

2017 State of IT

IT leaders need a full stack of skills to survive and thrive in today's technologically driven world, and striking a balance between cost control and innovation is crucial.

By Stan Gibson



About the Author



Stan Gibson is an award-winning editor and writer, with 33 years of experience covering information technology. Formerly executive editor at eWEEK and PC Week, he is currently principal at Stan Gibson Communications where he continues to write about all aspects of IT.

Research Summary

- **Survey Name:** Interop ITX and InformationWeek 2017 State of IT Survey
- **Survey Date:** March 2017
- **Region:** North America
- **Respondent base:** 400 technology professionals involved in the purchase of technology at companies of all sizes. The margin of error for the total respondent base (N=400) is +/- 4.8 percentage points.
- **Methodology:** Interop ITX and InformationWeek surveyed technology decision-makers involved at North American companies.
 - The survey focused on how organizations utilize technology to help achieve business goals.
 - The survey was conducted online, and respondents were recruited via an email invitation containing an embedded link to the survey. The email invitation was sent to a select group of UBM's audience.
 - One-third of the final survey respondents held director or manager of IT or networking titles, and more than one-quarter were IT and corporate executive management (e.g., CIO, CTO, CEO, or VP). A broad spectrum of industries is represented. Half the companies worked at companies with under 500 employees and half had 500 employees or more. UBM was responsible for all programming and data analysis. These procedures were carried out in strict accordance with standard market research practices.

Executive Summary

IT Executives Need to Play with a Full Stack

The advent of digital business – data interconnected with strategy – is top-of-mind for today's IT leaders. And the push to become a digital business is directly reflected in the concerns and priorities of IT executives and managers. Although keeping a lid on costs is always a major priority, a new Interop ITX and InformationWeek survey finds IT executives and managers engaging across a broad range of IT issues in today's new digital business environment.

It is our contention the IT leaders who will fare best are the ones who are taking on the full stack of technology concerns. These are:

- **Cloud:** Understanding the business impact of cloud, and deploying cloud effectively.
- **Analytics:** Gaining transformative benefit from analytics, including big data predictive analytics, which may be based on the Internet of Things (IoT).
- **Infrastructure:** Modernizing underlying technology to support new initiatives.
- **Security:** Protecting data effectively and economically.
- **DevOps:** Implementing a DevOps strategy, a proven means of superior application development and deployment.
- **Skills:** Solving the staffing skills conundrum through hiring and training, or cutting dependency on staff through alternatives such as the cloud.

The Search for Innovation

Every IT leader wants to be an innovator, but is cutting costs innovating? No. However, IT leaders understand the essential connection between the two. Respondents to our survey say the main way they will innovate in 2017 is by lowering IT and business costs, and they consider financial planning and cost control to be the most important factor in achieving IT success.

Innovating Through Technology

What are the primary ways your organization plans to innovate in 2017?



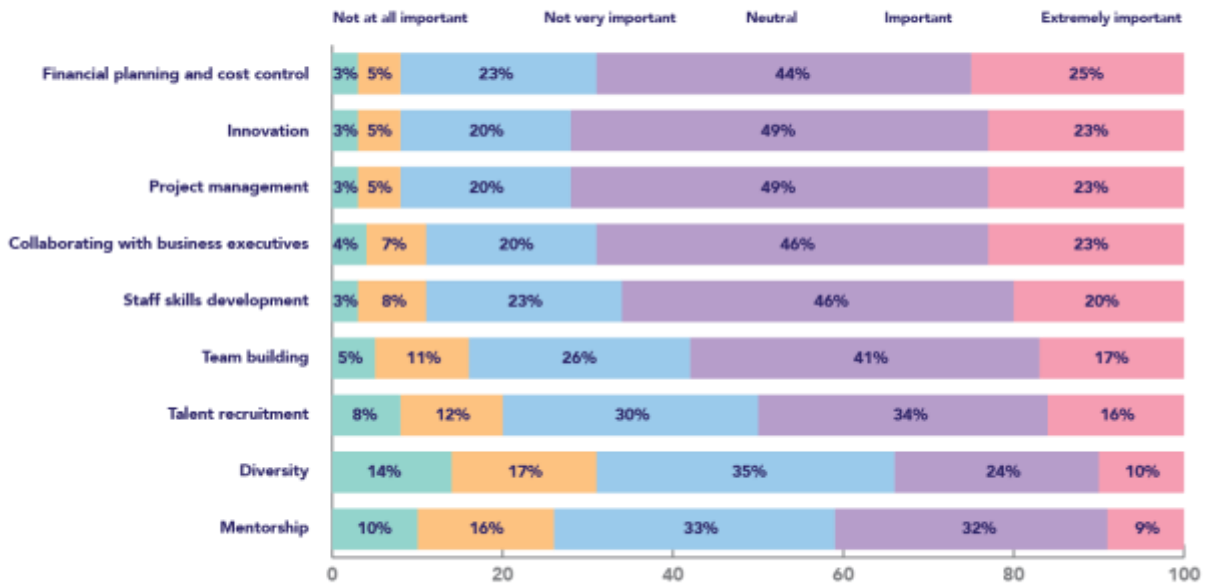
Note: Maximum of three responses allowed

Data: UBM survey of 400 technology decision makers, March 2017

It's a praiseworthy sign of IT maturity to link cost control with innovation, because budget issues are never-changing facts of life for IT decision makers.

Factors in IT Success

How important are the following concepts to IT success in your organization?



Data: UBM survey of 400 technology decision makers, March 2017

On the flip side, the next most popular ways that IT leaders plan to innovate is through improving IT sustainability, improving customer service, and introducing new IT-led products and services. This shows that despite cost concerns, IT is moving beyond the "keeping-the-lights-on" mentality and focusing on areas of growth.

How are they actively driving that innovation within their organizations? The largest percentage of respondents (37%) say they create ad hoc teams to explore innovative projects as they arise.

Thirty percent of organizations have included innovating with technology as part of employee goals, and 26% have carved out segments of their budgets specifically to fund innovation.

IT Driving Innovation

In what ways is IT actively driving innovation at your company?



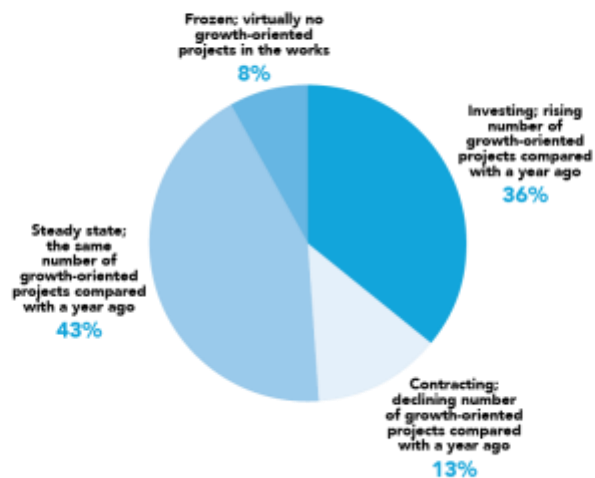
Note: Multiple responses allowed

Data: UBM survey of 400 technology decision makers, March 2017

When we asked more broadly about budgets, the news was positive overall. Seventy-nine percent of respondents report that investments in IT at their companies are either rising or

Investment in IT to Support Revenue Growth

How would you characterize your organization's IT plans this year, in terms of projects intended to drive or support revenue growth?

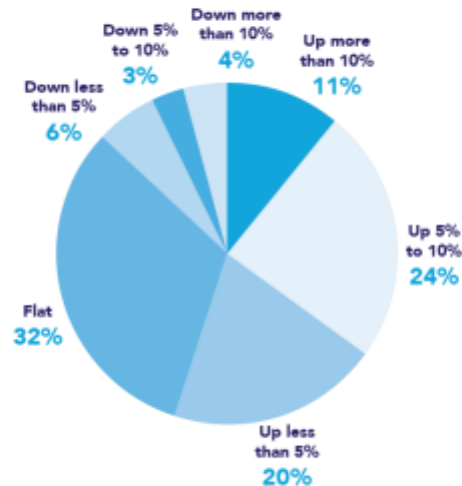


Data: UBM survey of 400 technology decision makers, March 2017

remaining at a steady pace, and 55% say their budgets for 2017 increased compared to 2016.

IT Spending Trend

How do you estimate your organization's 2017 IT spending will compare with 2016?



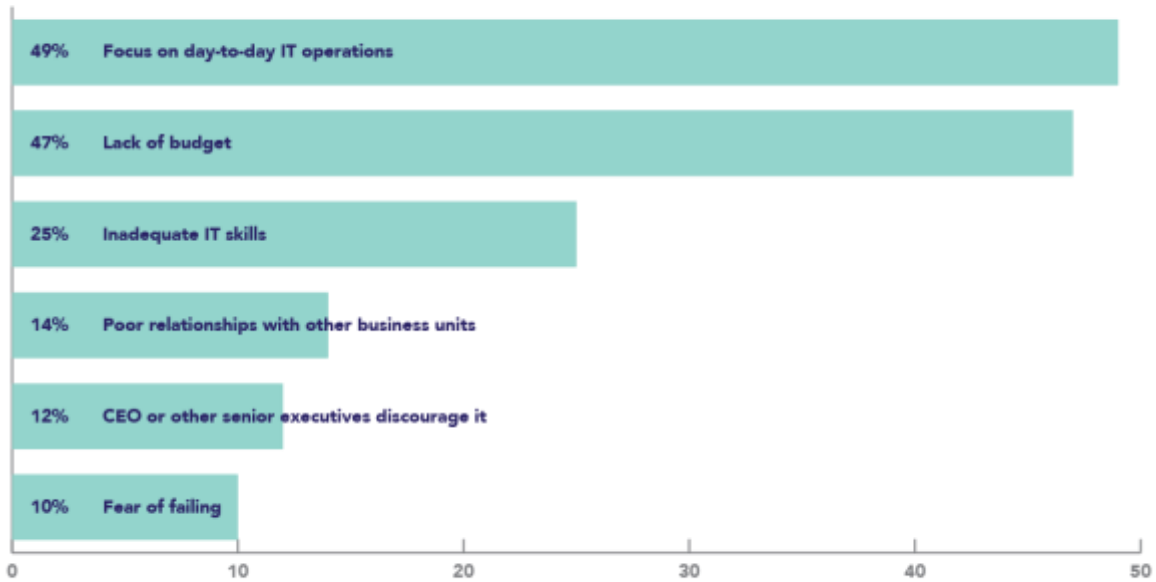
Data: UBM survey of 400 technology decision makers, March 2017

Perhaps IT feels the pinch of cost control because of expanding expectations and the need to support a far greater breadth of projects than in the past.

Respondents also understand what *prevents* them from innovating, and cost raises its head again. The top three causes: focus on day-to-day IT operations (49%), lack of budget (47%), and inadequate IT skills (25%). IT executives know the faster and more effectively budget challenges are overcome, the sooner they can get down to the business of leading through technology. This survey found the top technologies to be cloud computing and data analytics.

Barriers to IT Innovation

What prevents IT from innovating at your company?



Note: Multiple responses allowed

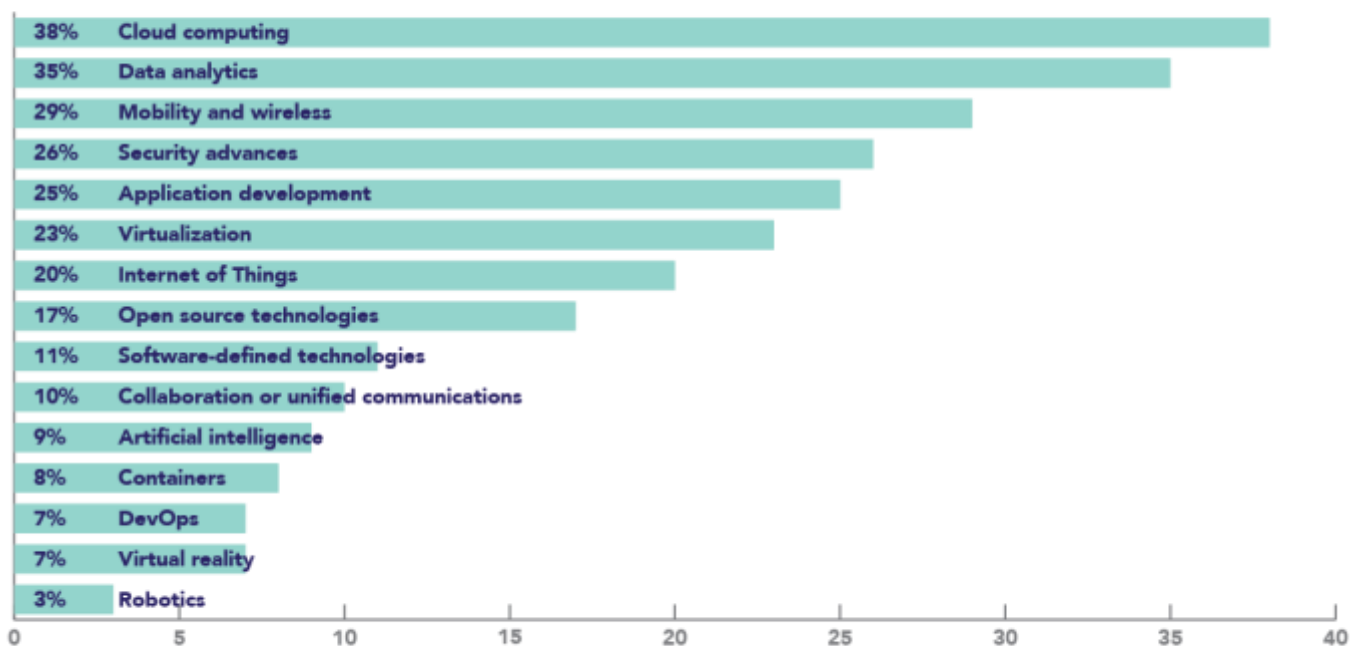
Data: UBM survey of 400 technology decision makers, March 2017

Cloud First

The cloud's time has come. It doesn't take acute insight to connect the dots between the 41% that say their primary path to innovation will be lowering both IT and business costs and the 38% that say the cloud potentially will have the greatest positive effect on the business in the next five years. The primary reason for the cloud's rise to prominence is that it promises lower costs.

