A HARVARD BUSINESS REVIEW ANALYTIC SERVICES REPORT



# CLOUD COMPUTING COMES OF AGE

#### **SPONSOR STATEMENT**



For business leaders, speed is the primary appeal of the cloud. As the head of marketing at a major credit card company describes in this study, he was like a kid in a candy store when told it would take only five weeks to get a cloud application up and running. IT

had originally quoted 18 months. The message was clear: Multiyear IT projects slowed the business down, and cloud was the way for business leaders to bypass IT.

Surprisingly, this study shows that fewer business leaders are going around IT and purchasing technology directly than you'd think. Nearly half the respondents say that IT and business are equally involved in selecting cloud services. To us, the collaboration between business and IT signals a new phase in cloud computing: It's no longer enough to deliver speed and simplicity; the cloud must also support mission-critical operations.

In order to understand how cloud has evolved, Oracle sponsored the study "Cloud Computing Comes of Age" conducted by Harvard Business Review Analytic Services. The global survey of 376 business and technology leaders reveals a shift from pockets of cloud at the edges to the permeation of cloud throughout the enterprise. The report finds a correlation between an organization's cloud maturity and the health of its growth initiatives. The upshot? Those companies with a strategic enterprise approach to the cloud are more likely to:

- · Launch new products
- Expand into new market segments
- · Expand into new geographies
- · Enter new businesses

We hope these findings spark a conversation in your organization about how you can become a cloud leader. Here are some questions you can use to guide the discussion:

- Do we have a unified cloud strategy that creates a single face for customers and employees?
- How can we avoid the problems of the past like information silos and customizations?
- Are we able to leverage our existing IT investments and skill sets?
- How easy is it to start with a single process and integrate additional cloud services later on?
- What is our current cloud provider(s) doing to protect our data and meet compliance requirements?

Oracle had a different vision for the cloud when we started this journey eight years ago. We knew that whatever we built had to be simple and fast. We also knew from years of experience that cost and complexity would be issues unless enterprise standards were part of the original design. Read the full report to understand how companies are approaching the cloud more strategically than before.

Rod Johnson

Group Vice President, Oracle Cloud Applications

# CLOUD COMPUTING COMES OF AGE

#### **EXECUTIVE SUMMARY**

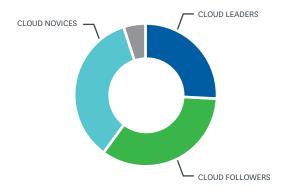
For much of its history, cloud computing has been viewed by many businesspeople as a way to gain new capabilities quickly without having to work with—and get bogged down by—the internal IT department. Figure out what you want to do, find a service provider that can help you do it, grab your credit card, and pay as you go. No arduous development process. No large capital outlays to be approved. No hardware and software to maintain. For line-of-business and functional leaders, this seemed like a great model.

But going around IT has drawbacks—in particular, not being able to connect into other systems and sources of data, and the risks of not being in compliance with regulatory and security needs. There are a lot of unknowns when it comes to security in the cloud, and this is not something any business leader can take lightly.

For their part, IT leaders have come to view cloud services as a useful tool to have in their toolbox. "Renting" versus owning the technology has been a huge boon to business agility; it's much easier to respond quickly to new opportunities and threats. Some have gone a lot further, establishing "cloud first" policies that declare an enterprise preference for cloud solutions over other possible approaches, even for core business operations.

#### **CLOUD MATURITY**

How would you describe your company's use of cloud services?



