The job of being an information technology leader has never been so challenging, yet so exciting. No matter what one's formal title—chief information officer (CIO), chief technology officer (CTO) or vice president—business technology leaders have been thrust into the forefront of change, as organizations embrace the digital revolution and redefine their missions. However, there is a divergence in how CIO and IT executives are embracing the digital revolution. Some have taken leadership roles in guiding their organizations' digital transformations, while others remained more confined to more traditional roles overseeing the management and deployment of technology.

To better understand the transformation occurring within IT executive roles—as well as the transformation they are leading within their business—Forbes Insights conducted a global survey of IT leaders in enterprises with $250 million or more in annual revenues, and received 305 responses. Close to half of respondents, 47%, held the CIO title, while 30% headed up departments or business units. Another 10% were vice presidents, and 8% were CEOs or presidents of their organizations. Participating executives came from a range of industry groups, including the technology sector (33%), financial services and banking (11%), retail/consumer products (10%), healthcare (9%), energy (6%) and manufacturing (6%).

Along with data compiled from the survey, Forbes Insights also spoke with CIOs and IT leaders planning to participate in Forbes' 2016 CIO Summit, held in March.

This report addresses the impact of digital initiatives, and for purposes of this survey, "digital" is defined as the pursuit of business development through cloud, data analytics, social media and mobile channels—versus more "traditional" IT activities such as server maintenance and application management.

The challenge to CIOs and IT leaders is navigating the challenging choices and organizational dynamics that will affect the speed in which they are able to bring about digital transformation. "Driving the digital agenda is no easy task for a CIO," says Yvonne Wassenaar, chief information officer of New Relic, Inc. "It requires CIOs to change what they do and how they execute. Simply running today's business processes securely remains critical but is no longer sufficient. Winning CIOs use technology, data and insights to drive new customer experiences and business models."

Where organizations stand in terms of digital transformation is linked with IT executives' career profiles. To better understand these relationships, survey data was segmented into four distinct groups, each representing "personas" of today's CIOs, based on the extent of their roles in their organizations' digital transformations. Thirteen percent of respondents can be considered "Transformers," meaning they consider themselves to be full partners to the business in the digital journey. Another 43% are "Advocates," meaning that while their organizations haven't

FIGURE 1: THE FOUR CIOS

Transformers—CIOs leading the organization's digital charge; establishing "labs"; seeking both outside and internal innovators

Advocates—CIOs promoting digital concepts to their organizations; launching pilot projects or experiments

Servicers—CIOs providing support and advice for digital initiatives when called upon; but are not proactive in creating or launching digital efforts

Plumbers—CIOs mainly focused on keeping systems running, up to date and compliant, ensuring that all underlying "pipes" are connected and data flowing; no direct involvement in digital initiatives

fully embraced digital, they are leading the way in evangelizing new approaches through efforts such as pilot projects or exploratory efforts (Figure 1).

A significant segment of IT executives are still mired in the traditional ways of IT. Within the survey, 37% of executives take the role of "Servicers," meaning that they may be engaged in developing digital capabilities, but not in a proactive way, implementing solutions only in response to requests or guidance from other business units. Finally, 7% are essentially "Plumbers," meaning that the main emphasis of their jobs is on running the traditional tasks of IT, from server provisioning to coding to security—and in many ways, plugging leaks and unclogging drains are day-to-day IT issues.