Technologies' Positive Effect on Business

Which technologies have the greatest potential to have positive effect on your business in the next 5 years?



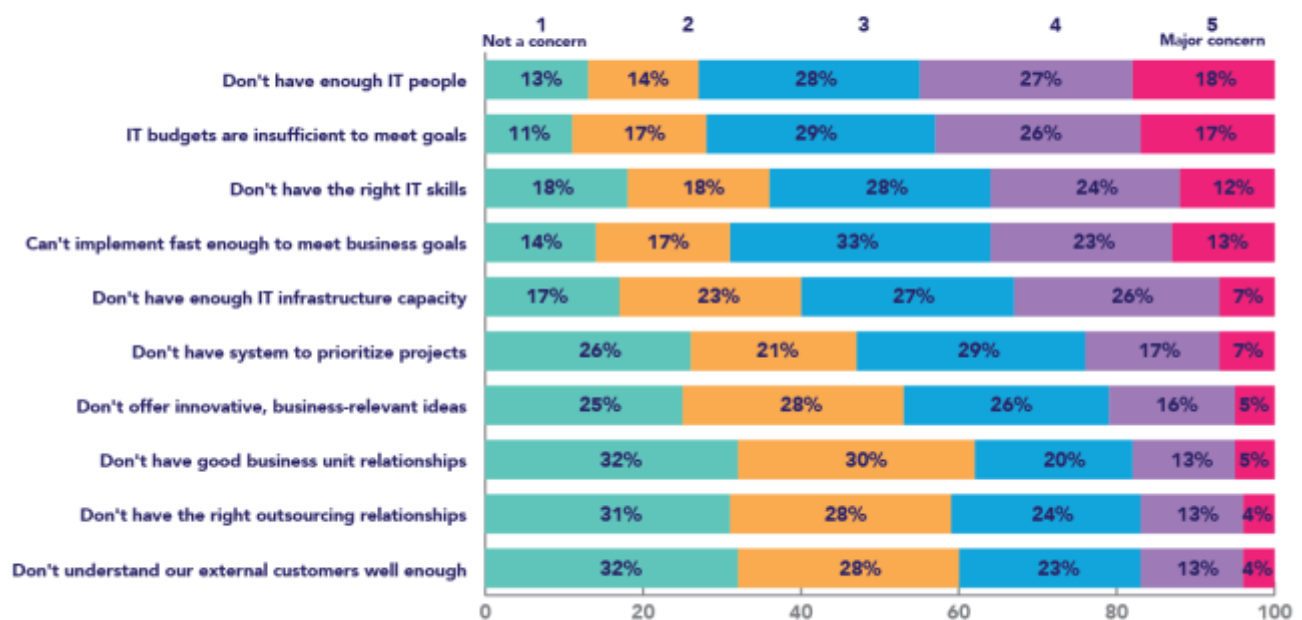
Note: Maximum of three responses allowed

Data: UBM survey of 400 technology decision makers, March 2017

But there's more to the cloud than that. We asked respondents their concerns with regard to supporting business goals. Their top concerns are all addressed by the cloud, beginning with not having enough IT people. A great way to reduce the need for data center staff is to hand over infrastructure and applications to cloud service providers.

Supporting Business Goals Concerns

How great a concern is each of the following factors with regard to your IT organization's ability to support business goals?



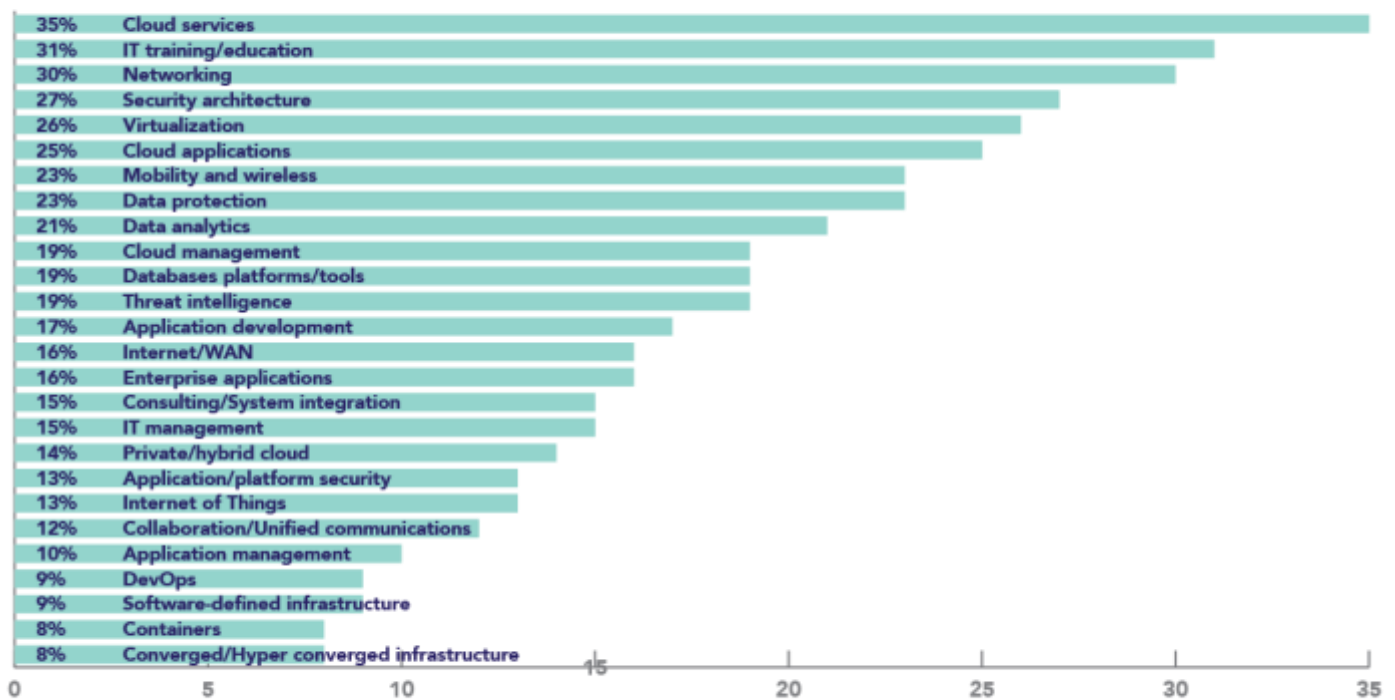
Data: UBM survey of 400 technology decision makers, March 2017

The second top concern is insufficient IT budget. Again, if the cloud can deliver the lower costs that everyone expects, then it will answer that concern as well. The third top priority is not having the right skills – which could be another way for IT leaders to say they don't have enough IT people. And the fourth priority, not being able to implement fast enough to meet business goals, is also addressed by the cloud's ability to launch applications and spin up servers quickly. The fifth concern, not enough IT infrastructure capacity, is answered by the cloud's ability to provide capacity on demand.

Showing they have synchronized vision with strategy, IT leaders are planning to purchase cloud services ahead of all other technology purchases in the next year or more (35%).

Planned Technology Purchases

What technologies or solutions does your organization plan to purchase in the next year or more?



Note: Multiple responses allowed

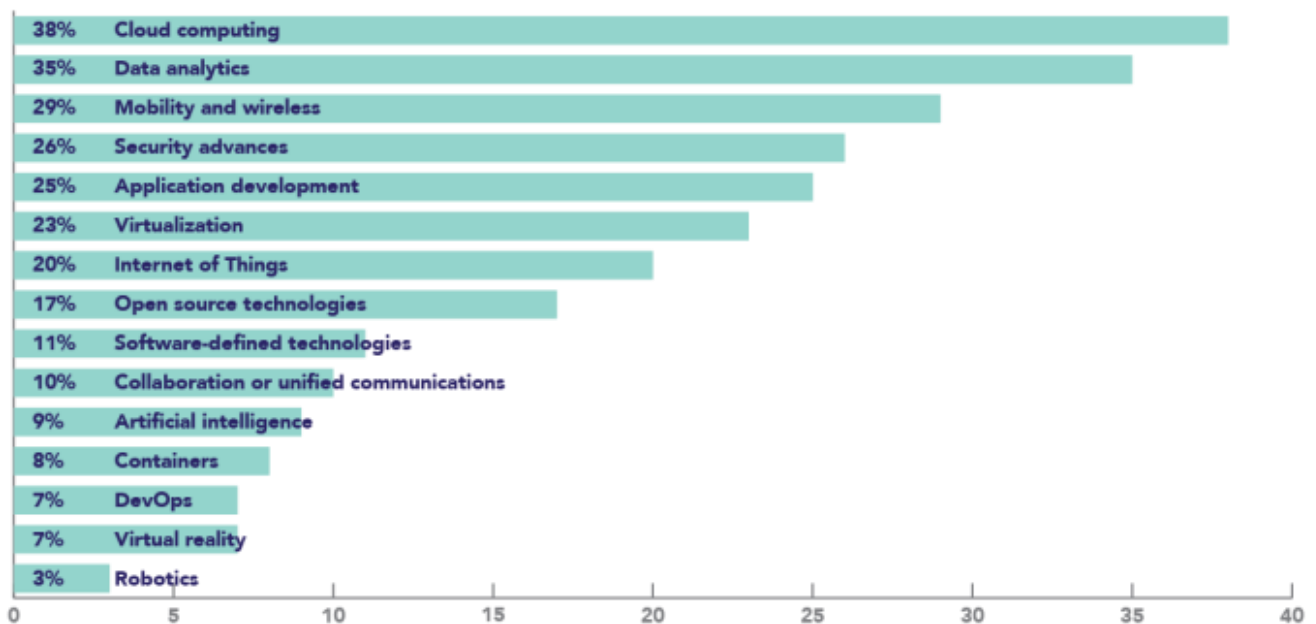
Data: UBM survey of 400 technology decision makers, March 2017

Analytics

Data analytics are right behind cloud computing as the technology expected to have the greatest positive effect on respondents' businesses. There's good reason for that.

Technologies' Positive Effect on Business

Which technologies have the greatest potential to have positive effect on your business in the next 5 years?



Note: Maximum of three responses allowed

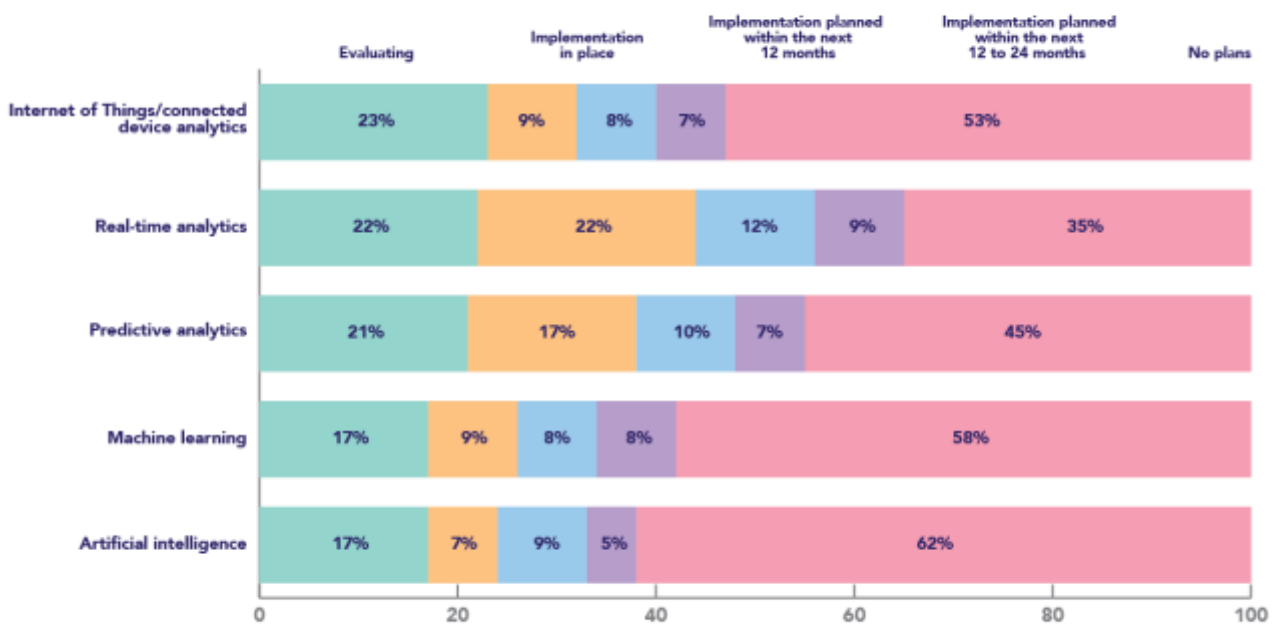
Data: UBM survey of 400 technology decision makers, March 2017

The ability to spot trends in large amounts of data can be game-changing. Popularized in the book and movie, *Moneyball*, analytics seeks to uncover insights that competitors overlook, often found in mounds of big data that not long ago would have been discarded. Indeed, the proliferation of data of all kinds, structured, unstructured, and IoT sensor data, is fueling the analytics trend.

Analytics pertaining to the Internet of Things (IoT) earns the highest score for evaluation. But real-time analytics is the most deployed, followed, significantly, by predictive analytics. The strong showing for both real-time and predictive analytics indicates that big data has left the experimental stage and is taking hold as an everyday contributor to corporate competitiveness. Although IoT is the most evaluated, only 9% say they have an IoT implementation in place, indicating that the best days of IoT analytics lie in the future.

Advanced Analytics Implementation Plans

What are your organization's plans for the following advanced analytics initiatives?



