

BEHIND EVERY CLOUD TRANSFORMATION, THERE'S WELL-FUNCTIONING IT

2018 INFORMATION TECHNOLOGY PERFORMANCE EXCELLENCE SURVEY

By Joe McKendrick, Research Analyst
Produced by Unisphere Research,
a Division of Information Today, Inc.
January 2018

For:
International Oracle Users Group (IOUG)
Oracle Application User Group (OAUG)
Quest International Users Group

Sponsored by

ORACLE[®]

For

IOUG
independent oracle users group

OAUG
oracle applications users group

Quest
International Users Group

For the Complete Technology & Database Professional

Produced by

 **UNISPHERE**
RESEARCH

TABLE OF CONTENTS

<i>Executive Summary</i>	3
<i>Systems of Record, Systems of Innovation</i>	5
<i>Enterprise Application Growth: Cloud Adoption Plans</i>	8
<i>Performance Issues</i>	12
<i>Cloud Rises</i>	19
<i>Conclusion</i>	24
<i>Next Generation Technologies Address These Challenges</i>	27

EXECUTIVE SUMMARY

While many end users perceive the “cloud” as an amorphous, unseen network that provides services and applications anywhere and anytime they are needed with no work from consumers, this is far from the case. Behind every instance of cloud transformation, there are consumer-side information technology systems, applications, networks, and, yes, even hardware that provide the processing power, security, and storage that helps clouds function and integrate with enterprise business processes. Various cloud adoption models—Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS)—carry different balances of provider versus consumer responsibility, but even in a SaaS model, there is meaningful work to be done by the consumer. In addition, while cloud computing helps organizations move light years ahead into the digital realm, many enterprises still need to commit much of their IT resources to existing on-premises “systems of record.” This balancing act between managing cloud and on-premises environments is often a hit-or-miss proposition.

The need to get the balance right is a key takeaway from a survey of 474 executives and professionals, including respondents from the Independent Oracle Users Group (IOUG), Oracle Applications User Group (OAUG), and Quest International Users Group (Quest). The survey, conducted by Unisphere Research, a division of Information Today, Inc., covered trends and attitudes pertaining to the operations of on-premises and cloud-based systems and applications.

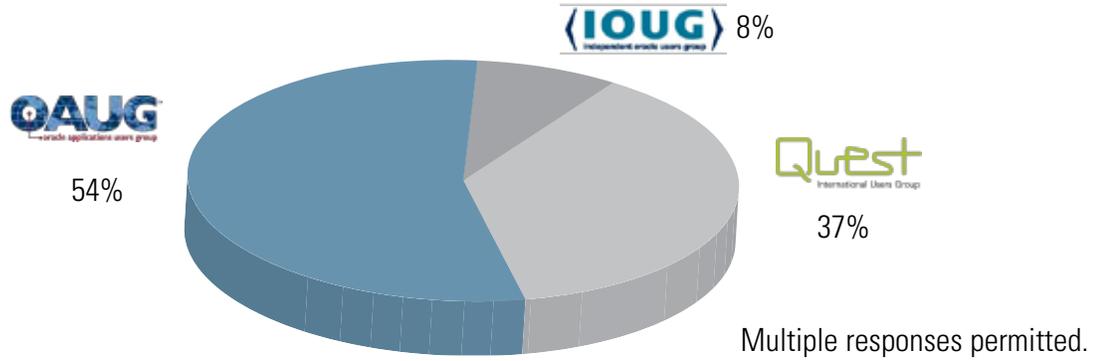
The survey was conducted among the entire IOUG, OAUG, and Quest member databases via emailing that directed respondents to an online survey instrument. The largest contingent of respondents, 54%, are members of the OAUG, followed by 37% from Quest. Another 8% are members of the IOUG (See Figure 1.)

The purpose of this report is to assess the delivery of IT performance excellence across a range of enterprises, and how this is translating into business profitability and growth. Periodically in this report, comparisons are cited between managers and staff professionals. While their views align on most areas of IT performance excellence, there are differences when it comes to cloud computing.