RIDING THE DIGITAL WAVE
How quickly are IT executives seeing these roles shift from basic plumbing to advocating or leading digital transformation? There is no argument that digital transformation represents the future of enterprises—it's just a matter of to what degree this will take place. Close to one-third of CIOs and IT leaders in the survey, 31%, say digital transformation will expand significantly within the next 24 months, and another 58% expect to expand their digital activities at a more moderate pace.
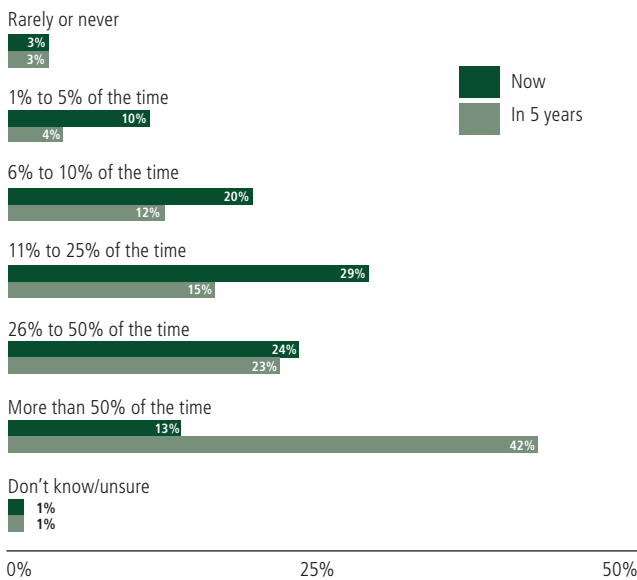
"The maturity of the role has actually come along," says Robert Fecteau, chief information officer of SAIC. "We're

becoming more strategic—not by specific design, but more by necessity to keep the business aligned with its technology investments, to make sure they don't overspend, that the technology supports the way the business wants to go."

IT executives agree that the role of CIOs and IT leaders in enterprises is growing more important than ever before. "I think the demise of the CIO role in business has been greatly exaggerated," says Stephen Gold, executive vice president of business and technology operations and chief information officer at CVS Health. "It's become increasingly clear that the contemporary IT organization—at least the ones that are successfully leading their companies into the future—is now wielding a new kind of power. I don't mean power in the hierarchical sense through departmental command and control, titles and organizational reporting structures. In fact, those don't seem to matter nearly as much as they used to. Instead, I mean power in the sense of genuine, highly effective influence through trusted partnership and collaboration across business units, proactive enablement, orchestration of bottom-up change agency and integration, and new forms of digital leadership."

It's only been recently that "CIOs have moved from the back office to the front lines," says Suma Nallapati, secretary of technology and state chief information officer for the State of Colorado. "They have gone from task manager and implementer to innovator and advisor. With the rise of digital,

FIGURE 2: AMOUNT OF TIME SPENT IN DIGITAL ACTIVITIES

Rarely or never
- 3%
- 3%

1% to 5% of the time
- 10%
- 4%

6% to 10% of the time
- 20%
- 12%

11% to 25% of the time
- 29%
- 15%

26% to 50% of the time
- 24%
- 23%

More than 50% of the time
- 13%
- 42%

Don't know/unsure
- 1%
- 1%

Now
In 5 years

0%   25%   50%

	Time spent with digital in five years:	
	50% or less of the time	More than 50% of the time
TRANSFORMERS	17%	83%
ADVOCATES	66%	34%
SERVICERS	63%	35%
PLUMBERS	52%	48%

CIOs must be at the leadership table with the CEO, the CFO and other business leaders, helping to create an intelligent IT roadmap."

Within a few years, the number of CIOs and IT leaders spending a majority of their time on "digital" activities will almost quadruple. At this time, 13% indicate they spend most of their time in the digital space. In five years, 42% predict their jobs will be mostly digital. While all four CIO personas intend to increase their direct involvement in digital activities, plans are much more pronounced among Transformers. At least 83% of Transformers will be spending most of their time with digital activities in five years—versus 34% of Advocates, 35% of Servicers and 48% of Plumbers (Figure 2).

In many ways, digital is a logical extension of the CIO or IT leaders' roles, versus a major rewrite of their job descriptions. "It's just another delivery of the technology that the business is demanding," says Fecteau. "It doesn't make a lot of sense to treat it as unique. Everything's digital anyway. My job is to deliver digital services, and enable business users with the stuff they want to use, can use and know how to use. I don't consider it a change in what I deliver. But it has to be broader, smarter, faster and be better in new concepts than before."
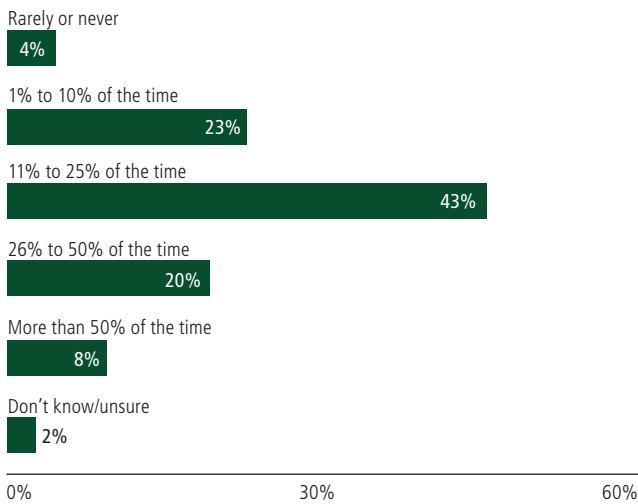
EXTENDING THE BOUNDARIES