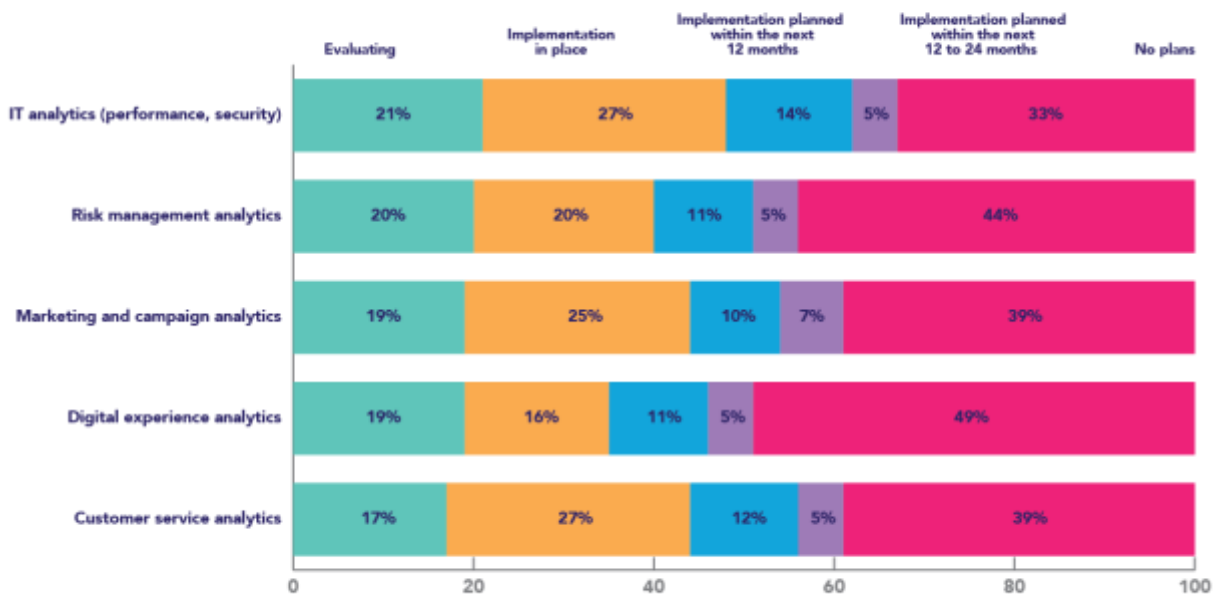
Data: UBM survey of 400 technology decision makers, March 2017

The broad array of purposes for analytics is a sign that analytics has reached critical mass. Analytics are being used to improve IT operations in terms of performance and security. Analytics are also being applied to risk management, a broad category that covers security, compliance, insurance, and corporate performance. The most game-changing arena for analytics deployment is in understanding and serving customers.

Both marketing and campaign analytics show strong adoption, as do customer service analytics.

Data Analytics Uses

Does your organization plan to use data analytics for the following use cases?

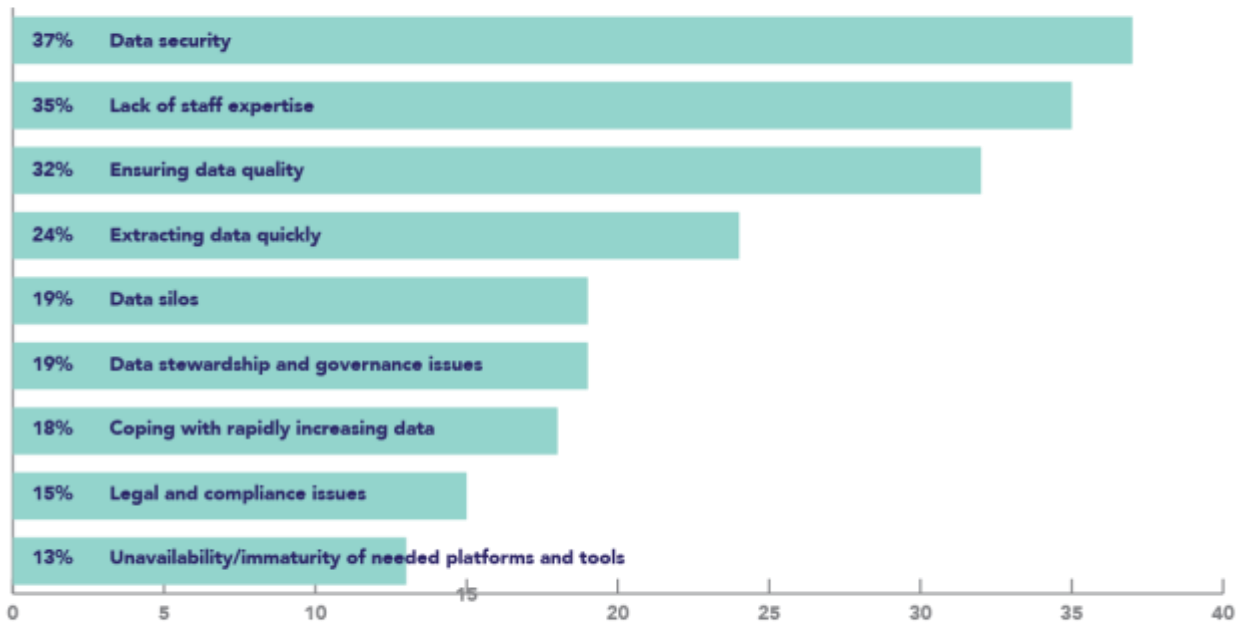


Data: UBM survey of 400 technology decision makers, March 2017

In something of a surprise, data security (37%) is the top obstacle standing in the way of data analytics success. Lack of staff expertise (35%) ranks second – no surprise there, since expertise in data analytics has long been scarce. For several years, the position of data scientist, an expert who understands how to deploy and interpret data analytics, has been one of the most in-demand IT positions. Why the high ranking for data security? It may get back to IoT. Many IoT devices are deployed with security as an afterthought and sensors can be difficult to patch and upgrade with security fixes.

Data Analytics Barriers to Success

What are the biggest barriers to success when it comes to data analytics?



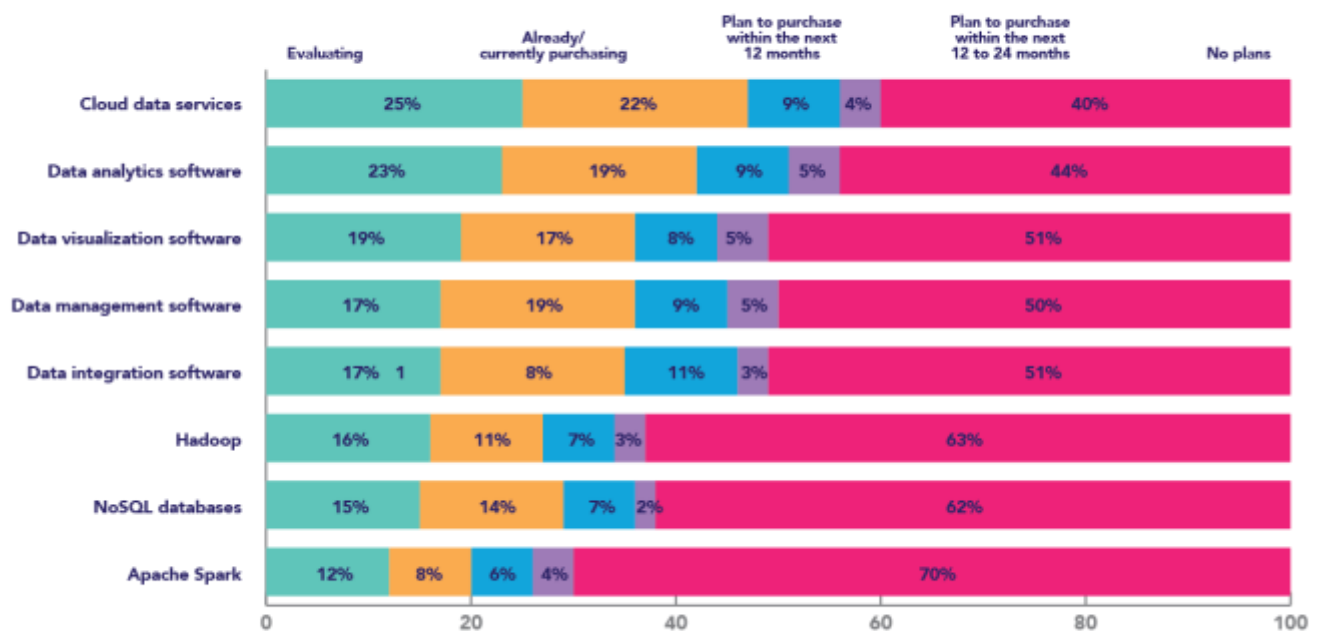
Note: Maximum of three responses allowed

Data: UBM survey of 400 technology decision makers, March 2017

When it comes to data and analytics purchase plans, cloud data services ranked at the top with 25% evaluating and 22% already or currently purchasing – along with 9% more planning to purchase in the next 12 months and 4% purchasing in the next 12 to 24 months. Cloud analytics has proved its worth to many organizations that hold back from the investment required to build homegrown analytics infrastructure and to hire pricey experts like data scientists. Data analytics software, not surprisingly, finished in second place with 23% evaluating, 19% already purchasing, 9% planning to purchase within the next 12 months, and 5% planning to purchase within the next 12 to 24 months.

Data and Analytics Purchase Plans

What are your purchasing plans for the following data and analytics technologies?



Data: UBM survey of 400 technology decision makers, March 2017

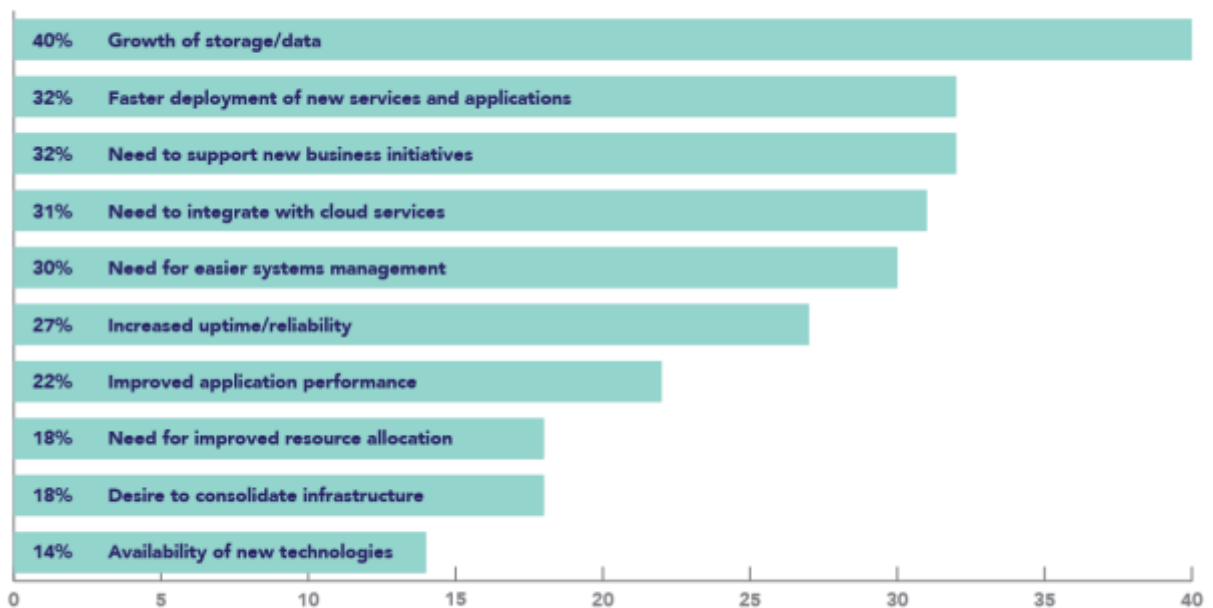
The Rest of the Stack: Beyond the Cloud and Analytics

Infrastructure

Changes in how companies use and store their data are echoed in underlying IT systems and processes. When we asked about the factors that are driving the most change in IT infrastructure, "Growth of storage/data" was the top vote-getter with 40%. Several other choices virtually tied for second place: faster deployment of services and applications, need to support new business initiatives, need to integrate with cloud services, and need for easier systems management.

IT Infrastructure Change Agents

What three factors are driving the most change in your organization's IT infrastructure environment?



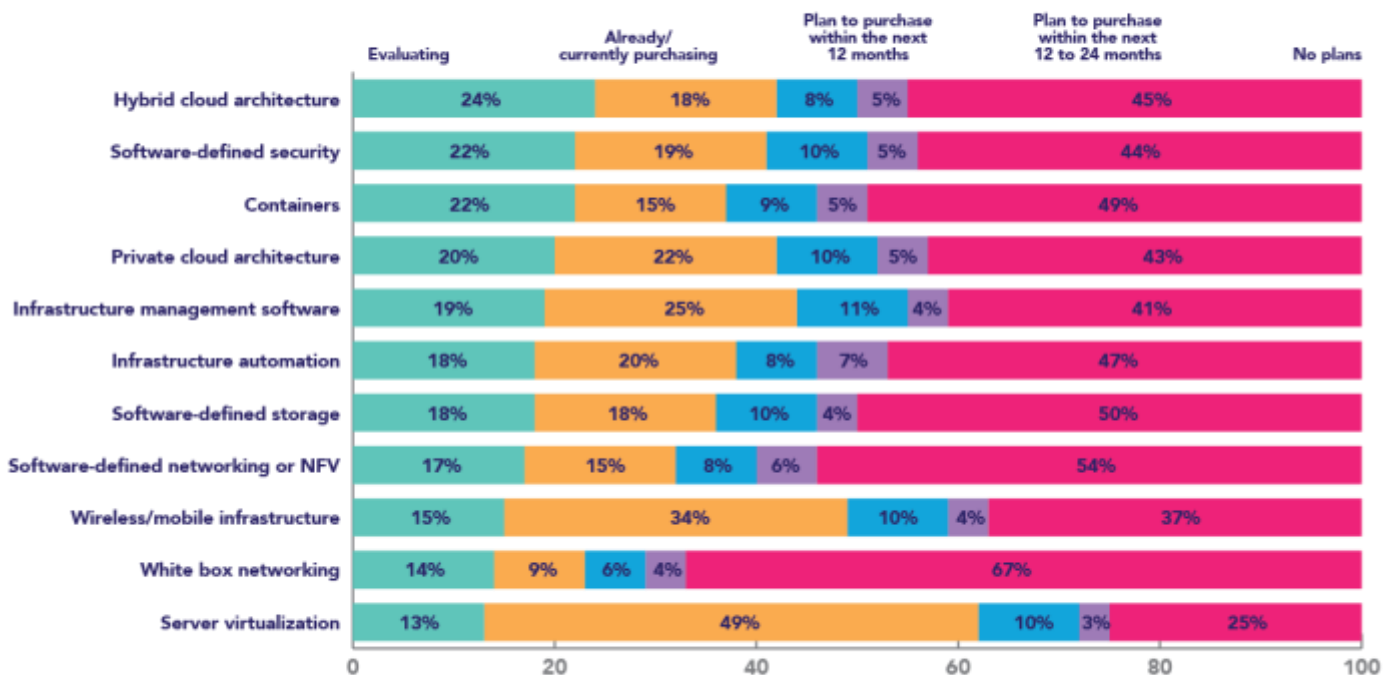
Note: Maximum of three responses allowed

Data: UBM survey of 400 technology decision makers, March 2017

The impact of the cloud is also felt on infrastructure purchase plans with hybrid cloud architecture attracting the most evaluators (24%), and private cloud architecture showing strongly in both adoption (22%) and evaluation (20%). Server virtualization, which is often associated with public and private cloud deployments, finds 49% already or currently purchasing, a clear indication that virtualization is in the mainstream.