The following are the key findings revealed by the survey:

- Most IT-related time and money today goes to supporting existing on-premises infrastructure or legacy systems. Six in 10 respondents say the amount of resources going into legacy maintenance is hurting their organizations’ competitiveness.
- While a majority of respondents see cloud as their future, it’s going to take some time until cloud is supporting a large portion of IT infrastructure and assets. Manageability and control are top concerns.
- Among those who run on the cloud and are aware of the impact, 24% indicate it has improved manageability, while 22% say it has made things harder. It should be noted that companies that adopt PaaS or IaaS, are responsible for the performance and availability of their applications, whereas cloud providers are typically only responsible for the underlying technologies.
- The most common way IT and application teams are alerted to performance issues with their systems is when end users call or email in. Issues are more pronounced for internal than external users, suggesting the higher priority enterprises place on performance of customer-facing systems. Internal users encountered glitches weekly at half of the organizations in the survey. For organizations dealing with a combination of limited visibility and ongoing issues, migration to the cloud can actually exacerbate these trends, which makes it even more important to baseline performance before, during and after migrations to reduce risk.
- Given the lack of monitoring sophistication for on-premises, it’s not surprising that there is some confusion as to whether the cloud actually helps boost the performance of corporate systems and applications. There is a strong indication that this confusion isn’t fact-based and would be cleared up by a better understanding of the current state of IT and the ability to compare the current state with a desired state (such as in a cloud environment).

Figure 1: User Group Affiliations



SYSTEMS OF RECORD, SYSTEMS OF INNOVATION

Most IT-related time and money goes to existing infrastructure or legacy systems. Six in 10 respondents say the amount of resources going into legacy maintenance is hurting their organizations' competitiveness.

There's increasingly a push and pull taking place within enterprises between so-called "systems of record" and the new waves of "systems of innovation." IT and data management professionals are often torn between spending time with these systems, and corporate budgets are similarly torn. The question is, how much time is still being committed to older, legacy systems versus efforts to branch out into newer endeavors?

The survey finds systems of record still occupy the largest blocks of time expended by IT managers and professionals, which may be a reflection of the enterprise or large-systems nature of the OAUG, Quest, and IOUG membership base. On average, the bulk of the respondents' typical workday or workweek, 44%, is devoted to maintaining, fixing, integrating, or tracking systems of record, or legacy transaction systems. Another one-third of professionals' time is spent building, deploying, and integrating systems of innovation, exemplified by new project development or new initiatives—such as digital, cloud, and analytics. (See Figure 2.)

The amount of money currently being spent on systems of record mirrors the amount of professionals' time going into maintaining these systems, the survey also confirms. Close to half of typical budgets, 45%, on average, go to existing infrastructure or legacy systems, while less than one-third are focused on systems of innovation. (See Figure 3.)

There's a price being paid for organizations' ability to compete in today's markets, however. The amount of time, money, and resources spent on maintaining, fixing and tracking systems of record—as shown above, close to half of time and money—is affecting the overall competitiveness of their organizations, survey respondents believe. Sixty-six percent agree that time and money spent on existing infrastructure or legacy systems is holding back their companies' advancement. Close to one in five agrees that the degree to which this is happening is severe. (See Figure 4.)

Even though they believe the focus is stifling innovation, most managers and professionals feel the amount of time and money

spent on existing infrastructure may be just about right, given their real-world circumstances. When asked how they would describe their companies' level of commitment to supporting their systems of record versus newer initiatives, a majority, 55%, say for the most part, they feel the level is just about right. This disconnect may reflect the ideal that is tempered by reality: Most professionals agree that ongoing commitments to legacy is hurting their organizations, yet say these commitments are needed. Many organizations have substantial investments in, and still depend on systems and applications that are well-wired into their processes. There is still another takeaway for the senior IT management. For those executives who align their IT teams' goals on agility and growth, some education may be necessary to make sure middle-to-first-line management and individual contributors are on board with the organization's top priorities, and that their actions support those goals.