As digital becomes a more significant part of day-to-day business, IT organizations are increasingly looking outward, connecting more directly with the external customers their organizations serve. Accordingly, 28% of CIOs report that their teams spend a significant amount of their day—defined in the Forbes survey as more than 25% of their time—working directly with customers and partners outside of the organization (Figure 3).

The vast majority of CIOs and IT leaders, 76%, expect their engagement with outside parties to increase over the next 24 months. In addition, 24% say such engagements will "increase significantly." Transformers are taking the lead with outward-facing IT. A majority of Transformers, 56%, already spend a significant amount of time working with outside parties, versus 29% of Plumbers. Plus, acceleration is more intense at digital enterprises—51% of Transformers expect their outside engagements will increase significantly, versus only 5% of Plumbers (Figure 4).
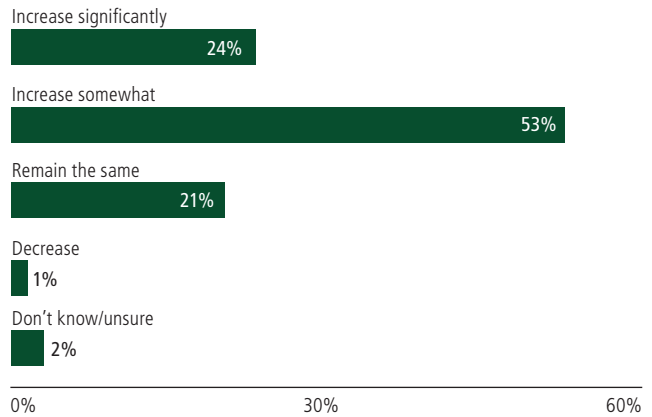
The emphasis on providing capabilities directly to outside customers is shifting IT executives' focus externally. This is especially seen within the government sector, which is increasingly tasked with meeting a range of citizens' information needs. "Our goal is to enhance how citizens experience government at every digital touch point," says Colorado CIO

FIGURE 3: IT DIRECT INTERACTION WITH CORPORATE CUSTOMERS

Rarely or never
4%

1% to 10% of the time
23%

11% to 25% of the time
43%

26% to 50% of the time
20%

More than 50% of the time
8%

Don't know/unsure
2%

0%   30%   60%

	Time spent directly with customers:	
	50% or less of the time	More than 50% of the time
TRANSFORMERS	71%	29%
ADVOCATES	92%	5%
SERVICERS	94%	4%
PLUMBERS	90%	10%

FIGURE 4: HOW IT DIRECT INTERACTION WITH CORPORATE CUSTOMERS WILL CHANGE OVER NEXT TWO YEARS

Increase significantly
24%

Increase somewhat
53%

Remain the same
21%

Decrease
1%

Don't know/unsure
2%

0%   30%   60%

	Plan to significantly increase direct customer interactions
TRANSFORMERS	51%
ADVOCATES	27%
SERVICERS	13%
PLUMBERS	5%

Nallapati. "We've done this with Real Time Eligibility for Medicaid—allowing citizens to apply for and receive real-time eligibility determinations in 45 minutes instead of 45 days. They can also download a mobile app that gives them visibility into their Medicaid claims and status."