#### 26%

Use numerous cloud services; have defined policies for criteria they must meet and how they are acquired/managed

#### 34%

Experienced with some cloud services; few policies and practices in place

1

### 35%

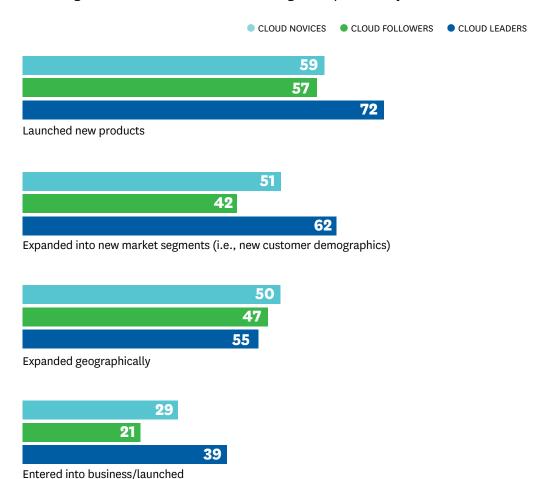
Just getting started with cloud

# 5%

Don't know

#### **INITIATIVES IN THE PAST THREE YEARS**

Percentage that have undertaken the following in the past three years:



There are compelling reasons for IT to get on board and lead cloud initiatives. New research from Harvard Business Review Analytic Services shows a correlation between a more mature use of cloud and a variety of new business activities. Cloud leaders—companies that take a more managed, enterprise approach—are significantly more likely to have launched new products and expanded into new markets than companies that take a more ad hoc approach. figure 1

The global survey of 376 business and technology leaders suggests we are now seeing cloud's second act. The first generation of software services—CRM, recruiting, expense management, and the like—earned widespread acceptance as viable (and increasingly preferred) alternatives to on-premises applications, embraced by both business and IT leaders and integrated into the enterprise IT framework. IT governance practices have expanded and morphed to embrace cloud and the greater involvement of business leaders in the IT process.

But the picture is far from rosy. Even cloud leaders feel a constant tension between enabling greater business agility and establishing sufficient enterprise controls. Companies that have yet to pull cloud projects into the enterprise framework are wasting money and missing opportunities. History

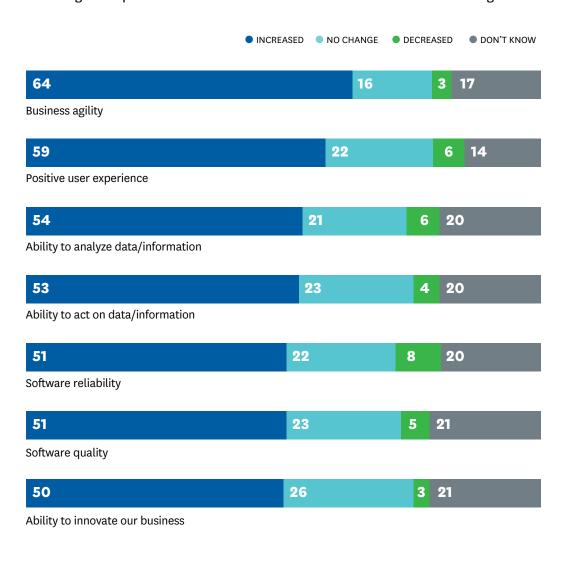
has shown that a go-it-alone approach to IT can lead to crippling levels of complexity; this could be even messier in the cloud. By taking a more managed approach, cloud leaders have been able to reduce not only implementation time but also cost and complexity through their use of cloud.

Cloud leaders are more likely to have a strong partnership between IT and other parts of the business—not just in determining requirements and selecting services, but also in acquiring and deploying them. Cloud and other technologies (social, mobile, and analytics, in particular) are causing a "democratization" of IT, blending roles and responsibilities at all levels and requiring new skills both inside and outside of IT. At the same time, cloud leaders are more than twice as likely to have a chief information officer (CIO) leading the way. The lesson is twofold: IT and business leaders must work together to promote a cohesive and inclusive cloud strategy, but someone's got to lead. And that someone is the CIO.

FIGURE 2

#### **CLOUD INCREASES BUSINESS AGILITY AND MORE**

Percentage of respondents that have said the use of cloud has affected the following.



