UBM



# 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

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# 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-ofmind 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?

419	Lower IT costs/business costs			
349	Improve IT sustainability			
269	Improve customer service			
249	Introduce new IT-led products/se	rvices for our customer	s	
239	Make business processes more e	ficient		
229	Increase IT speed and agility			
<b>18</b> 9	Improve Web operations/custom	er experience		
<b>16</b> 9	Create a new business model/rev	enue stream for the co	mpany	
149	Get better return on IT investme	nts		
119	Engage customers in new ways			
<b>9</b> %	Get better business intelligence t	o employees quickly		
8%	Deeper information sharing with	customers, partners an	d suppliers	
6%	Improve interaction with partner	s and suppliers		
6%	Pursue new global opportunities			
5%	Reorganize IT to enable application	on development and d	eployment	
	10	20	30	40

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?

	Not at a	all impo	rtant	Noty	very important	: N	leutral	Im	portant	Extreme	ly important
Financial planning and cost control	3% 59	6	23%	6			44%			259	6
Innovation	3% 59	6	20%				49%			23	16
Project management	3% <mark>5</mark> 9	6	20%				49%			23	6
Collaborating with business executives	4%	7%	2	0%			46%			23	6
Staff skills development	3%	8%		23%			469	6		2	0%
Team building	5%	119	6	26	196			41%			17%
Talent recruitment	8%		12%		30%			3	4%		16%
Diversity	14	1%		17%		35	%		2	4%	10%
Mentorship	109	6	16%			33%			32%		9%
	0		20	)	4	0	6	0		80	100

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?

37%	We create ad hoc teams to explore possible I	T-driven innovation	is as they arise		
30%	Innovation is part of IT employees' annual go	als			
26%	We have IT budgets specifically for IT-driven	innovation			
21%	We partner with vendors to develop new tec	hnology			
21%	IT isn't expected to actively drive innovation				
16%	We have permanent IT Ramped team dedicat	ted to finding "wha	t's next" IT-drive	n innovations	
12%	We embed IT pros charged with finding new	innovations into bu	isiness units		
10%	We have a formal effort to solicit ideas from	IT, such as concrete	goals, contests,	, etc.	
<b>9</b> %	We pay bonuses or other financial incentives	for IT generating in	novative ideas		
	15				

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?



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?

49%	Focus on day-to-day IT oper	ations			
47%	Lack of budget				
25%	Inadequate IT skills				
14%	Poor relationships with othe	r business units			
12%	CEO or other senior executi	ves discourage it			
10%	Fear of failing				
0	10	20	30	40	50

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

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?

	1 Not a concern		2		3		4	Major	5 concern
Don't have enough IT people	13%	14%		28%			27%	1	8%
IT budgets are insufficient to meet goals	11%	17%		<b>29</b> %			26%	1	7%
Don't have the right IT skills	18%		18%		28%		249	%	12%
Can't implement fast enough to meet business goals	14%	17%		3	3%		239	6	13%
Don't have enough IT infrastructure capacity	17%		23%		27%			26%	7%
Don't have system to prioritize projects	26	%	2	1%		<b>29</b> %		17%	7%
Don't offer innovative, business-relevant ideas	25	%		28%		26	5%	16%	5%
Don't have good business unit relationships	:	32%		3	30%		20%	13%	5%
Don't have the right outsourcing relationships	:	31%		28	%		24%	139	6 <mark>4%</mark>
Don't understand our external customers well enough	:	32%		2	8%		23%	139	6 <mark>4%</mark>
	0	20		40		60		80	100

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

## **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?



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.

#### plementation planned within the next 12 months Implementation planned within the next 12 to 24 months lementation in place Evaluating No plans Internet of Things/connected 23% 53% 9% 8% 7% device analytics 22% 22% 12% 35% **Real-time analytics** 0% Predictive analytics 21% 10% 45% 17% 7% Machine learning 17% 9% 8% 8% 58% Artificial intelligence 17% 62% 5% 7% 0% 0 20 40 60 80 100

#### 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



20

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

0

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.

40

60

80

100

### Data Analytics Barriers to Success

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



Note: Maximum of three responses allowed

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.

#### Plan to purchase within the next 12 months Plan to purchase within the next 12 to 24 months Already/ currently purchasing Evaluating No plans 25% 4% 40% Cloud data services 22% 19% 23% 5% 44% Data analytics software 9% Data visualization software 19% 17% 5% 51% 8% Data management software 17% 19% 5% 50% 17% 1 8% 11% 3% 51% Data integration software Hadoop 16% 11% 7% 3% 63% 7% 2% NoSQL databases 15% 14% 62% 4% Apache Spark 12% 8% 6% 0 20 40 60 80 100

#### Data and Analytics Purchase Plans

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

# 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?



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

## 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?



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?

