: I wanted to make sure that we didn't forget the employee. What is it that we want our employees to feel at those moments that matter?

CB: In our chat bot, if you go there on your work anniversary, the first thing that happens is confetti comes down. It makes the digital experience start to feel very human.

PW: The human and technology creates this lift. HR and IT are better together, because, one, we care about servicing the employees. Two, we're business focused, and three, everything that we do touches every employee every day that they're here and we might as well make it worth it. Having an experience that's threaded through, that's intentionally designed, is a differentiator today.

CB: For a lot of the moments that matter, it lives in white space. Manual processes today.

PW: Email.

CB: Right? And that-

PW: Spreadsheets.

CB: Yeah. The key is figuring out a way to build that horizontal fabric so that the employee doesn't feel the complexity. They just touch that unified portal, unified chat bot, and underneath it all, you have all the digital workflows.

PW: What you've influenced me to think about is productivity and service level agreements and the cost of the architecture and predictable data and the insights so I remove waste. And really create amazing moments that attract the talent, and improves our talent brand.

I can onboard you and have you productive quicker. So think about revenue. Think about a sales rep on the ground. If I can take you from a six-week cycle down to a three-week cycle of acts, that's real value to the business.

CB: That's big dollars.

PW: And I also count smiles.

CB: Yes. IT leaders are going to approach this from a certain angle. What's the architecture? What's the end-to-end flow? What's the data integration? What are the analytics I need to get out of it? And sometimes what gets lost in that are what you start with, which is we're trying to drive engagement. We're trying to drive retention, we're trying to attract talent, and we need to mush those two things together. And what comes out hopefully is the power of our combined thinking. Sort of a one plus one equals three.

PW: I love that.

Workflow Quarterly
Upcoming issues

Ravi Bala, Chief Information Officer, Prudential Financial, Customer Office

AUTUMN 2019: THE STRATEGY ISSUE

How can CIOs shape the future of work?

This issue will map out the journey for CIOs to make work better in their organization. It will define a vision for how digital workflows can transform various business lines, including customer service, human resources, and information security.

WINTER 2019: THE CULTURE ISSUE

Does workflow digitization make people happy?

This issue will identify the connection between people and machine through an in-depth ethnographic investigation, which will illustrate the impact of process automation on employees.

Visit workflow.servicenow.com/quarterly to read the latest issue online.

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