# **BUSINESS AGILITY IN THE CLOUD**

Business agility has been the main driver for and the main benefit of the move to cloud, with 64 percent of respondents saying the use of cloud has increased their organization's agility. figure 2 This is critical, as many companies today face new market pressures—in many cases, from upstart cloud-based businesses. For example, a provider of workforce management solutions is seeing its traditional highly customized services become commoditized. "Companies say they can get similar services from a cloud vendor for \$1,000," said the senior director of global business development. "We used to do four to six weeks of sales discovery. Today we have to turn that around in 24 to 48 hours. Customers know what they want." This is causing the company to change many things, from its business model on up. And this is all happening fast; 85 percent of the company's net new business last year was in the cloud. To enable that business model means using a lot more cloud themselves. This is giving them shorter, faster implementation cycles and providing frontline business managers with greater insight and control.

A lot of the pressure for change is driven by new customer expectations of digital capabilities. Leaders in established companies, with a lot of legacy systems, processes, and ways of thinking, feel tremendous pressure to evolve. For one of the large credit card companies, this means everything from engaging customers in new ways online to rolling out new products and services. Today close to two-thirds of their revenue comes from "nonplastic" products. "Our customers' business models are changing, and they are looking for us to change ours," said the head of prospect marketing for corporate payments. In addition to being able to book and pay for hotels and meals, business travelers now want to manage their travel bookings on their smartphone through the credit provider's app. They want the app to be location-aware so it's easy to find restaurants that accept their card. They want to then use it to snap a picture of their receipts and to easily attach those to specific expense categories and manage expenses in one place. "We're in a rapidly evolving competitive landscape," he explained, with new competitors like PayPal and Air Plus (a cloud-based expense management system) keeping them on their toes. All of their marketing capabilities are now in the cloud. "The traditional IT infrastructure is too slow to change and move."

# THE BIG "EASY" BUTTON

Cloud has been a boon in this drive for greater agility, enabling companies to stand up new capabilities in weeks rather than months or years. But at many large organizations, it's taken time for IT to get on board. "I was one of the early agitators" for cloud, said the credit card marketer. "Our technology team was hesitant." But the value proposition was too compelling not to pursue it. When sales and marketing began to push for a CRM solution seven or eight years ago, "IT said they would come back with a solution in 18 months; the cloud vendor said, 'We can solve your problem in five weeks.' We were like kids in a candy store!" Indeed, speed of deployment was the main justification given by survey respondents for bypassing IT—named by two-thirds of those who had implemented a cloud solution without IT's involvement. And a quarter of all respondents said that IT is a roadblock to quick innovation.

In some instances, cloud has made it possible for companies to capture new business that would otherwise have been cost-prohibitive or too time-consuming to make sense. For example, a few years ago, a \$26 billion global contract manufacturing services company won a contract to take over 2,000 repair shops from a large OEM. Deploying on-premises infrastructure for all the shops would have required them to spend months requisitioning and deploying servers, plus millions of dollars to buy the equipment and train people to use those servers. Instead, they used a cloud

#### IT PAYS TO BE A CLOUD LEADER

Cloud leaders take a more sophisticated approach to the use of cloud, with defined policies for the criteria they must meet and how they are acquired and managed. They stand out from their peers in a number of important ways.

# **BROADER, DEEPER EXPERIENCE**

- Most have been using cloud for three years or more.
- Their use of cloud is more extensive across all areas of the business, including that they're significantly more likely to use cloud for core applications like finance, procurement, supply chain, and compliance.

# **FOCUS ON FLEXIBILITY**

 The ability to accommodate fluctuations in demand (elasticity) is the number one technology driver for cloud leaders' use of cloud, whereas cloud followers and novices care most about ease of deployment.

#### **ADVANCED PRACTICES AND RESULTS**

- Business users are able to self-provision cloud services and access core business systems from mobile devices.
- Their cloud services tap into a common set of customer, employee, and product data.
- They define the business value they expect to get from cloud.
- They have sufficient cloud management controls in place.
- They are more likely to share responsibility for all aspects of cloud management equally between business owners and IT.
- They are ahead in launching new products and expanding into new markets.