Infrastructure Purchase Plans

What are your purchasing plans for the following infrastructure technologies?

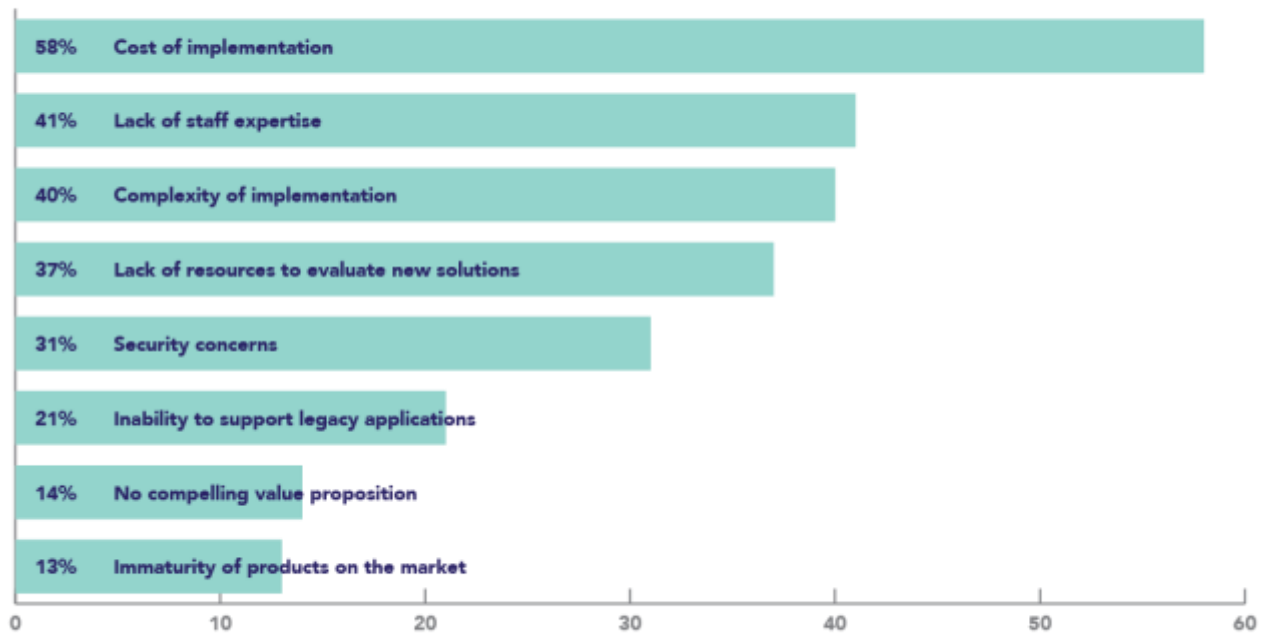


Data: UBM survey of 400 technology decision makers, March 2017

However, making the necessary modifications to modernize IT infrastructure may be more difficult than it appears. Respondents in high percentages cited cost of implementation (58%), lack of staff expertise (41%), and complexity of implementation (40%) as the top barriers.

Inhibitors to Infrastructure Modernization

Which of the following are the top three inhibitors to your organization modernizing its infrastructure?



Note: Maximum of three responses allowed

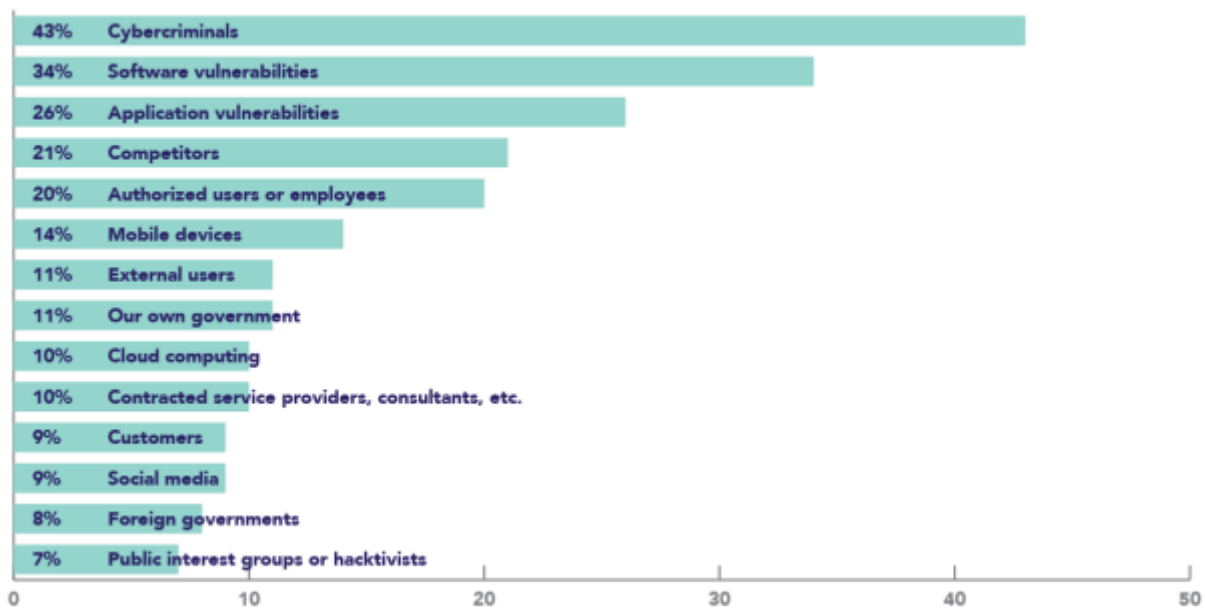
Data: UBM survey of 400 technology decision makers, March 2017

Security

Like cost control, data security is a perennial IT priority. And it's not surprising that cybercriminals are seen as the greatest threat to an organization, with 43% identifying them as one of their top three threats. Software vulnerabilities (34%) and application vulnerabilities (26%) follow. Authorized users or employees, sometimes thought of as the most dangerous threat, claim only 20% of votes.

Greatest Threat to Organization

Which of the following pose the greatest threat to your organization in the next 12 months?



Note: Maximum of three responses allowed
Data: UBM survey of 400 technology decision makers, March 2017

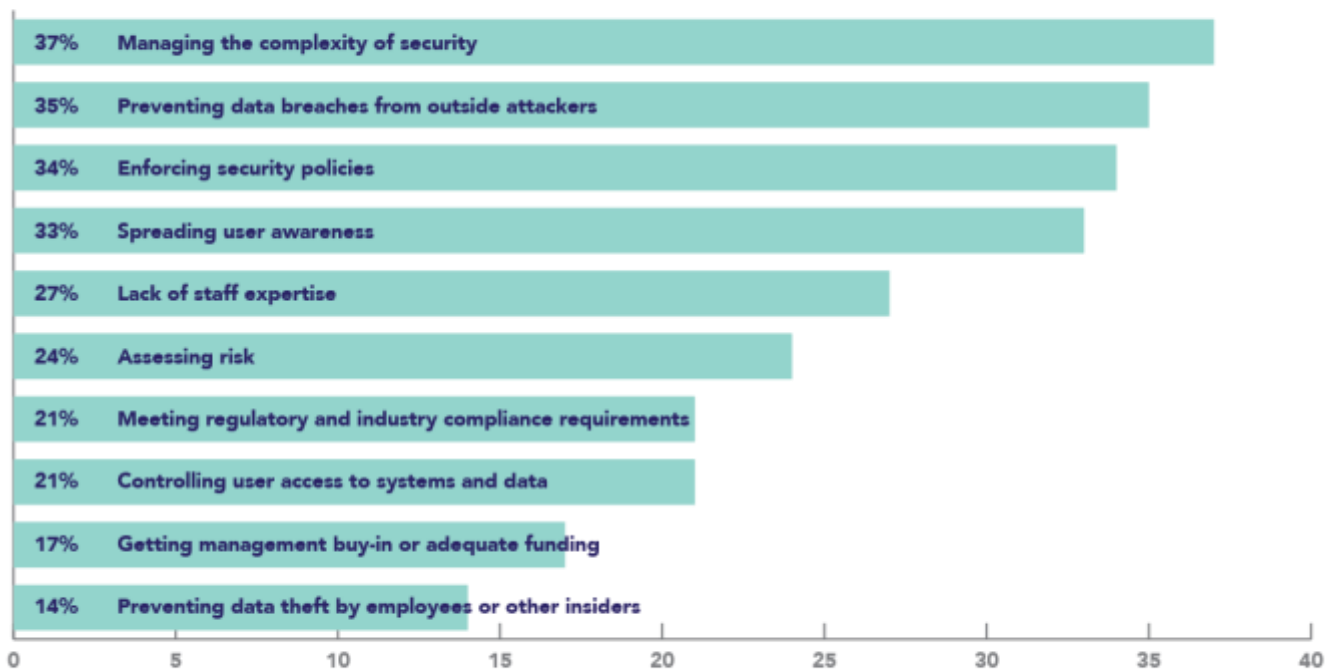
Foreign governments, despite extensive press coverage of some attacks, only count for 8% of responses, and public interest groups or hacktivists only 7%. Those results might reflect the focus of those perpetrators on a handful of high profile targets. Our survey, in contrast, reached a broad spectrum of users.

Interestingly, when asked the three biggest security challenges they face, our respondents' top selection is "Managing the complexity of security," with 37%. Outside attackers are second at 35%. So while cybercriminals, who are typically outside attackers, might be dangerous, the sheer complexity of effectively protecting an organization is, according to our respondents, actually more daunting.

Interestingly, our survey respondents continue to be unimpressed by the threat of data theft by employees or other insiders (14%). Could this mean that respondents recognize the insider threat and have neutralized it – or that they are simply overconfident?

Biggest Security Challenges

What are the three biggest security challenges facing your organization?



Note: Maximum of three responses allowed

Data: UBM survey of 400 technology decision makers, March 2017

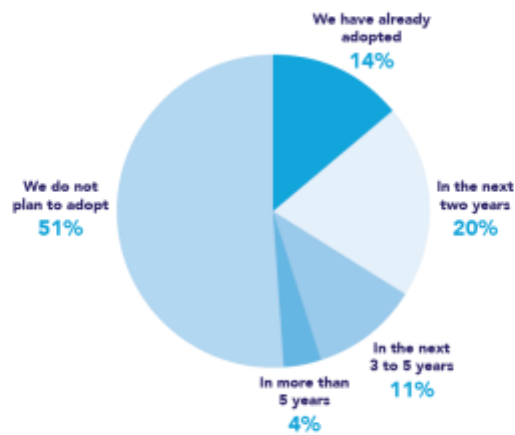
DevOps

DevOps is the practice of collaboration between software developers and IT operations professionals in creating and deploying applications. It has been widely hailed for its potential to enable organizations to build, test, and release software quickly and reliably. However, DevOps is not yet taking the world of IT management by storm.

The results of our survey were decidedly mixed: 49% say they either have adopted or will adopt DevOps – 14% have already adopted it, 20% will adopt it in the next two years, and another 15% will start sometime after that. Meanwhile, 51% do not plan to adopt DevOps. A split so close to 50-50 does not indicate an irresistible trend.

DevOps Adoption Timeframe

How quickly do you think your organization will adopt DevOps?

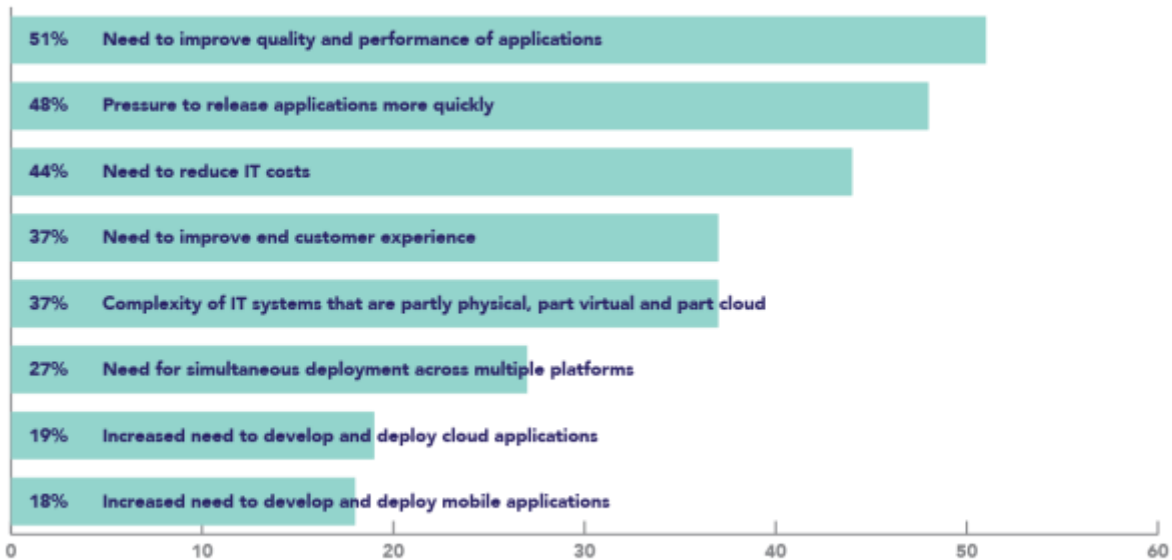


Data: UBM survey of 400 technology decision makers, March 2017

Among the drivers for DevOps adoption, improving quality and performance of applications is the most urgent (51%), followed closely by pressure to release applications more quickly (48%), and the ubiquitous need to reduce IT costs (44%).