<b>37</b> %	Managing the complexity of security				
35%	Preventing data breaches from outside attackers				
34%	Enforcing security policies				
33%	Spreading user awareness				
<b>27</b> %	Lack of staff expertise				
24%	Assessing risk				
21%	Meeting regulatory and industry compliance requireme	ents			
21%	Controlling user access to systems and data				
1 <b>7</b> %	Getting management buy-in or adequate funding				
14%	Preventing data theft by employees or other insiders	1		I	
	5 10 15	20	25	30	35

Note: Maximum of three responses allowed

## **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.



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?

		6		
51%	Need to improve quality and performance of	of applications		
48%	Pressure to release applications more quick	ly		
44%	Need to reduce IT costs			
			-	
37%	Need to improve end customer experience			
37%	Complexity of IT systems that are partly ph	ysical, part virtual and pa	art cloud	
27%	Need for simultaneous deployment across r	multiple platforms		
10%	Increased need to develop and deploy clou	d applications		
	increased need to develop and deproy close	a appreciations		
400/	terms and more the develop and devices make	ile emplications		
18%	Increased need to develop and deploy mob	le applications		
0	10 20	30	40	
Base: 19	respondents who have adopted or plan to adopt Devi	Ops		

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?



## 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%).



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.

50



#### 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?



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.

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

41%	More flexible schedules		
33%	Increased training to "grow our own" for	some skill	s
21%	Full-time telecommuting		
1 <b>6</b> %	Provide comp time		
15%	IT salary hikes across the board		
15%	Skill-specific pay hikes or bonuses		
12%	Part-time work		
12%	Better healthcare benefits		
11%	Increased time off		
10%	Stock options or incentives		
8%	College internships		
4%	Unlimited vacation		
3%	Opened new branch offices		1
0	10	20	30

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

Note: Multiple responses allowed

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.



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?



# 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?

	1 Not a concern	:	2		3	4		5 Major con	cern
Don't have enough IT people	13%	14%		28%		27%		18%	•
IT budgets are insufficient to meet goals	11%	17%		<b>29</b> %		26%		17%	
Don't have the right IT skills	18%		18%		28%	2	4%	12	2%
Can't implement fast enough to meet business goals	14%	17%		33	%	23	3%	13	%
Don't have enough IT infrastructure capacity	17%		23%		27%		269	6	7%
Don't have system to prioritize projects	26	%	2	21%	29	9%		17%	7%
Don't offer innovative, business-relevant ideas	25	1%		28%		26%		16%	5%
Don't have good business unit relationships		32%		3	0%	20%		13%	5%
Don't have the right outsourcing relationships		31%		28%	6	24%		13%	4%
Don't understand our external customers well enough		32%		28	1%	23%		13%	<mark>4%</mark>
	0	20		40	60		80		100

## **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?

	Evaluating	Ma implem in p	ijor entation lace	imple plann next 1	Major mentation ed within 12 months	imple planned 12 to	Major mentation d within nex 24 months	t No plans
Increased use of cloud applications and services	26%		22%		2	2%	9%	21%
ncreased use of analytics and business intelligence	25%		16%	1	9%	12%		28%
Increased collaboration	23%		17%	19	1%	8%		33%
Integrating cloud services with internal IT systems	23%		20%		20%	10%		27%
Implementing Internet of Things	22%	6%	13%	8%			51%	
Improving information security	20%		28%		2	3%	11%	19%
Implementing Davos practices	20%	14%	1	3%	9%		44%	
Increasing mobility	19%	19	9%	209	њ	11%		31%
Modernizing legacy systems/applications	17%	219	%	22	2%	12%		29%
Restructuring IT staff to meet new needs	17%	15%	1	7%	7%		45%	
Re-architecting data centers	14%	15%	189	6	10%		43%	
	)	20	4	0	e	50	80	10

### Security Purchase Plans

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

	Evaluating	Already/ Plan to purcha within the nex currently purchasing 12 months		se Plan te xt withir 12 to i	o purchase a the next 24 months	No plans	
Cloud security	24%	23%	12%	6%	35%		
Advanced threat prevention tools	20%	25%	13%	6%	36%		
Data-loss prevention	19%	35	%	12% 5%	29%		
Log analysis, security event management, or security information management	security event management, 18%			14% 5%	5% 29%		
Vulnerability assessment or penetration testing	18%	32%		14% 5%	31%		
Identity management	18%	32%	1	1% 6%	33%		
Data encryption	17%	4	0%	8% 5%	30%		
Mobile device or application management	16%	31%	12%	5%	36%		
Intrusion prevention/detection	14%	4	7%	13%	3% 23%		
Patch management	14%	39%		11% 4%	32%		
Wireless security	12%	46%		10% 2%	30%		
VPN	10%	4	9%	8% 3%	30%		
Email security and spam filtering	9%	5	8%	89	6 <mark>2%</mark> 23%		
Firewalls	9%	5	6%	119	% 2% 22%		
Antivirus/antimalware	6%	58%		10%	3% 23%		
	0	20	40	60	80	100	

## 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?

<b>49</b> %	Security defects in the technology itself		
36%	Unauthorized access to or leak of our customers' inform	ation	
35%	Vendor lock-in		
33%	Unauthorized access to or leak of our proprietary inform	ation	
26%	Difficulty integrating cloud data with our internal system	ns	
25%	Business continuity/DR readiness of cloud system		
22%	Degraded application/system performance		
21%	Business viability of provider; risk company will fail		
20%	Features and general maturity of technology		

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?