# **CIO LEADERSHIP AND STRATEGIC IT**

- Cloud leaders are more than twice as likely to say their CIO has taken a leadership role in the move to cloud.
- More than half say cloud has freed up their IT department to focus on more strategic things, and cloud leaders are almost twice as likely to say their IT department is best in class.

solution that they were able to roll out almost instantly. "That's a real competitive advantage," said the CIO. "It's about speed and ubiquitous access to the tool, plus the cost savings."

The need to respond to rapidly changing market conditions has led many companies to cloud. Multiyear, multimillion-dollar IT projects are becoming increasingly scarce. One IT leader described these as "a long, slow death march—to end up in the wrong place." Another said this is causing a change in the role the IT organization plays, from building and owning systems to buying and configuring them.

"We've had experience with huge internal projects," said a vice president of online solutions customer service for a large media company. "They cost a lot of money and take our best resources to deliver, and still the results are not that great. SaaS offers what we want in a more ready-to-use way. The implementation time is greatly reduced, and we don't have the huge up-front investment."

For many businesses, cloud is about having "a big 'Easy' button," said the CIO of a large events business. "A lot of current systems and processes are too complex. People don't have the time for that anymore. There's an expectation that things should be easy, and it has to be real-time information. We have to integrate all those things and operate at the speed at which the business runs."

# **CLOUD LEADERS MOVE FURTHER, FASTER**

Cloud leaders are not only more likely to use cloud across the top five functions where cloud services are in use, but they're also much more likely to be pushing cloud into more core business functions like procurement, supply chain, and accounting. figures 3 and 4 Cloud leaders are also looking for opportunities in industry-specific applications. "Human resources management, customer relationship management, email, service management are the most mature spaces for cloud," said the CIO at a global pharmaceutical company—himself an early proponent. "Now we're looking at what's next. For us that means clinical trials and drug development."

Some companies are taking a conservative approach. "We use cloud for our dynamic, distributed workforce, and on-premises applications for more stable things," said the vice president of field operations at a technology consulting company.

Whatever approach one takes, it's important to define the anticipated benefits and measure results as you go. Cloud leaders are more likely to define the business value they expect to get from cloud initiatives up front—69 percent of cloud leaders do this versus only 43 percent of followers and 40 percent of novices. And respondents who say they have launched cloud initiatives without IT's involvement are least likely to define expected business value—only 32 percent say they do. Conversely, 61 percent of companies with strong CIO leadership in cloud define the benefits up front.

#### **LEADING CLOUD'S SECOND ACT**

What's happening today with cloud has parallels with previous swings of the pendulum from centralization to decentralization and back again. Businesses opting for speed allowed innovation at the edge; now the need for a more unified approach—to present a single face to customers, for greater leverage across business units (for both efficiency and opportunity)—is moving control back to the center. "Three years ago, cloud projects were springing up all over the business," said the senior director at the workforce management company. "Business people wanted control, and they didn't want to go through protracted implementations." Then a year and a half ago, the company started a "one company" push that has driven them to move to a single suite of systems, with as much as possible in the cloud.

# **TOP FIVE FUNCTIONS FOR CLOUD USE**

Percentage that say, to the best of their knowledge, the following functions in their organization use cloud services:

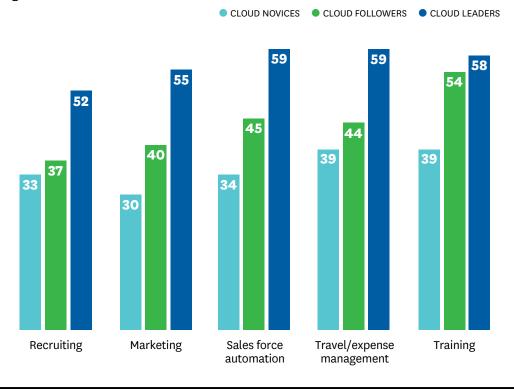
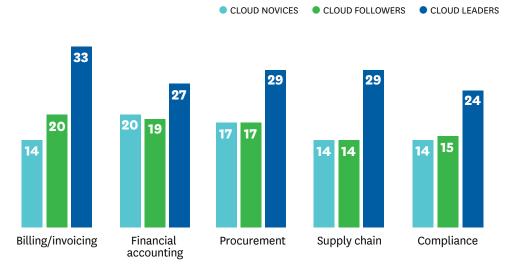