Among those who question their organizations' commitments to legacy systems, there are questions about the time and resources devoted to systems of record. A total of 30% say there should be less time and money spent in this area, while 15% actually want to see more time and money going into existing infrastructure or legacy systems. (See Figure 5.)

The key to managing and improving systems of record is to consider ways in which to optimize these systems in place or move these systems to the cloud without introducing risk. Performance improvements can be implemented through a new generation of tools designed to increase application visibility and enable real-time monitoring and remediation of issues regardless of where the applications are deployed. In addition, increasing the automation capabilities of these systems frees up IT staff to focus on higher-level issues. In many cases, low-end and complex infrastructure can be moved to the cloud, thereby freeing IT staff from the burden of resolving potential performance issues.

Figure 2: Average Amount of Time Spent—By Type of System

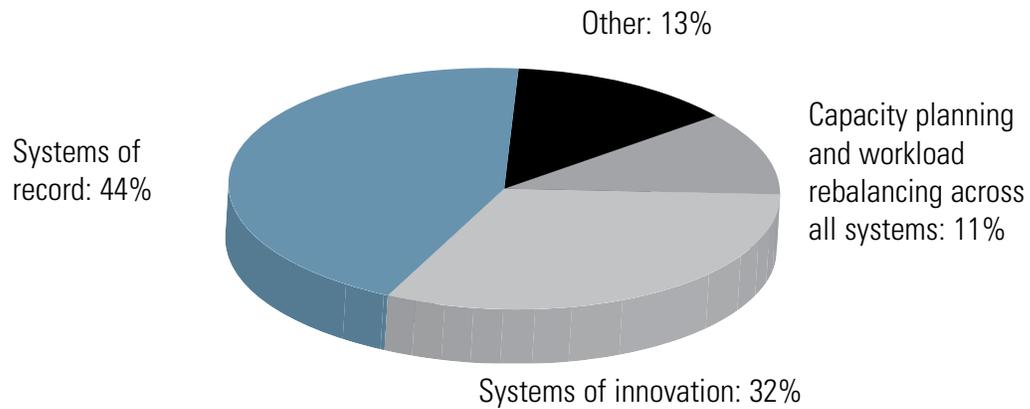


Figure 3: Average Amount of IT Budget—By Type of System

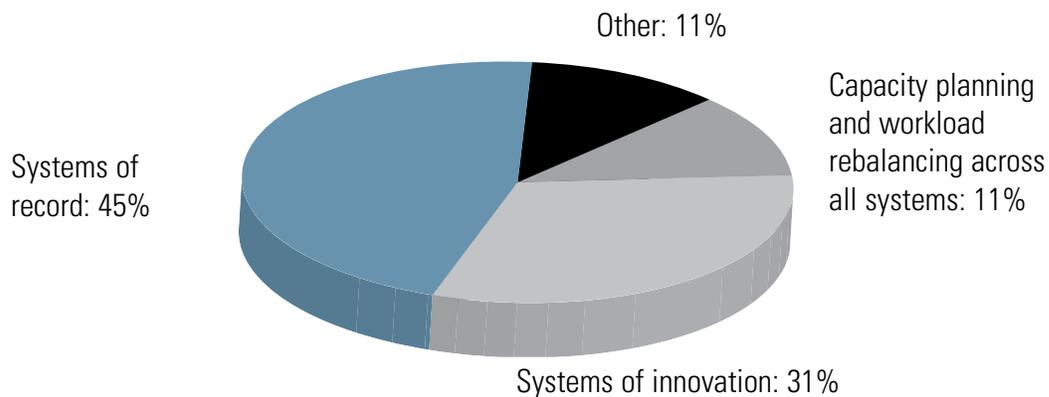


Figure 4: Amount of Time, Money, and Resources Spent on Systems of Record Affecting Overall Competitiveness