Driving the Need for DevOps

What is driving the need for DevOps in your organization?

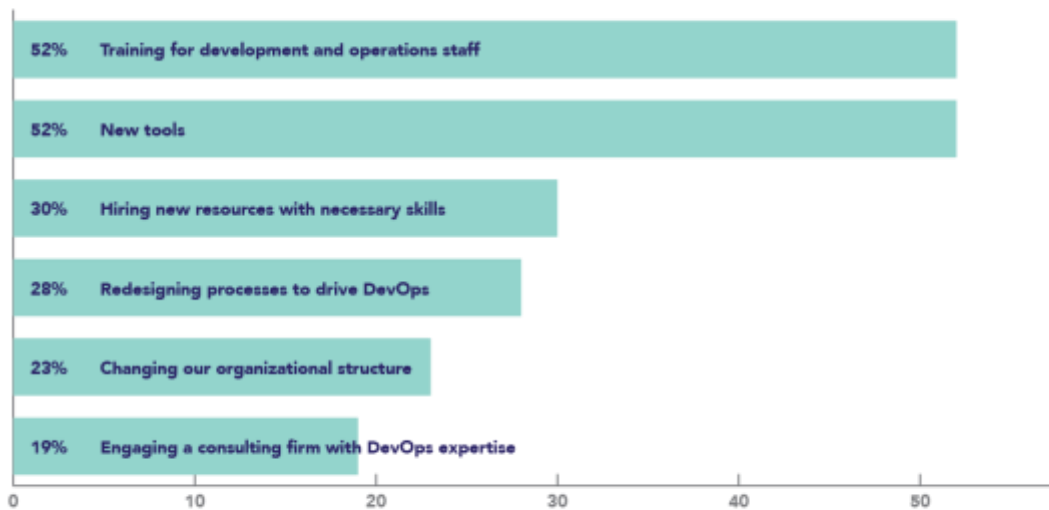


Base: 190 respondents who have adopted or plan to adopt DevOps
 Note: Multiple responses allowed
 Data: UBM survey of 400 technology decision makers, March 2017

When it comes to DevOps, investments training and tools are tied for first with 52% each. With training ranking so high, it's certain the skills shortage, which we'll deal with in a moment, is being felt in the realm of DevOps. Could it be that the right investment in DevOps skills will pay dividends in business competitiveness and lower IT costs? It sounds like an investment worth considering.

DevOps Investments

As part of your DevOps methodology implementation, how will your organization invest over the next year?



Base: 190 respondents who have adopted or plan to adopt DevOps
 Note: Multiple responses allowed
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Skills

For IT leaders, the IT skills gap is not an abstraction. Sixty percent of respondents say they face an IT talent shortage in one or more areas. And those shortages cause pain. Over the past 18 months, a lack of IT talent has led to delayed projects (53%), poor-quality IT projects (30%), missed revenue opportunities (21%), and canceled IT projects (17%).

IT Talent Shortage

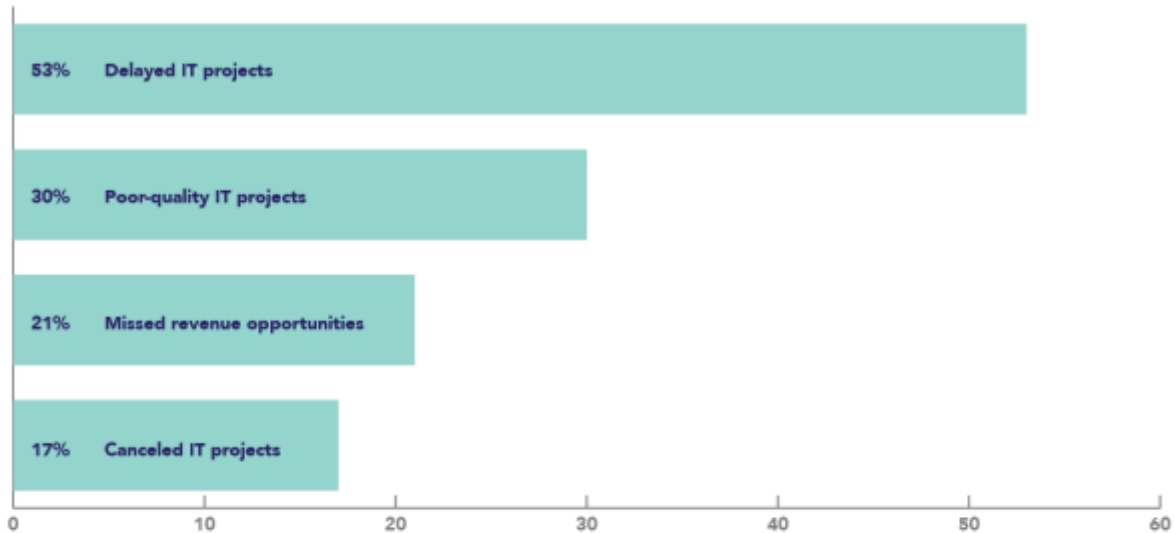
Do you see an IT talent shortage today in one or more technology areas important to your business?



Data: UBM survey of 400 technology decision makers, March 2017

Business Impact of IT Shortage

What impact to your business have you seen in the past 18 months because of an IT talent shortage?



Note: Multiple responses allowed
Data: UBM survey of 400 technology decision makers, March 2017

One measure of the effectiveness of an IT leader is how he or she responds to this shortage. A mixed hiring climate increases the challenge. Approximately half are hiring actively, but the other half are not. A full 40% report that hiring is frozen. Topping the list of coping strategies is the use of more outsourcers and contractors (45%), followed by retraining current employees in new skills (44%). The use of cloud computing services, mentioned earlier as a substitute for staffing, earned 25% of responses.

IT Hiring

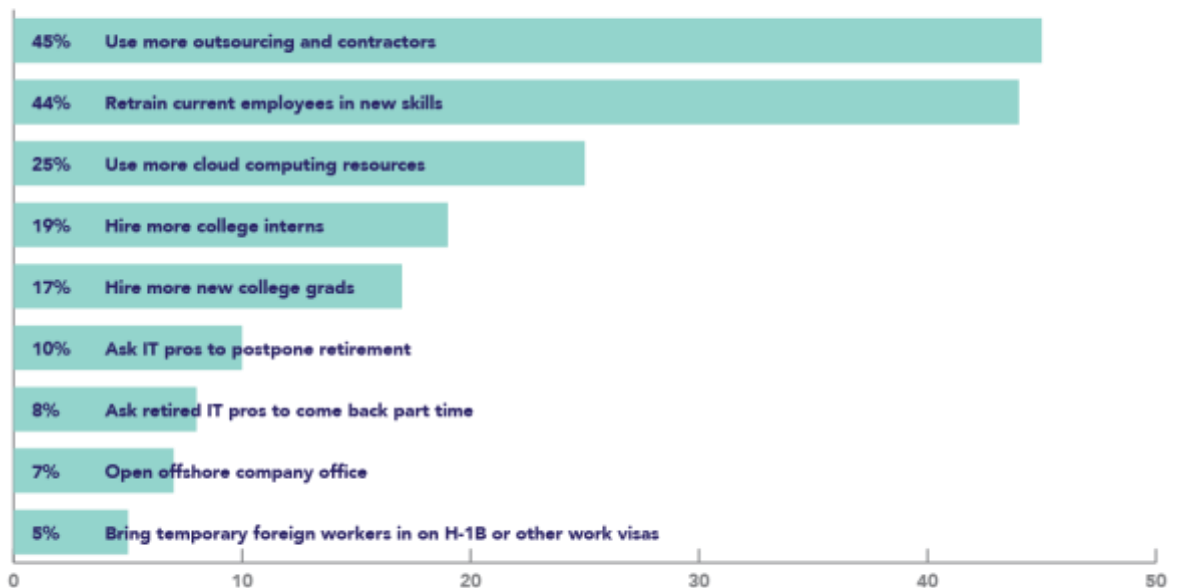
What is your organization's current approach to hiring permanent IT staff?



Data: UBM survey of 400 technology decision makers, March 2017

Coping With IT Talent Shortage

Which steps are you taking to cope with an IT talent shortage?



Note: Multiple responses allowed

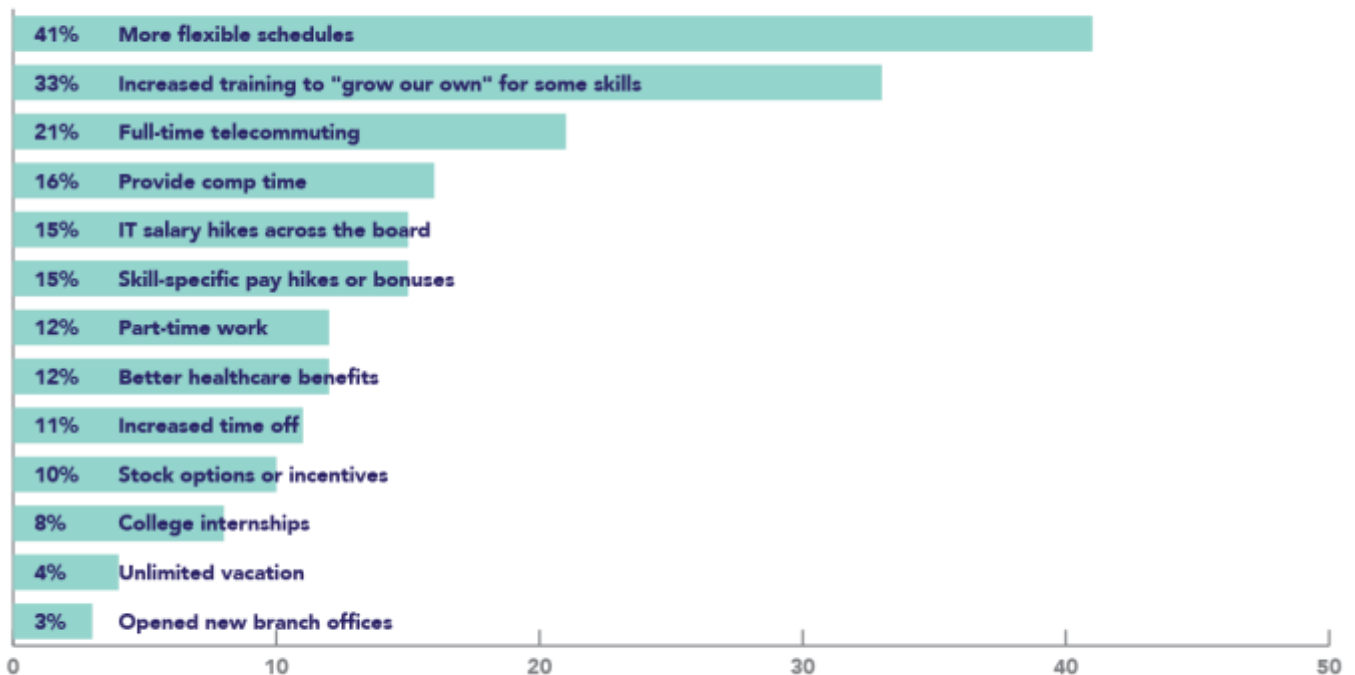
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To attract and retain IT talent, a broad array of steps are being taken, led by allowing more flexible schedules (41%), increasing training (33%), and other measures such as allowing telecommuting, providing comp time, and increased time off. Despite widespread budget pressure, pay hikes are not off the table. Salary increases across the board (15%) and skill-specific increases or bonuses (15%) have a solid role to play in keeping the IT army fully staffed.

Attracting IT Talent

Which steps are you taking to attract and retain IT talent?



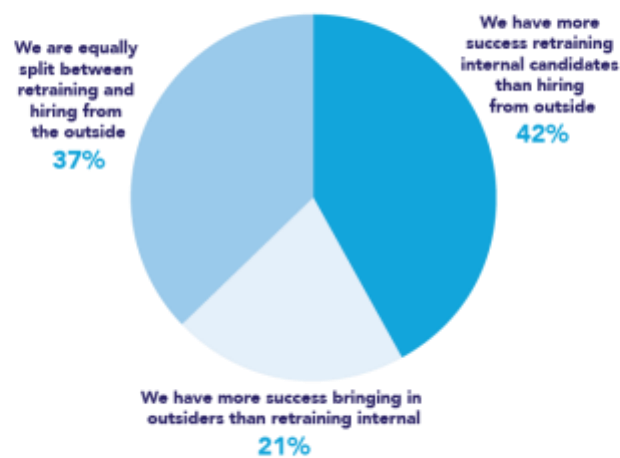
Note: Multiple responses allowed

Data: UBM survey of 400 technology decision makers, March 2017

Survey respondents can pat themselves on the back for successful training programs, which are likely to both save money and boost employee morale, compared with hiring from the outside. 42% say they have more success retraining internal candidates than hiring from outside; only 21% say they have more success bringing in outsiders, and 37% say they are equally split between retraining and hiring.

Training for Technology Specialties

What's your policy on retraining employees for new technology specialties such as cloud, mobile, or data analysis?