FIGURE 4

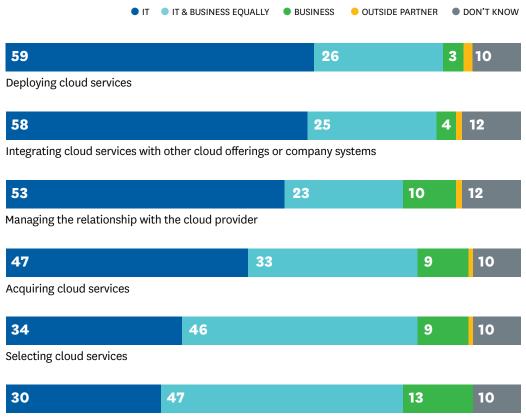
# **CLOUD USE MOVING INTO MORE CORE BUSINESS FUNCTIONS**

Percentage that say, to the best of their knowledge, the following core business functions in their organization use cloud services:



# RESPONSIBILITY FOR CLOUD MANAGEMENT

Who in your organization is responsible for cloud computing? Percentage of respondents that say:

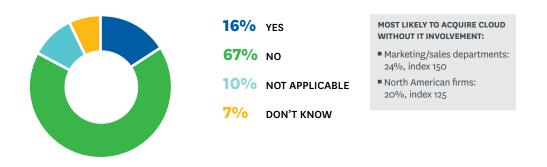


Determining requirements for cloud services

FIGURE 6

# **CLOUD ACQUIRED WITHOUT IT**

Has your department acquired its own cloud services without IT's involvement?



As with previous cycles, this requires doing an inventory of existing systems and a consolidation. One large health care company had 14 different instances of Salesforce.com, separately contracted by individual business units or departments. These are now being brought together under the auspices of central IT.

But cloud is different from what is was during previous swings in that it's never been this easy for non-technology leaders to stand up technology capabilities. More than a third of respondents (37 percent) are personally involved in buying or making decisions about the use of cloud services, even though less than 10 percent work in an IT department.

Many aspects of cloud management are shared equally between IT and other parts of the business—in particular, determining requirements for cloud services and selecting vendors. figure 5 Leaders are more likely by a full 9 or 10 percentage points to share responsibility in all aspects of cloud management.

Interestingly, the survey did not reveal a lot of shadow IT. Only 16 percent of respondents have acquired cloud services without IT's involvement. (That increases to 24 percent for marketing/sales and 20 percent for North America.) figure 6 Of those, a third say there are no drawbacks to working without IT. However, 43 percent said the inability to integrate new cloud services with other applications is a drawback to going around IT.

## **SHIFTING POWER**

The reality behind these numbers is complicated and not always pretty. There is still plenty of tension between IT and other parts of the business—on both sides. Cloud has empowered business leaders, and many people relish that shift in power. "One of the benefits of cloud is that if you implement it in the right framework, it's quite self-sufficient," said a marketing leader for a global electronics distributor. "If we have to involve IT, it's very cumbersome." Recently they got a mandate from the top to involve IT in their cloud projects. So now they're working together, but at a slower pace, with IT handling due diligence and integration. "IT has the right intentions, but they're resource-constrained, and their priority list is long."

The senior director at the workforce management company sees this shift in power as healthy. "Cloud has been a catalyst to push IT to partner more effectively with the business," she said. "They're no longer the masters of our systems."

In some organizations, the reengagement has come about because business-led cloud projects ended badly, and business leaders who acted independently needed IT to bail them out. Regardless of what brought them to the table, they're there now, and smart organizations are figuring out how to make these new, more collaborative models work. At the credit card company, "the technology team realized they could add a lot of value to the cloud discussion and that we have a strategic role to play. It's started to change the way we engage." Last year the company's business and technology leaders together developed a business-aligned IT road map for how to evolve their technology to better serve the business. "We need the governance that IT brings."