At the World Bank Group, IT leaders are becoming advocates for embracing new ways to open up services across the globe, even in the remotest regions. Stephanie von Friedeburg, chief information officer and vice president,

information and technology solutions, for World Bank Group, describes her role as "a convener and an innovator, maybe a bit of an instigator," noting that she is seeing the rapid evolution of IT within her organization. "Instead of thinking about IT as a cost that we need to contain, we're thinking about it as a way to bring about the World Bank Group strategy and our mission of alleviating poverty and creating shared prosperity, and leveraging what we can do to help that happen."

FIGURE 5: WHAT CIOs AND IT LEADERS DO EVERY DAY

Task	%
Manage IT competencies, provide appropriate training and development	37%
Develop, track and control IT annual operating and capital budgets	30%
Lead strategic business decisions regarding the use of technology	25%
Develop business case justifications and cost/benefit analyses for IT spending and initiatives	23%
Identify opportunities for integration, streamlining and potential outsourcing	22%
Direct the design, development and maintenance of systems, programs and systems software to meet organization's needs	22%
Establish policies and procedures	22%
Assess and oversee improvement or re-engineering of the IT organization	22%
Plan corporate business strategies	20%
Assess and communicate risks associated with IT investments	19%
Assure security best practices and implement solutions	19%

0%   25%   50%

DAILY TASKS, DAILY RISKS

Still, there are data centers to run and maintain, cloud relation-ships to manage and data to keep secure. Today's CIOs and IT leaders divide their time between optimizing the effectiveness of their operations and playing a strategic role in the business. On a day-to-day basis, IT executives report they manage IT competencies; provide appropriate training and development; develop, track and control IT annual operating and capital budgets; and lead strategic business decisions regarding the use of technology (Figure 5).
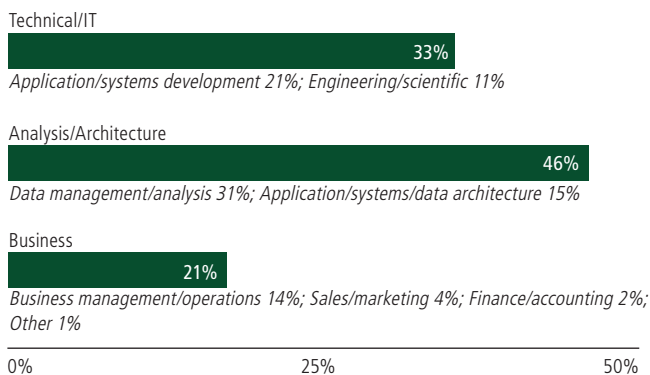
With this rapidly expanding role comes increased responsibility, IT executives agree. "Security was relegated as an IT task five years ago," says Mark Grimse, vice president of IT with Rambus. "Now it is an enterprise risk area. The topic has board-level visibility and impacts on more than just the back office. It now has a much broader impact. With the digital transformation, security now has revenue and earn-ings impact."

Risk management has become an essential part of the job. "At the end of the day, as a CIO, I'm responsible for every dime spent on technology, whether I spend it or not," says Fecteau. "I don't have to control it, but I should know about every dollar that's spent, so I can tell the business what they're spend-ing. I hold myself responsible to the corporation for the second-largest expenditure in the company after human capital. If I don't do this well, I affect the profitability, the stock price, the Wall Street picture of the company. I'm also responsi-ble for the risk, the technology risk insertion that comes with the tech-nology use of the business. I adjudicate that risk on behalf of the CEO."

While CIOs and IT leaders are managing more essential parts of the business, what roles are they taking with emerg-ing digital initiatives? There has been speculation about what the future holds for CIOs and IT leaders, and whether many initiatives—particularly those in the digital arena—are being usurped by other members of organizations. Overall, IT lead-ers agree that the role of CIO is gaining more prominence in organizations with the growth of digital channels and pro-cesses. "I don't think the role of CIO is going away anytime soon, and again, different organizations have different struc-tures," says Jake Flomenberg, partner with Accel Partners.