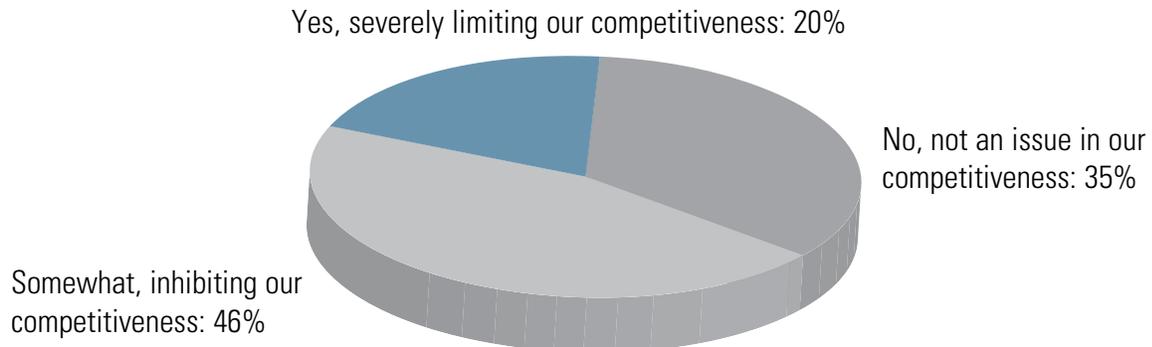
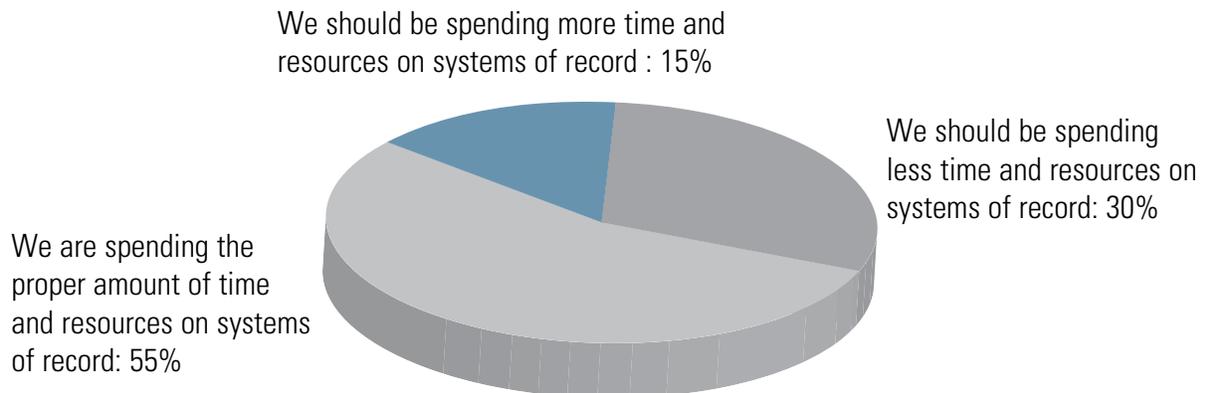


Figure 5: Level of Commitment to Supporting Systems of Record Versus Newer initiatives



ENTERPRISE APPLICATION GROWTH: CLOUD ADOPTION PLANS

Enterprise application portfolios keep growing—many respondents report having numerous applications under management. Web, mobile, and business-to-business applications dominate. These growing portfolios can be the most costly ones, as well as be suitable candidates for cloud computing. There is work to be done here, as at least half of enterprise managers don't have a clear plan for PaaS or IaaS. A lack of understanding of the advantages of PaaS and IaaS may be problematic.

As organizations advance into the digital age, they are taking large portfolios of applications with them. The survey makes it clear that IT and data professionals have multiple enterprise applications to manage and integrate, and the number of applications keeps growing. When asked about the number of enterprise applications being used within their organizations, close to two-fifths cited between 11 and 50 applications. Another 9% manage between 50 and 100 applications, and 16% report having more than 100 enterprise applications to oversee. (See Figure 6.) Close to two-thirds, 63%, indicate that the number of applications within their enterprises has grown over the past three years. (See Figure 7.)