At the media company, the relationship with IT is "a partnership all the way," said the vice president. "IT brings the architecture perspective. We bring the business need and the budget perspective. All of those views are valid and need to be taken into account." While the push for cloud came initially from the lines of business, IT is now fully engaged and taking a cloud-first approach. "Having IT involved slows the process, but it will also deliver more value longer term."

At an Indian telecom company, "IT is part of the panel" for cloud evaluations, said the head of learning and development. "We're the client [of the cloud vendor], but IT sits with us for evaluations. We define requirements, get pricing, put together the business case. Together we look at the pros and cons, then it goes to information security and compliance, and finally to management." This is similar to other IT projects, but it's faster because the infrastructure team is not involved. "I just have to say this is the cost I'm willing to absorb," she said. "And we don't have to engage IT in terms of maintenance—they just have to open a port to access the service."

#### **BEST PRACTICES FOR CLOUD COLLABORATION**

Companies committed to a digital future are taking a number of steps to foster tighter integration of IT into the lines of business. These include:

- **Job rotations** into and out of IT.
- **Co-locating IT staff with business counterparts:** for example, having developers and marketing creative staff work side by side.
- **Cross-functional reporting:** For example, the vice president of ecommerce at a large clothing company reports jointly to the CIO and CMO.
- **Blended roles:** The credit card marketer is getting a master's in information systems management—not because he intends to move into IT but because that's where marketing is headed.
- Business relationship managers: These carry a variety of names, but they all do the same thing—
  put individuals from IT on the front lines of the business in order to a) learn business needs
  firsthand and bring that back to central IT and b) bring IT knowledge and perspective to early
  discussions in the business. They also look for opportunities to leverage capabilities across the
  business and avoid duplication.
- **Business IT strategy board:** Members represent lines of business at the highest level. The CIO is one member of what might be a group of a dozen or two company leaders. Some companies include external members on these boards as well.

Cloud leaders are making this shift, and it's changing the role of traditional IT. For one thing, the advanced use of cloud has freed up the IT department to play a more strategic role. More than half of respondents from cloud leader companies say this compared with only about a third of followers and novices. figure 7 This is critical for companies to stay competitive in a fast-changing environment. "A big motivator for moving to more cloud was to get it off our campus and let someone else worry about the maintenance, backup, etc.," said the CIO of the events business. "I need innovation from my people."

One of the defining characteristics of cloud leaders is that these companies' CIOs have taken a leadership role in the move to cloud. Twice as many cloud leader respondents say this as compared with cloud novices (62 percent versus 31 percent). figure 7 These CIOs value the agility and efficiency cloud provides, and they've made it a part of every conversation they have with their business colleagues.

One of the biggest challenges for CIOs in large, complex organizations is how to enable business unit innovation without having things spin out of control. "Innovation often occurs at the edge, out in the markets," said the pharmaceutical CIO, whose company has a presence in 120 markets around the world. New ways of working can spring up anywhere, influenced by local

[PERCENTAGE SAYING THEY AGREE]

# **CLOUD LEADERS' CIOS HAVE LED THE MOVE TO CLOUD**

Extent to which respondents agree with each of the following statements:

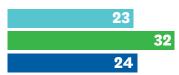
CLOUD NOVICES
 CLOUD FOLLOWERS
 CLOUD LEADERS

31 37 62

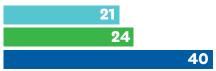
CIO has taken a leadership role in move to cloud



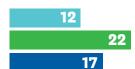
Cloud has freed up IT organization to focus on more strategic things



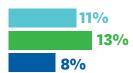
IT department is a roadblock to quick innovation



IT department is best in class



Cloud is making internal IT department less relevant



In five years, we will no longer need an IT department

# **SECURITY IS BIGGEST BARRIER TO CLOUD ADOPTION**

Percentage that say the following have been the biggest barriers to more fully embracing cloud:

62 Security concerns Interoperability/integration challenges 34 Cost of changing over from our current systems 27 Investment in existing software licenses Compliance requirements 23 Having to manage multiple services 21 Network bandwidth limitations 21 Fear of vendor lock-in 13 Cost of cloud services Performance limitations

None of the above

regulations, constraints, and trends. It's important to be aware of and to support what they're trying to accomplish, he said. "We have to be quick enough to get in front of the parade, and steer it if necessary." That means managing through credibility and influence rather than authority.