FIGURE 6: CAREER BACKGROUNDS OF CIOs AND IT LEADERS

Technical/IT
33%
Application/systems development 21%; Engineering/scientific 11%

Analysis/Architecture
46%
Data management/analysis 31%; Application/systems/data architecture 15%

Business
21%
Business management/operations 14%; Sales/marketing 4%; Finance/accounting 2%; Other 1%

0%   25%   50%

	Technical/IT (Development/ Engineering)	Analysis/ Architecture	Business (Management/Sales/ Finance/Other)
TRANSFORMERS	44%	34%	22%
ADVOCATES	32%	49%	19%
SERVICERS	28%	50%	22%
PLUMBERS	33%	33%	33%

"We've witnessed the rising importance of security, and this is rolled up under the CIO." Now, there are questions of data and application ownership arising, especially as analytics gains more prominence. "Is there friction in the way ownership is created?" says Flomenberg. "Are there clear guidelines within a company of who owns something, and whose decision is it? We see this very often in analytics, where you need to build this centralized repository to understand what's going in marketing. That's what the CIO would likely do." A chief marketing officer, on the other hand, may be more concerned with propose-built verticalized analytic applications, he continues. "Who gets to make this decision at the end of the day?

There may be a lack of clarity, and that causes friction. People are just frustrated that they don't know what the rules are."

This clarity is important, especially as other parts of the enterprise get more interested in working with digital approaches. "The CIO is responsible for the digitization, the operation and the IT support to the business in a managed state," says Fecteau. "When you have somebody like a chief digital officer, chief marketing officer and chief bottle-washing officer coming in and managing that technology independent of the CIO, then you have a weak CIO."
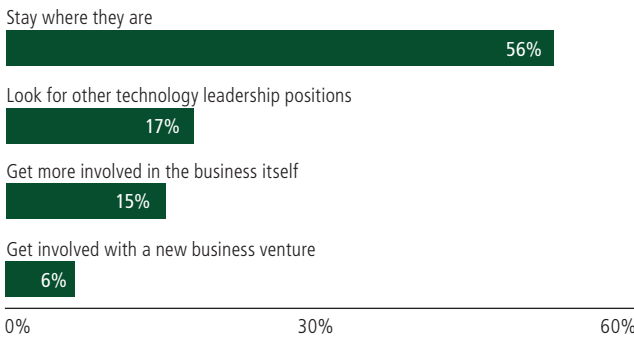
CAREER ASPIRATIONS

The technology powering organizations may be changing, and many CIOs see themselves moving closer to the business. "The role of the CIO has changed significantly over the last five years from a strictly technology-related role to a role where technology is the driving force in most businesses today," says Michael Kiethley, CIO of Creative Artists Agency. "Modern CIOs aspire to be business leaders, not technology leaders who are separate from the business. They are one and the same, and IT is the business. We have moved beyond technology order-taking to embedding ourselves into the day-to-day activities of our companies, and we no longer only serve internal customers but serve the entire business's customers."

Conventional wisdom holds that IT executives emerging from the technical IT field may have difficulties taking a leadership role in overseeing the organizational shifts transforming their enterprises. The good news for those who have come up through the IT ranks is that the ability to develop business leadership acumen comes with the territory. The survey finds IT executives from more technical backgrounds are taking the lead in greater numbers than their business-trained counterparts. Forty-four percent of the Transformers leading the digital charge say they have technical backgrounds, versus about one-third of executives less active in the digital space (Figure 6).

Still, in many cases, organizations are drawing from talent that may be outside the IT organization to help realize the

FIGURE 7: WHERE DO CIOs AND IT LEADERS WANT TO TAKE THEIR CAREERS?

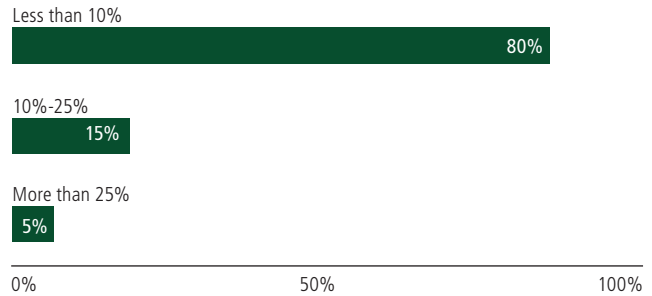*In five years, CIOs/IT leaders want to…*