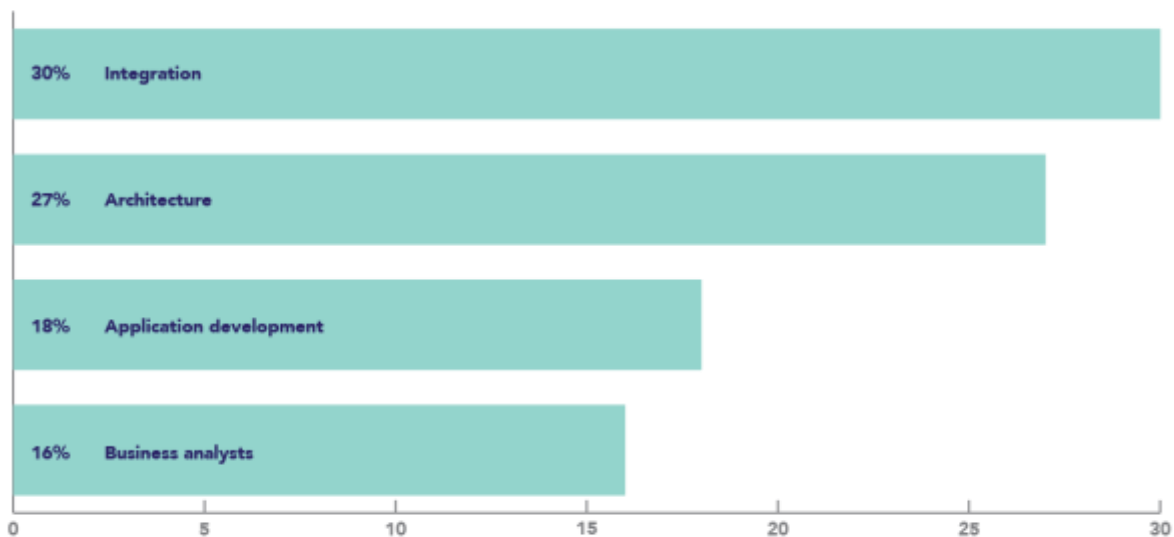


Data: UBM survey of 400 technology decision makers, March 2017

When it comes to hiring for our top two strategic initiatives, the cloud and analytics, IT leaders are finding it hard to find people with certain critical skills. In cloud computing, integration skill is proving the scarcest (30%), followed by architecture (27%), application development (18%), and business analysts (16%). In analytics, significant difficulty is being felt when attempting to hire in several key disciplines, led by data architecture (29%), with data scientist (25%), data visualization (23%) and data analysis (23%) close behind.

Talent Shortage in Cloud Computing

Specifically in cloud, in which of the following areas is talent significantly hard to find?

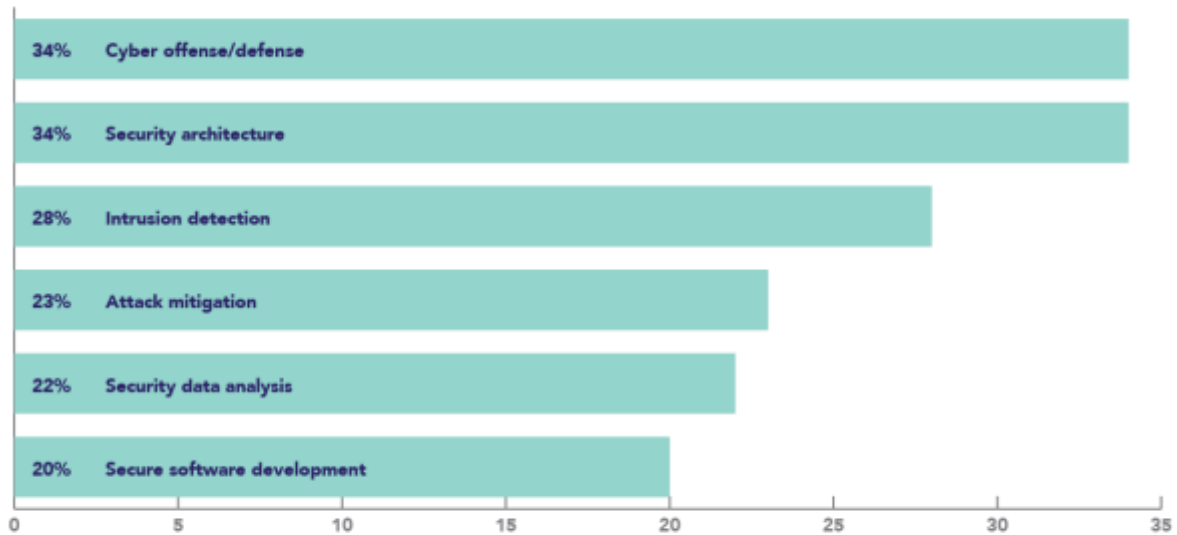


Note: Multiple responses allowed
Data: UBM survey of 400 technology decision makers, March 2017

Security is another major victim of the skills gap. Employees with expertise in cyber offense and defense are in short supply (34%). Equally hard to find are people skilled in security architecture (34%), followed by intrusion detection (28%), attack mitigation (23%), security data analysis (22%), and secure software development (20%).

Talent Shortage in Security

Specifically in security, in which of the following areas is talent significantly hard to find?



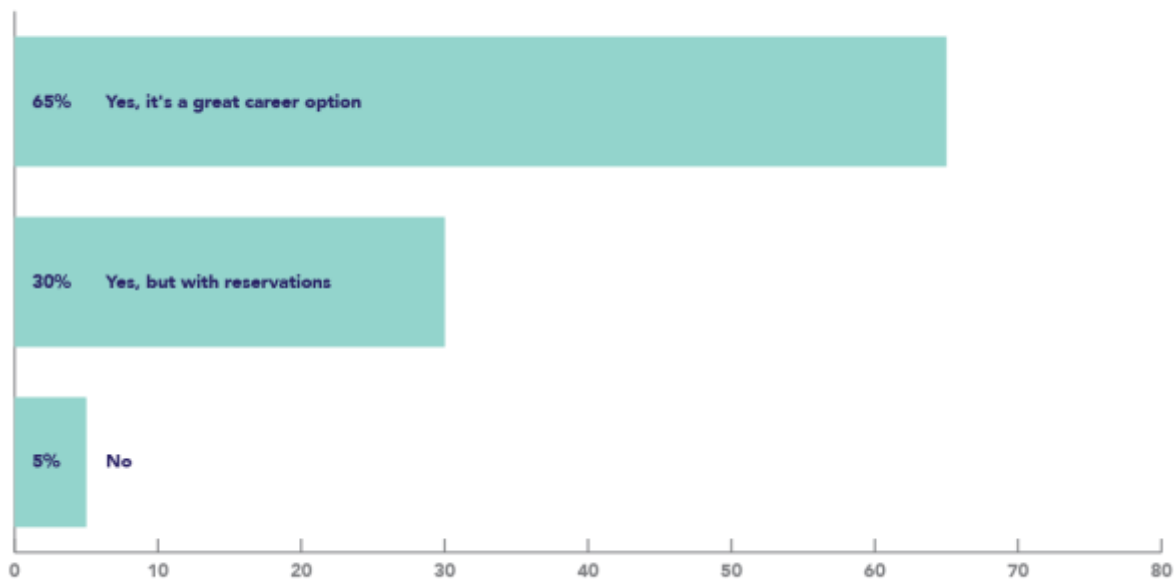
Note: Multiple responses allowed

Data: UBM survey of 400 technology decision makers, March 2017

Finally, it is worth asking what kind of effect the skills gap is having on the way IT leaders view their profession. That view is very positive overall, with 65% saying it is a great career option, and 30% saying they would recommend a tech career to young people, albeit with reservations. Although there is a clear need for people with skills across the full stack of disciplines, the countervailing, omnipresent necessity of controlling costs may be tempering the enthusiasm of those who have already made the choice of an IT career.

Recommending Tech Career

Do you or would you recommend a tech career to young people?

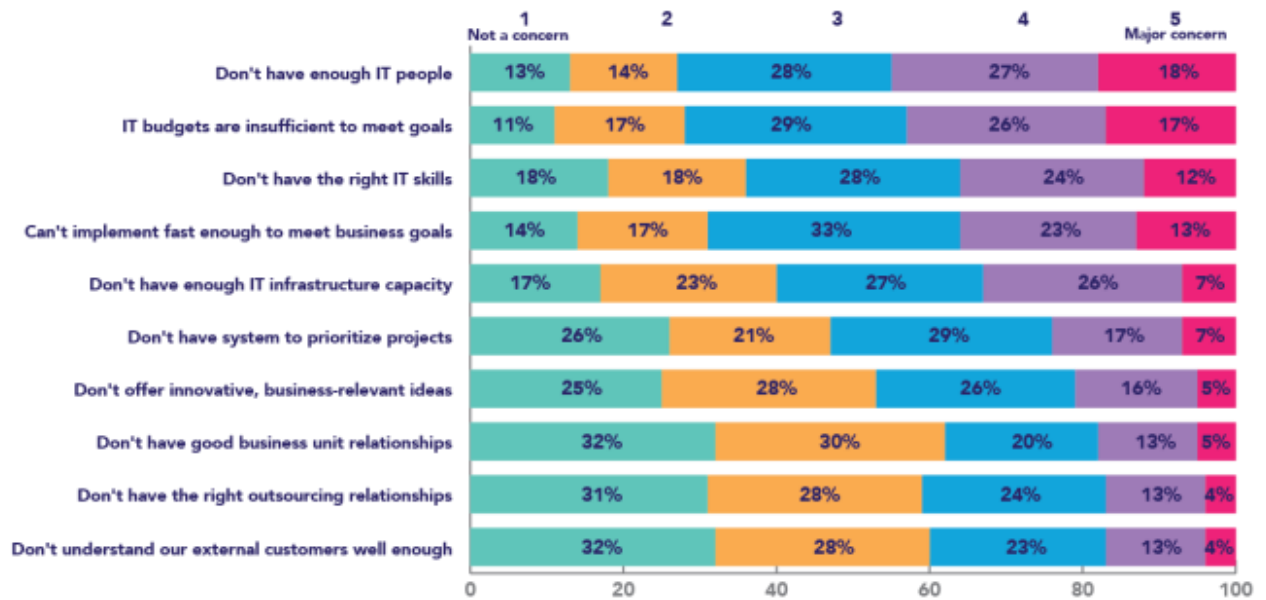


Data: UBM survey of 400 technology decision makers, March 2017

Appendix

Supporting Business Goals Concerns

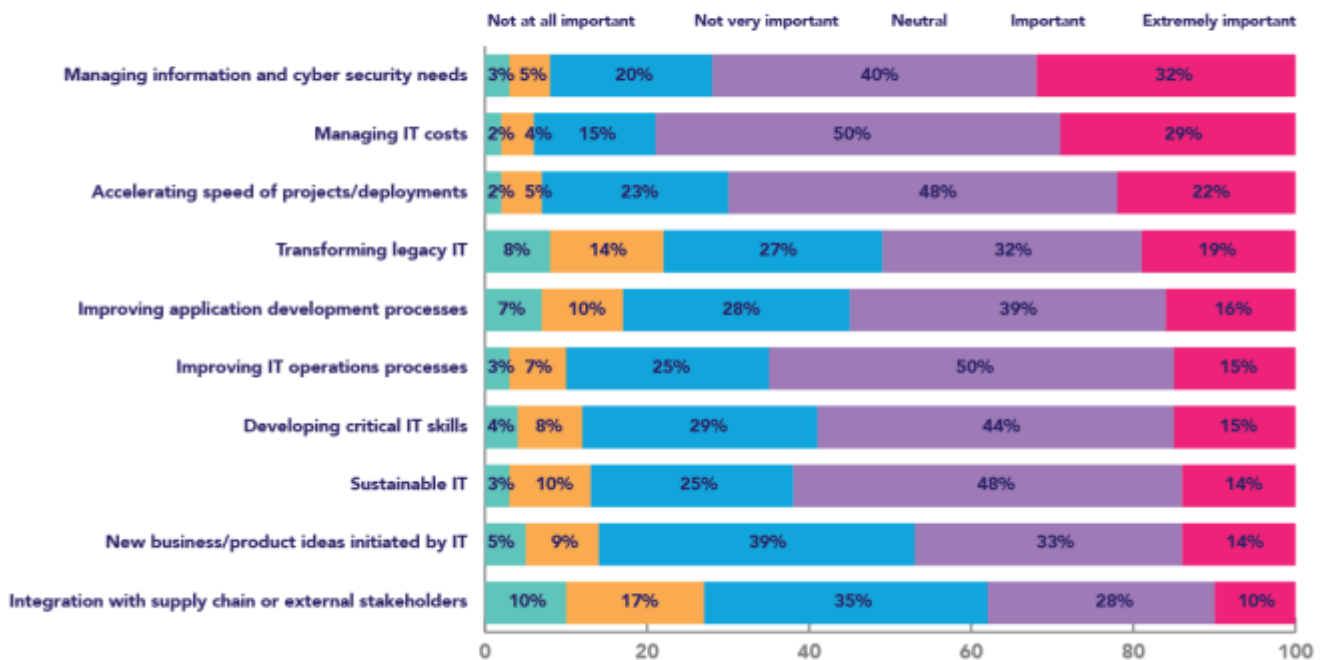
How great a concern is each of the following factors with regard to your IT organization's ability to support business goals?