# **MANAGING CLOUD'S CHALLENGES**

Cloud growth will continue; 85 percent of respondents expect the number of cloud services they personally use at work to increase over the next few years. However, concerns over security could limit that growth; 62 percent say security concerns are the biggest barrier to their organization's more fully embracing cloud. That's almost twice as many as named the next biggest barriers—integration challenges and the cost of changing over from current systems. figure 8

Nearly half of respondents (46 percent) say that data security is harder in the cloud. figure 9 This is one factor steering many CIOs toward established vendors for cloud services—they have the resources to invest in state-of-the-art security—both physical and logical.

Given the concerns around security, it's surprising that only half of respondents (53 percent) say their companies have established policies for cloud security, and over half (57 percent) don't even know if their cloud provider outsources management of their data to someone else. Cloud leaders are much more likely to have security policies in place, at 79 percent.

Around a third of respondents don't know if their company's use of cloud has increased or decreased the security of their data, and more than a third don't know if it's made it harder to comply with government regulations. figure 10 A similar percentage don't know if cloud has caused a security breach.

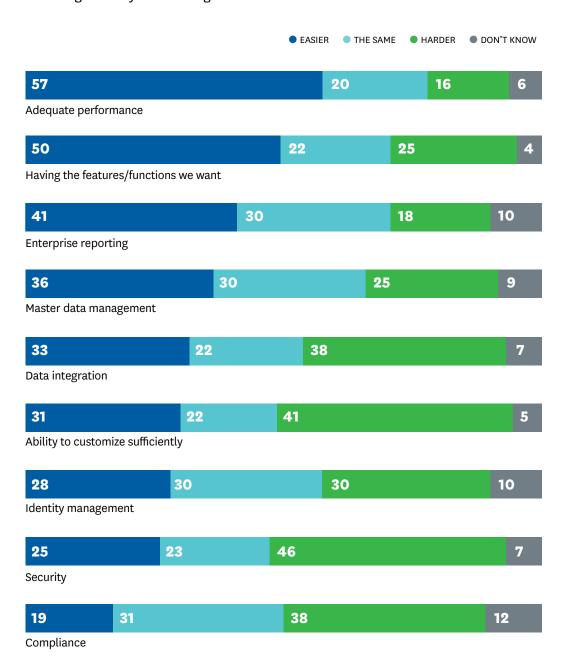
All of these unknowns add to the sense that cloud is risky business. Today only about a third of respondents are confident in their providers' ability to deliver services with adequate quality, reliability, and security and at a reasonable cost. figure 11 Most (61 percent) are neutral on this point. As cloud becomes more central to enterprise operations, this creates opportunity for established technology providers that are evolving their own services to the cloud.

A U.S.-based health care products distribution and services company has deep relationships with a small number of large services companies. "Vendor viability is a huge criterion for us," said the CIO. "We're trusting them to manage our business." And because not every application is suitable for the cloud, his provider also has to be able to handle traditional outsourcing with dedicated infrastructure and software. "We all have these mixed models," he said. "We need a service provider that can manage that level of complexity."

Such capabilities come at a cost, however, and for low-margin businesses, cost is as important as speed. Rather than go to the big, established providers, "we invest in start ups," said an IT director at the global contract manufacturing-services company. "Established players have more overhead, and that gets passed on." This company works with venture firms to see what's new, picks a few start ups to back, and helps them launch. Like other companies interviewed for this report, they started their foray into cloud with HR, CRM, and IT service applications. Today they're looking at solutions for sensor data management, automation, and robotics for the "Internet of Things." And they're building out their own internal "IT as a service" capabilities for their lines of business. But every service they evaluate has to meet the cost criteria. "We evaluated email and decided we could do it cheaper ourselves."