Stay where they are
56%

Look for other technology leadership positions
17%

Get more involved in the business itself
15%

Get involved with a new business venture
6%

0%   30%   60%

In five years, CIOs/IT leaders want to…				
	Stay where they are	Look for other technology leadership positions	Get more involved in the business itself	Get involved with a new business venture
TRANSFORMERS	71%	12%	7%	7%
ADVOCATES	69%	11%	11%	3%
SERVICERS	43%	23%	19%	7%
PLUMBERS	14%	24%	38%	10%

FIGURE 8: AVERAGE ANNUAL SALARY INCREASES OVER THE LAST THREE YEARS

Less than 10%
80%

10%-25%
15%

More than 25%
5%

0%   50%   100%

	Less than 10%	10%-25%	More than 25%
TRANSFORMERS	56%	24%	20%
ADVOCATES	85%	13%	2%
SERVICERS	81%	14%	3%
PLUMBERS	90%	10%	0%

digital dream. The World Bank's von Friedeburg observes that her career in the business side helped elevate her to the CIO role. "I was running our investment portfolio in the IT and telecom space," she says, adding that her organization needed people who could "figure out how to bring the technology stack and the business closer together, and ensure that the investments we were making were the right investments."

For the most part, CIOs and IT leaders are highly satisfied with their current jobs. A majority, 56%, want to stay where they are, while 17% intend to look for other technology leadership positions. At least 15% want to move into business management. Interestingly, only a handful, 6%, express any desire to either launch or get involved with a startup (Figure 7).

There is a positive correlation between the depth of digital work and career satisfaction. Transformers are significantly more satisfied—71% of Transformers like it where they are. By contrast, only 14% of Plumbers want to stay where they are. It's notable that 38% of Plumbers want to get more involved with the business, reflecting their aspirations to become more intimately involved in growing the business, versus the more limited role of keeping the data center lights on.

Transformational leaders are even seeing larger paychecks, the survey also finds. In line with the value being provided to their organizations, CIOs and IT leaders taking the lead with digital transformation also saw greater rewards for their efforts. Close to half of Transformers, 44%, report their salaries rose by more than 10% over the past five years, compared with only

FIGURE 9: DIGITAL SKILLS IN DEMAND

Cloud computing development/operations
57%

Software and solutions technical proficiency
52%

Mobile computing development/operations
47%

Social media engagement/analysis
47%

User experience/design
42%

Content development/management
39%

Knowledge of machine learning
38%

Experience in statistical analytics languages/platforms
35%

0%   30%   60%

SKILLS FOR SUCCESS

A majority of CIOs and IT leaders report their organizations are seeking key digital-related skills, including the ability to develop and manage cloud projects, along with mobile and social development efforts. Still, basic software skills also continue to be in demand by most enterprises (Figure 9).

The World Bank's von Friedeburg says that finding professionals who are well-versed in data is a challenge, but her organization is overcoming this through partnerships across various industries. "Finding data scientists is difficult for us. So I keep good connections with companies in Silicon Valley, and other places where people are doing very interesting things." For example, she illustrates, the World Bank partners with Orbital Insight to gather satellite-based data to measure the distribution of poverty in nations—by measuring lighting patterns at night and traffic patterns in the daytime. "Orbital Insight was able to bring business and the technology together with our economists," she recounts. "Part of my job is matching people up."

"The war for talent has gone digital, both at the management level and among the professional ranks," says CVS Health's Gold. "There's a real demand for IT leaders who can blend technology with end-to-end design. IT organizations have to help point the way to create an agile business environment, and serve as a primary engine of change for their companies. They have to be enablers, protectors and value creators. These skill-sets will help achieve better, higher-quality delivery through more rigor; drive better insights through a discipline of analytics; and produce better products and services through a blend of design and technology."

10% of the Plumbers. One in five Transformers even report their annual salaries increased at a clip of more than 25% annually (Figure 8).

It's notable that close to nine in 10 organizations pay premiums across the board to employees engaged in digital efforts. However, these premiums vary greatly: 15% say the premium is less than 10% of base pay, while a majority, 51%, put the range at 10% to 20% of base pay. For 23% of enterprises, employees may draw more than 20% of typical base pay for their digital projects.

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