Data: UBM survey of 400 technology decision makers, March 2017

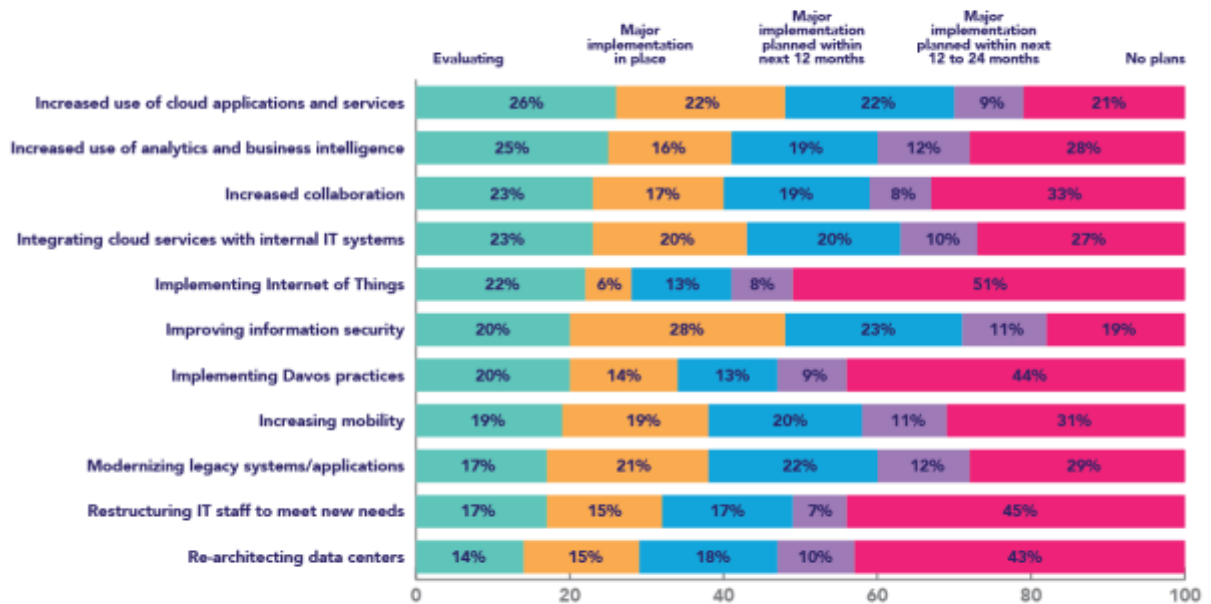
Driving Business Success

How important are the following concepts to driving business success in your organization?



Planned IT Initiatives

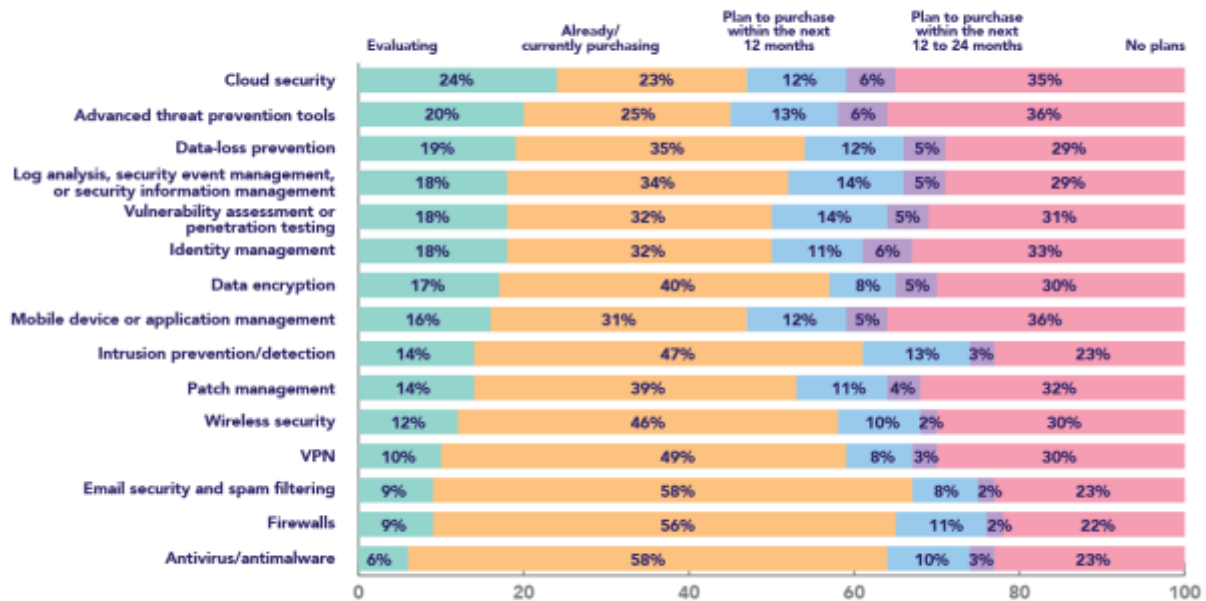
What are your organization's plans for the following initiatives?



Data: UBM survey of 400 technology decision makers, March 2017

Security Purchase Plans

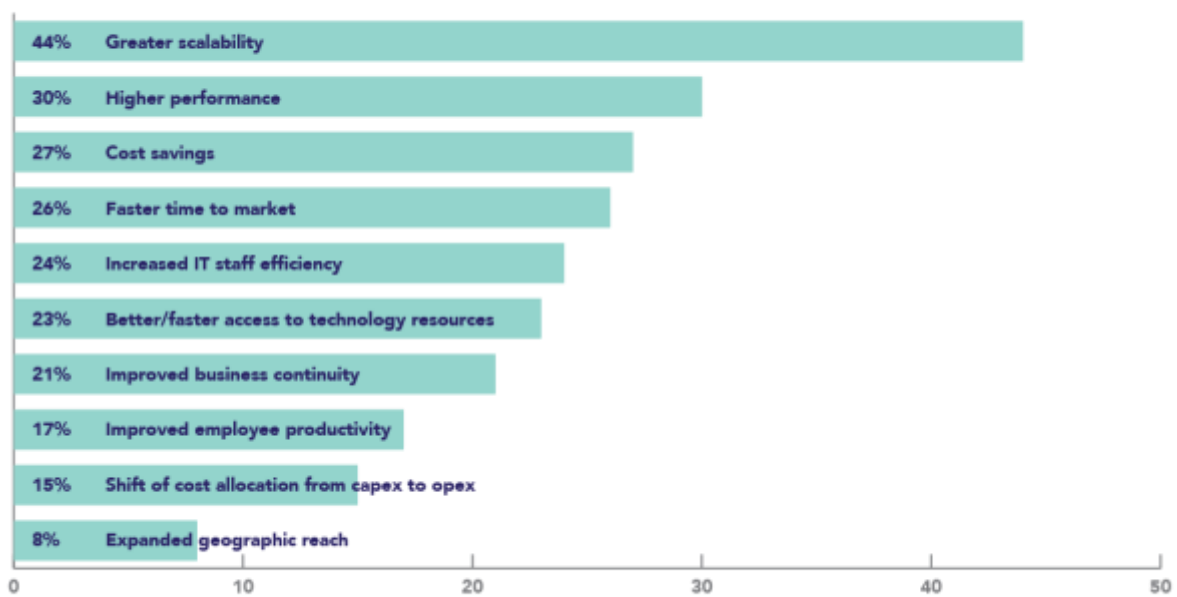
What are your purchase plans for the following security products or technologies?



Data: UBM survey of 400 technology decision makers, March 2017

Benefits to Cloud Computing

What are the top three benefits your organization hopes to realize by using cloud computing?



Note: Maximum of three responses allowed

Data: UBM survey of 400 technology decision makers, March 2017

Cloud Computing Risks

When thinking about risks related to cloud computing, what are your top three concerns?



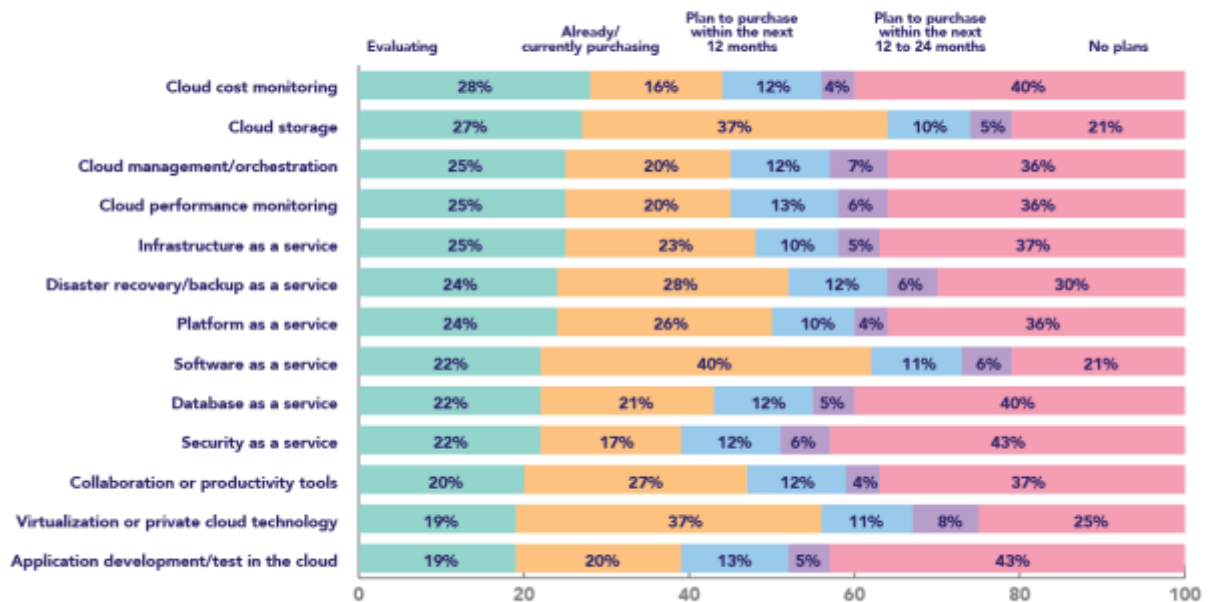
Base: 330 respondents who use cloud computing

Note: Maximum of three responses allowed

Data: UBM survey of 400 technology decision makers, March 2017

Cloud Computing Purchase Plans

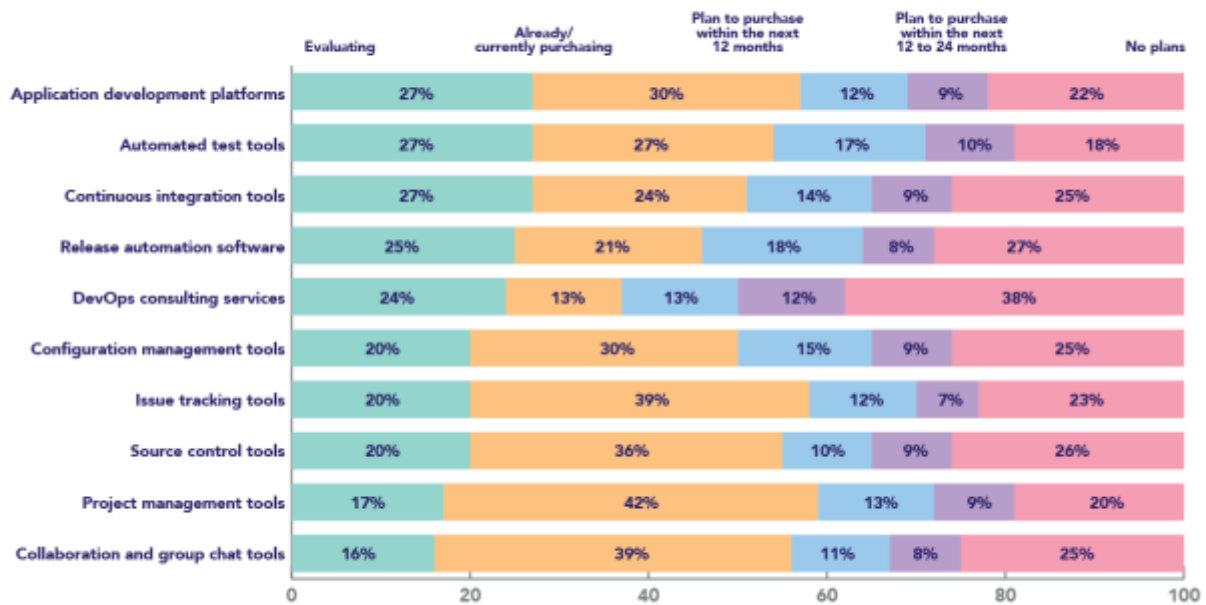
What are your purchasing plans for the following cloud computing technologies and services?



Data: UBM survey of 400 technology decision makers, March 2017

DevOps Purchase Plans

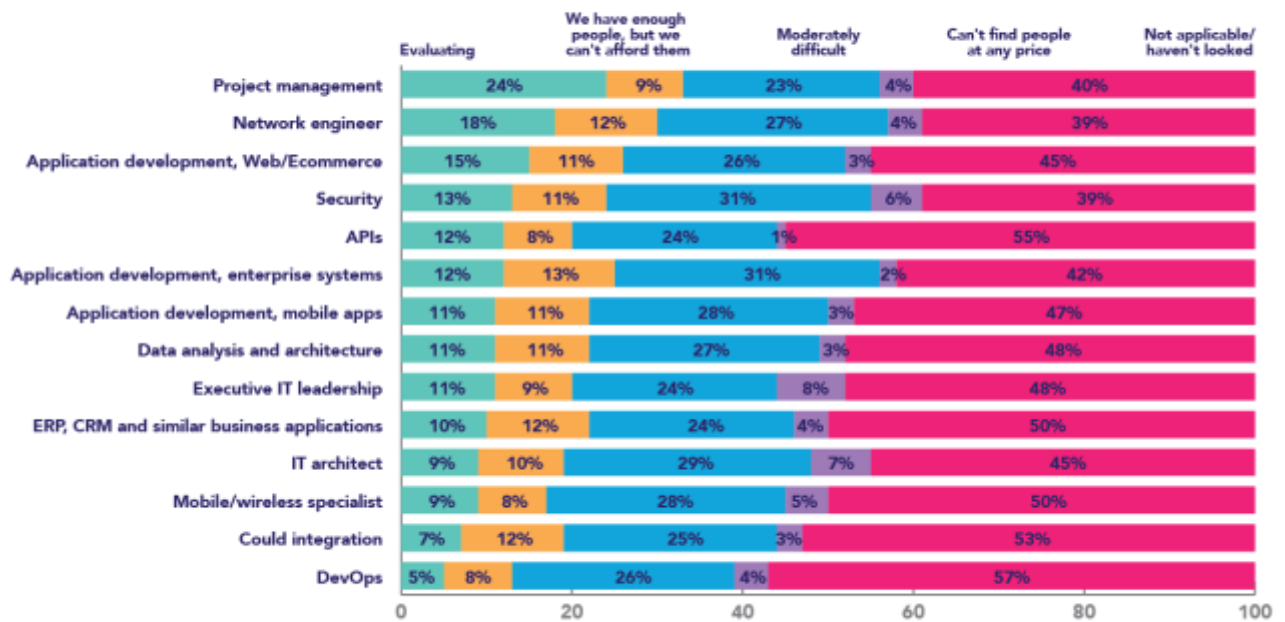
What are your purchasing plans for the following DevOps technologies and tools?