What types of external-facing applications do respondents' organizations maintain? For the most part, as cited by seven out of 10, the main application is an informational website for customers. More than one-third also are deploying mobile apps for customers or partners. Just under one-third of respondents have business-to-business sites, either for active e-commerce, or

to support portals through which they can exchange information. (See Figure 8.)

For the most part, respondents report that on average up to 1,000 external users (such as customers or partners) are accessing their enterprise systems per month. Another 47% say the number exceeds 1,000. There are a greater number of internal enterprise users (employees, contractors, and partners) accessing these applications—54% report having more than 1,000 internal users per month within the bounds of their organizations. (See Figures 9 and 10.)

These growing portfolios can be the most costly ones, as well as be suitable candidates for cloud computing. What's needed is a better understanding of growth patterns so capacity can be planned quickly. The same knowledge can be applied to determine which parts of the infrastructure should be moved to the cloud and the amount of cloud resources to procure for the desired service performance.

Figure 6: Number of Enterprise Applications Within Organizations

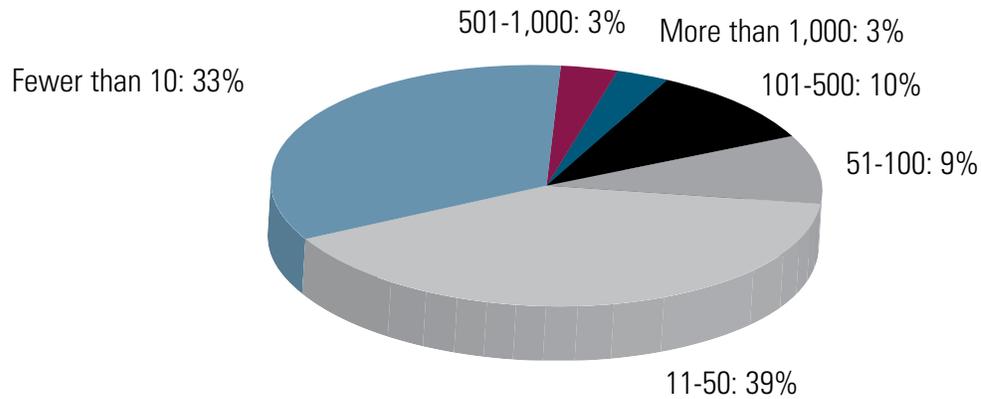


Figure 7: How Number of Enterprise Applications Has Changed Over Past Three Years