	Evaluating	Alcurrently	ready/ / purchasing	Plan with 12	to purch in the ne 2 months	ase ixt		Plan to p within th 12 to 24	urchas te next month	e S	No plans
Cloud cost monitoring	28%		16%		12	%	4%			40%	
Cloud storage	27%				37%			109	*	5%	21%
Cloud management/orchestration	25%		20%		1	2%	7%			36%	
Cloud performance monitoring	25%		20%		1	13%	6%			36%	
Infrastructure as a service	25%		23	%		10%	5%			37%	
Disaster recovery/backup as a service	24%		28	%			12%	6%		3	0%
Platform as a service	24%		269	6		10	6 49	6		36%	
Software as a service	22%			40	%			11%		6%	21%
Database as a service	22%		21%		129	16	5%			40%	
Security as a service	22%		17%		12%	6%				43%	
Collaboration or productivity tools	20%		27%			12%	4%			37%	
Virtualization or private cloud technology	19%		3)	7%			119	6	8%		25%
Application development/test in the cloud	19%		20%		13%	5%				43%	
	0	20		40			60			80	1

## DevOps Purchase Plans

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

	Evaluating	Ale currently	ready/ y purchasing	Plan t withi 12	o purchas n the next months	e t	Plan witi 12 ti	to purch hin the n o 24 mor	ext oths		No plans
Application development platforms	27%			30%		12%	5	9%		22%	
Automated test tools	27%			27%		17%		10%		% 18%	
Continuous integration tools	27%	:		24%	14%		9%		25%		
Release automation software	25%		219	6	18%	6	8%		27%		
DevOps consulting services	24%		13%	13%	13	2%			38%		
Configuration management tools	20%		30	%		15%	9%			25%	
Issue tracking tools	20%			39%		12	%	7%		23%	
Source control tools	20%		3	16%		10%	9%	5		26%	
Project management tools	17%			42%		1	3%	99	6	20%	
Collaboration and group chat tools	16%		3	19%		11%	8	%		25%	
Rase: 190 respondents who have ador	) steel or plan to adopt D	20		40		60			80		100

## Ability to Hire for Specific IT Areas

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

	Evaluating	P	e have en eople, but n't afford	ough twe them	Moderate difficult	ły	Can't find people at any price	Not applicable/ haven't looked
Project management	2	4%	99	6	23%	4%	40%	
Network engineer	18%		12%		27%	4%	39%	
Application development, Web/Ecommerce	15%	119	%	2	6%	3%	45%	
Security	13%	11%		3	1%	6%	39%	
APIs	12%	8%		24%	1%		55%	
Application development, enterprise systems	12%	13%			31%	2%	42%	
Application development, mobile apps	11%	11%		28%	39	6	47%	
Data analysis and architecture	11%	11%		27%	3%		48%	
Executive IT leadership	11%	9%		24%	8%		48%	
ERP, CRM and similar business applications	10%	12%		24%	4%		50%	
IT architect	9%	10%		29%	79	6	45%	
Mobile/wireless specialist	9%	8%		28%	5%		50%	
Could integration	7%	12%		25%	3%		53%	
DevOps	5% 8%		26%		4%		57%	
	0	20			40	60	80	100

### 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?



## Respondent Profile: Company Size

23%	Fewer than 50				
6%	50 to 99				
21%	100 to 499				
10%	500 to 999				
20%	1,000 to 4,999				
8%	5,000 to 9,999				
12%	10,000 or more				
		10	48	20	

Approximately how many employees are in your organization?

## Respondent Profile: Company Revenue

What is the annual revenue of your entire organization?

<b>6</b> %	\$100 million to \$499.9 million
1 <b>0</b> %	\$1 billion to \$4.9 billion
8%	\$5 billion or more
1 <b>0</b> %	Government/Nonprofit
14%	Don't know/decline to say

## Respondent Profile: Industry

What is your organization's primary industry?

13%	Healthcare/medical			
11%	Consulting and business services			
10%	Education			
10%	Financial services/banking/securities and invest	ments		
9%	Government			
7%	Manufacturing/industrial, non-computer			
6%	IT vendor, tech manufacturing			
4%	Telecommunications/ISPs			
3%	Electronics			
3%	Media/entertainment			
2%	Retail/e-commerce			
2%	Insurance/HMOs			
2%	Logistics/transportation			
2%	Nonprofit			
2%	Consumer goods			
2%	Construction/engineering			
2%	Distributor			
2%	Hospitality/travel			
8%	Other		1	
	3 (	6	9	12