# **SECURITY MORE OF A CHALLENGE IN THE CLOUD**

Percentage that say the following are easier or harder in a cloud environment:



# **THE FUTURE**

Cloud is entering its second act, with advanced users moving beyond CRM, HR, and the like to put more core applications into the cloud. Cloud leaders are themselves becoming service brokers—both internally to their own lines of business and externally with their customers. This is the case at both the workforce solutions company and the health care products distribution company, which increasingly offers revenue-generating services that are IT-enabled, said the CIO. "We're using all aspects of cloud to maximize efficiency and flexibility in our core business as

FIGURE 10

# **UNCERTAINTY ABOUT SECURITY AND COMPLIANCE**

Please rate the extent to which your organization's use of cloud has affected the following:

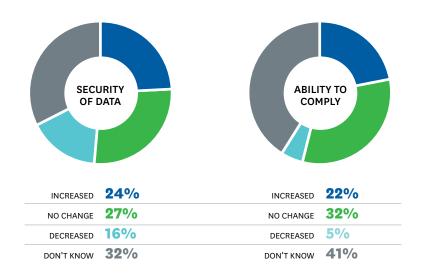
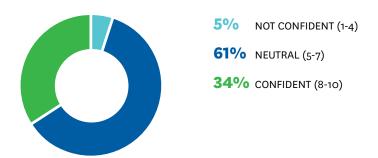


FIGURE 11

#### **CONFIDENCE IN CLOUD PROVIDER RELIABILITY AND COST**

How confident are you that your cloud provider will deliver the services you need with adequate quality, reliability, and security and at a reasonable cost?



well as developing an 'as a service' model for our customers." This has implications for the whole market, he said. "Providers need to think about the ecosystems. I'm not just a customer, but I'm a customer who has customers that are also part of the ecosystem. For cloud to come of age, [we have to orchestrate] a complex array of services, not all from one provider." This requires new models of IT governance and a very different set of skills and competencies from traditional IT.

For CIOs, this represents a new set of challenges. These ecosystems are complex, with an array of potential new services, providers, partners, and customer connections to take into account. Business leaders have more of a voice when it comes to IT decisions. Determining the right level of controls to put in place as well as who is responsible for the different aspects of cloud management is a moving target. In companies with a poor track record of collaboration, fences will need to be mended and new connections built. Understanding these dynamics and getting out ahead of them will be a huge part of the CIO's role in the decade ahead. CIO leadership has never been more important—or more complicated. •

#### **METHODOLOGY AND PARTICIPANT PROFILE**

A total of 376 respondents completed the survey, including 289 who are members of the Harvard Business Review Advisory Council.

#### **SIZE OF ORGANIZATION**

Only organizations with revenues of \$50 million or more took part in the survey. Thirty-five percent of companies had 2013 revenues of \$5 billion or more; 50 percent of organizations generated less than \$1 billion. Forty percent of respondent organizations have 10,000 or more employees, 33 percent have 1,000 to 10,000, and 27 percent of respondents are in firms with fewer than 1,000 employees.

#### SENIORITY

A fifth of respondents (19 percent) are executive management or board members, just under a third are senior management (31 percent), and just over a third (37 percent) are middle management. Thirteen percent come from other grades.

#### **KEY INDUSTRY SECTORS**

Twenty-one percent of respondents are in technology, 13 percent work in manufacturing, and 11 percent are in financial services. Other sectors are each represented by 8 percent or less of the respondent base.

#### **JOB FUNCTION**

Twelve percent of respondents are in operations/project management; 10 percent are in both IT and general management. Nine percent are in HR/training, 9 percent are in sales/business development, 7 percent are in both marketing/communications and finance/risk. Other functions are represented by 6 percent or less of the base.

#### REGIONS

Nearly half (47 percent) of respondents are from North America, a quarter (25 percent) are from Asia, with just under a fifth (17 percent) from Europe. The remaining 11 percent are from ROW.