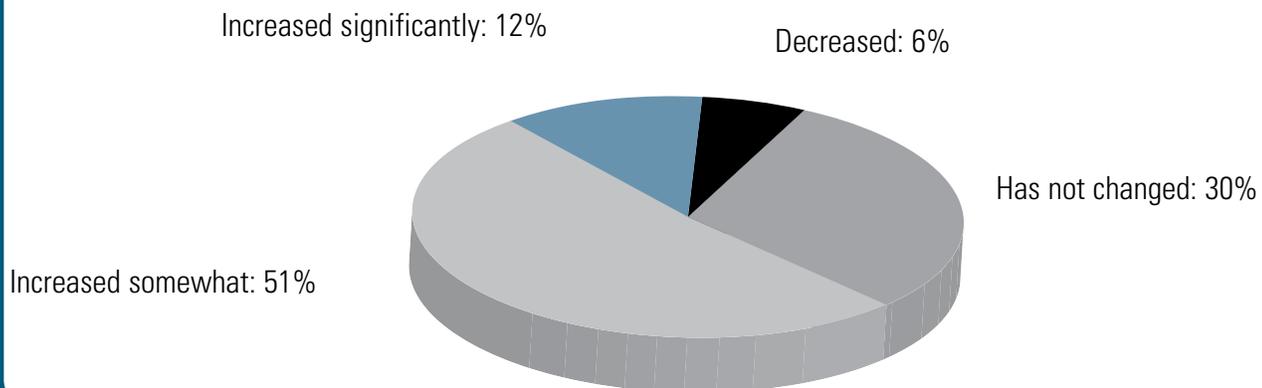


Figure 8: External-Facing Applications

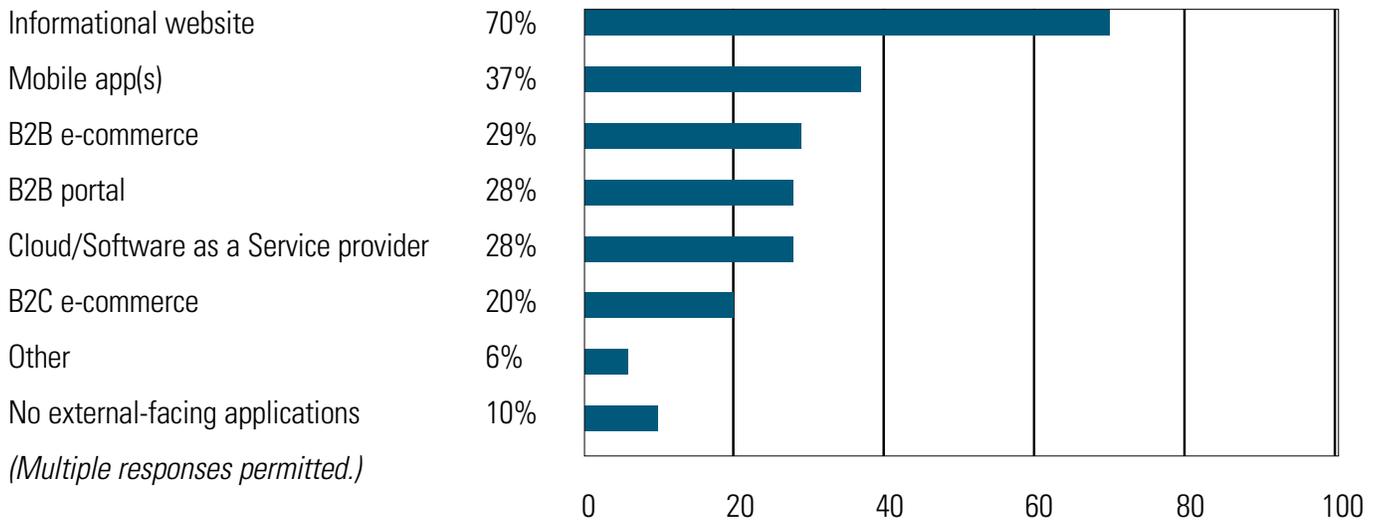


Figure 9: Number of External Users Accessing Enterprise Systems per Month

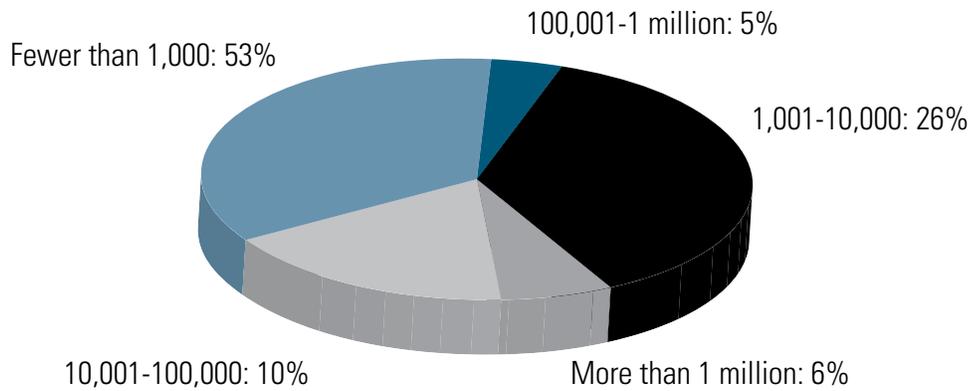
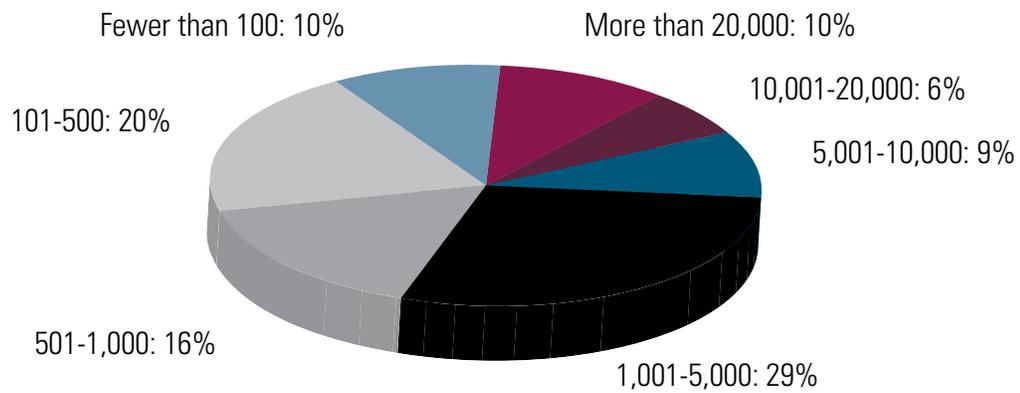