Base: 190 respondents who have adopted or plan to adopt DevOps
 Data: UBM survey of 400 technology decision makers, March 2017

Ability to Hire for Specific IT Areas

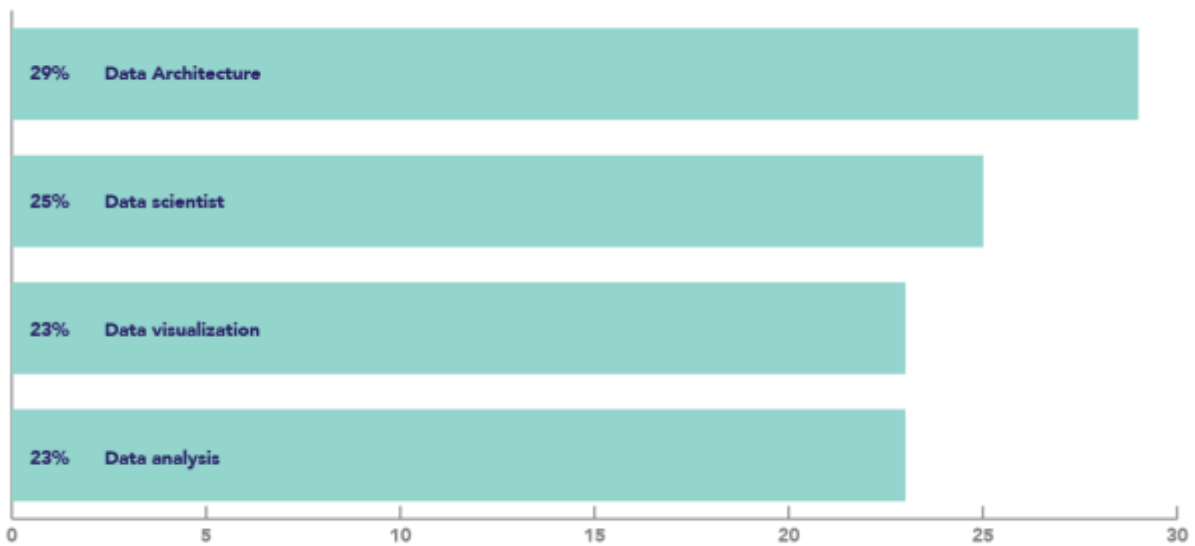
How would you characterize your ability to hire in the following areas?



Data: UBM survey of 400 technology decision makers, March 2017

Talent Shortage in Data Analytics

Specifically in data analytics, in which of the following areas is talent significantly hard to find?

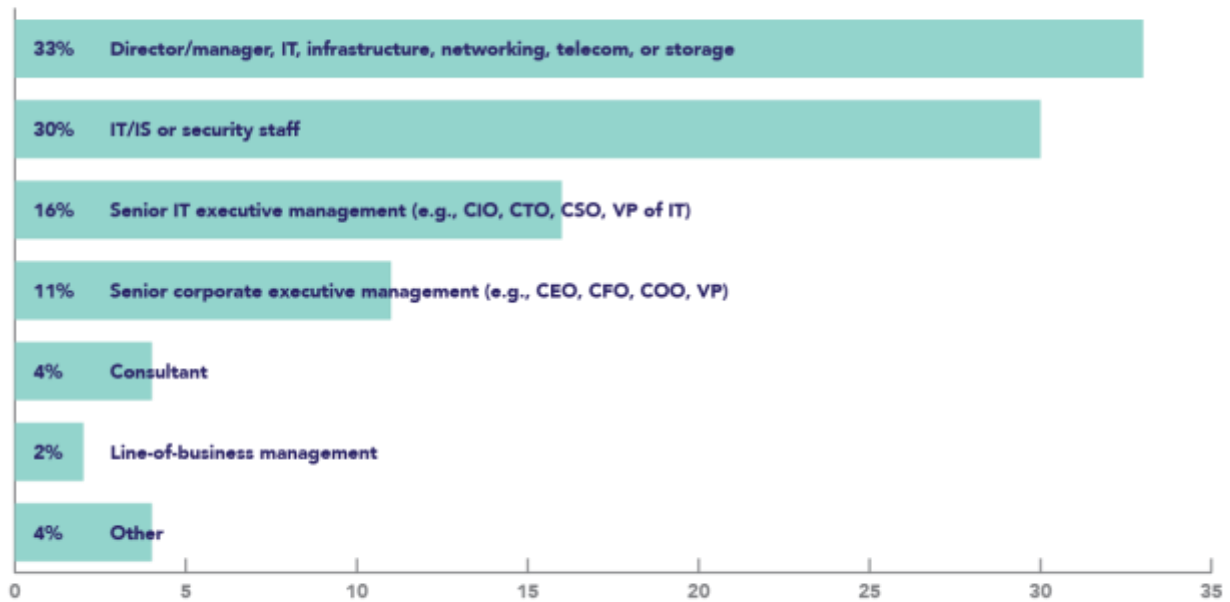


Note: Multiple responses allowed

Data: UBM survey of 400 technology decision makers, March 2017

Respondent Profile: Job Title

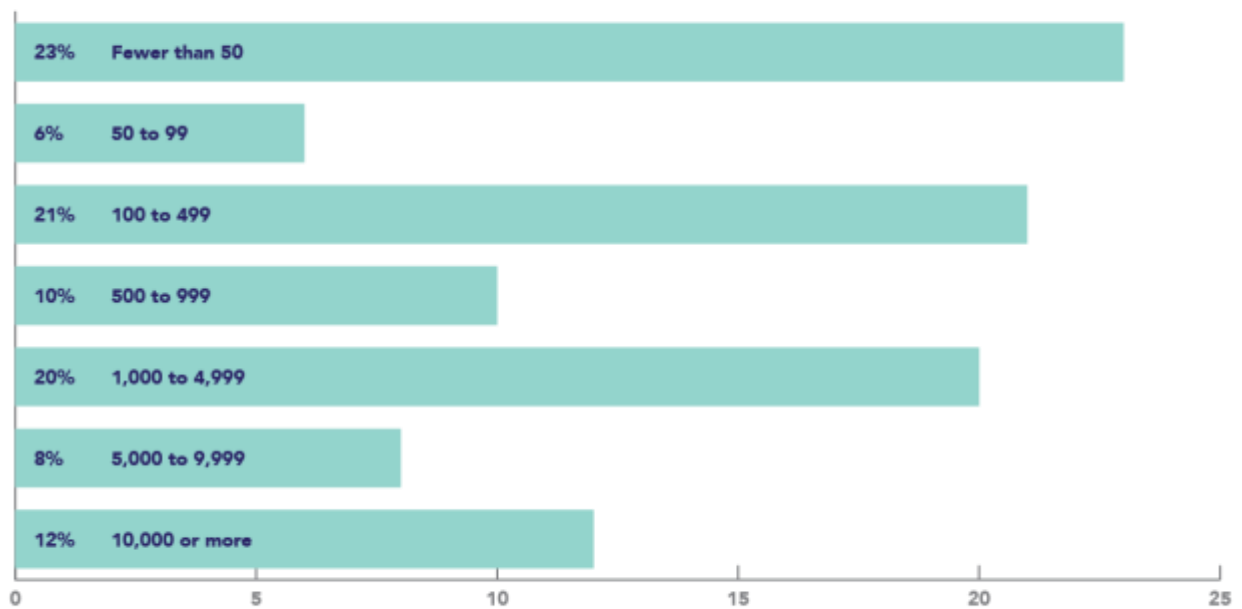
Which of the following best describes your job title?



Data: UBM survey of 400 technology decision makers, March 2017

Respondent Profile: Company Size

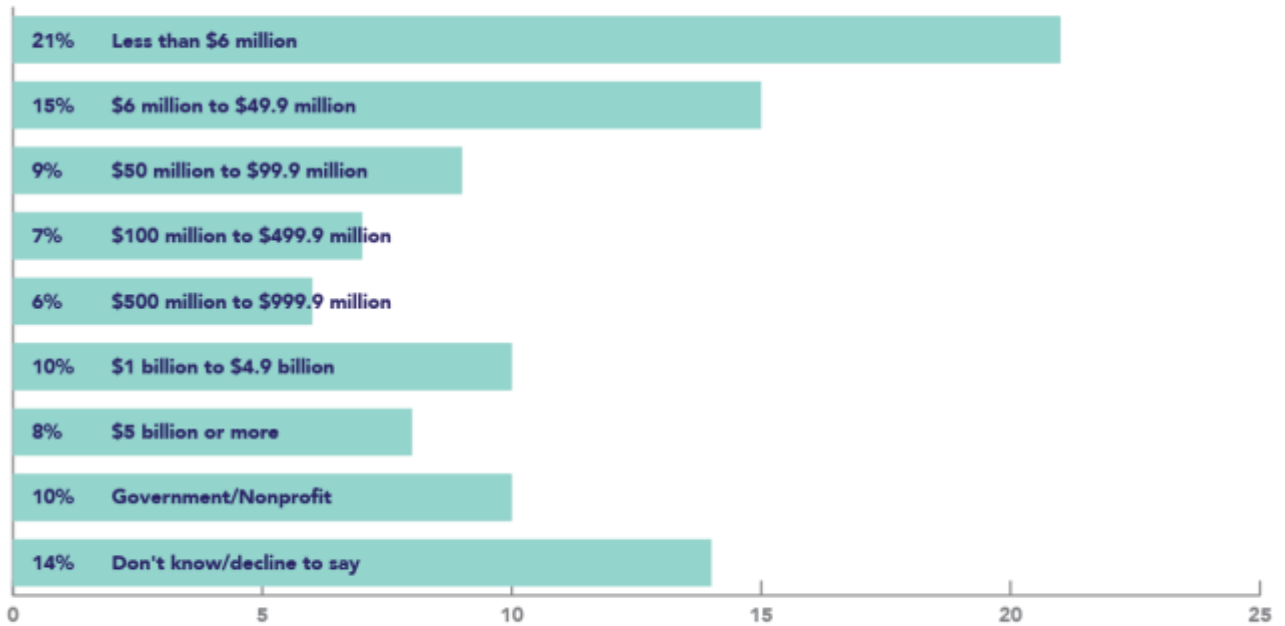
Approximately how many employees are in your organization?



Data: UBM survey of 400 technology decision makers, March 2017

Respondent Profile: Company Revenue

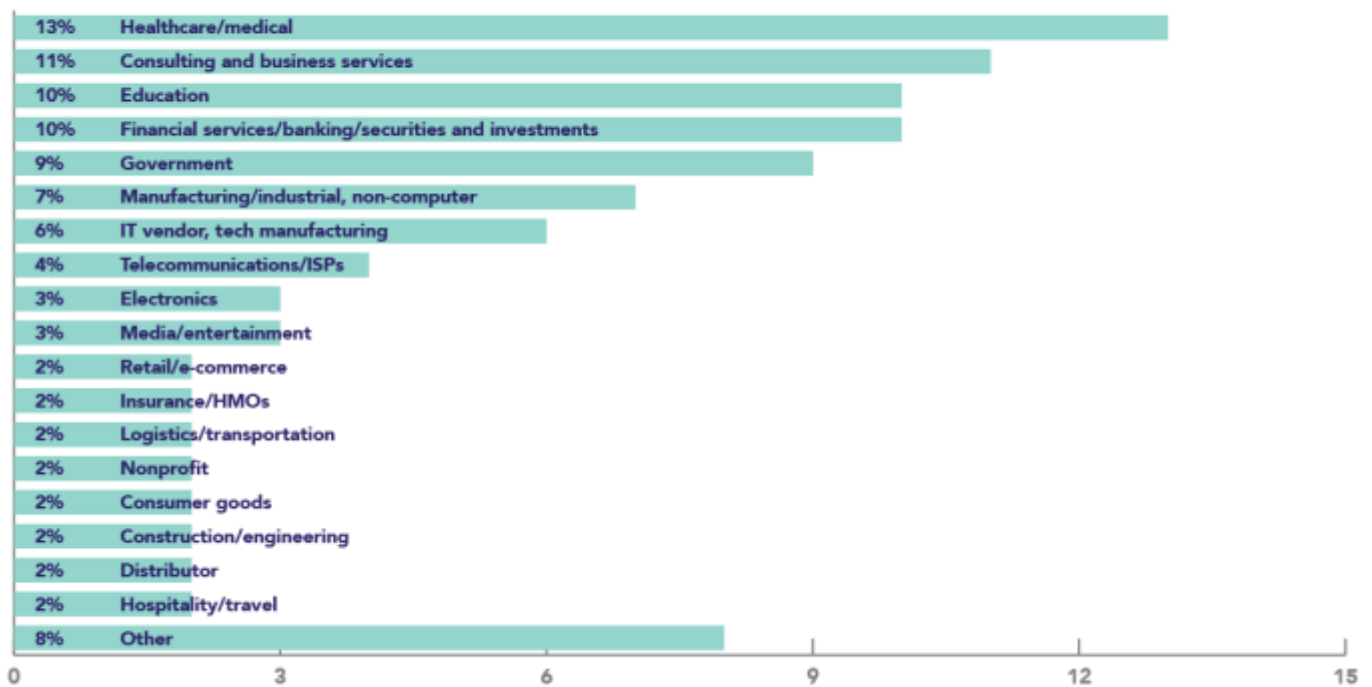
What is the annual revenue of your entire organization?



Data: UBM survey of 400 technology decision makers, March 2017

Respondent Profile: Industry

What is your organization's primary industry?



Data: UBM survey of 400 technology decision makers, March 2017