Figure 10: Number of Internal Users Accessing Enterprise Systems per Month

PERFORMANCE ISSUES

The most common way IT and application teams are alerted to performance issues with their systems is when end users call or email in. Issues are more pronounced for internal than external users, suggesting the higher priority enterprises place on performance of customer-facing systems. Internal users encountered glitches among at least half of the organizations in the survey. This problem is so pervasive that it is likely that those with definitive cloud migration plans will run into both internal and external customer satisfaction issues related to this even after they move to the cloud.

While enterprises have been able to automate alerting systems that notify them about problems end users may be having, most of the time, the end user has to take the initiative and call in with the problem. When managers and professionals were asked how they typically have been alerted on end user issues, more than eight in 10 say it takes a proactive customer or user to alert them. More than two-thirds have an automated system that provides alerts when it detects something is amiss. About one-third learn the hard way that something is wrong—they are alerted by someone in the senior management ranks. (See Figure 11.)

Looking at similar surveys conducted in 2009 and again in 2014, it's notable that despite significant advancements in monitoring automation deployed by IT (67% now rely on auto-generated alerts or even machine intelligence to spot anomalies, up from 39%), the most common method of discovering problems continues to be customers calling or emailing in (78% in 2009 versus 85% now). Another worsening trend is the involvement of senior management in communicating issues with IT, which rose from 21% in 2009 to 32% now. (See Figure 12.)

There are a number of issues that arise, and respondents indicated how frequently their internal and external end users encountered these issues over the past year. The issues are more pronounced for internal than external users, suggesting the higher priority enterprises place on performance of customer-facing systems. A majority of respondents, 54%, report their internal users have encountered error messages on a daily, weekly, or monthly basis. Close to half, 48%, also saw internal users suffer from slow response times. (See Figure 13.)

For external users, the issue that crops up the most, cited by 29% who are seeing this issue daily, weekly, or monthly, is slow response time. Another 27% report frequent error messages pop up for external users, while 18% admit their customers or partners find the applications difficult to navigate. (See Figure 14.)

If respondents' systems or applications were down, how long were they down, in total, over the past 12 months? Close to half of respondents, 49%, said their applications were down for close to a full working day, lasting for a total of between one to 10 hours. Close to one in four, 23%, said their application downtime totaled more than 10 hours over the past year. (See Figure 15.) This situation has improved since the last survey in 2014—26% report less than an hour of cumulative downtime, up from 24% in 2014. Extreme cases—more than 10 hours' worth of downtime—is down from 30% to 23%. (See Figure 16.)

The survey also explored the time it takes to restore or fix a downed application, and whether this has improved since the previous survey in 2014. The time to restore is critical to achieving a latency-free enterprise. Seventeen percent report it takes two hours or more to bring an application back up—a dramatic drop from 45% reporting this amount of time required in the last survey. This significant improvement in restoration time reflects the commitment by enterprises and IT departments in performance and business continuity, propelled by a new generation of monitoring and cloud platforms. (See Figures 17 and 18.) For the most part, it takes less than one hour to update monitoring solutions, the survey also finds. (See Figure 19.)

The new generation of technologies and intelligent monitoring tools also is having an impact on user experiences. A majority of respondents, 64%, say there has been an improvement in the frequency of end user issues they have faced. (See Figure 20.)

While the cloud could potentially be an antidote to some performance issues (more on this in the next section of the report), it is likely that those with definitive cloud migration plans will run into customer satisfaction issues related to this even after they move to the cloud, since, as discussed earlier, cloud transformations still have a traditional IT component in many cases. There are two significant takeaways here. First, the return on investment of monitoring technology doesn't

appear to be consistent across different disciplines for many organizations. Second, advances in application development technology combined with greater dependence on IT systems and applications may be outpacing the advances in automated monitoring. This is in line with other research, which indicates that the trend toward shorter development cycles and more frequent code deliveries is leading more frequently to performance issues slipping into production environments undetected. Typically, organizations have had to resort to curtailing Q&A efforts or forgo monitoring of new code to meet aggressive go-live deadlines.

One way to address the challenge of quality in faster delivery cycles is to be more proactive in identifying and remediating anomalies. Increasingly, big data analytics and machine

learning techniques are employed to enable development and operations teams with instant access to monitoring data that allows developers to generate higher quality code, help quality assurance teams catch more code defects before sign-off, and enable operations staff to fix performance issues faster in live environments.

As shown in the next section, managers and professionals need more clarity on how they will be managing performance in the cloud. Monitoring and management shouldn't be an afterthought. With the right monitoring solution, they can have visibility across old and new environments to help minimize interruption. The key is for them to fix system problems early so when they move to the cloud, those problems don't move also.

Figure 11: How IT Is Alerted to End User Issues

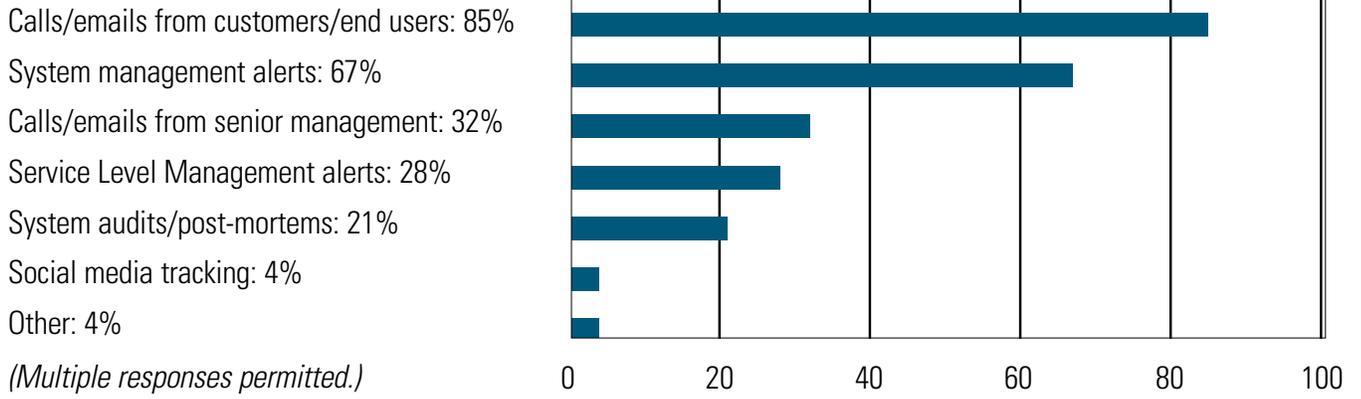


Figure 12: How IT Is Alerted to End-User Issues—Eight-Year Trend

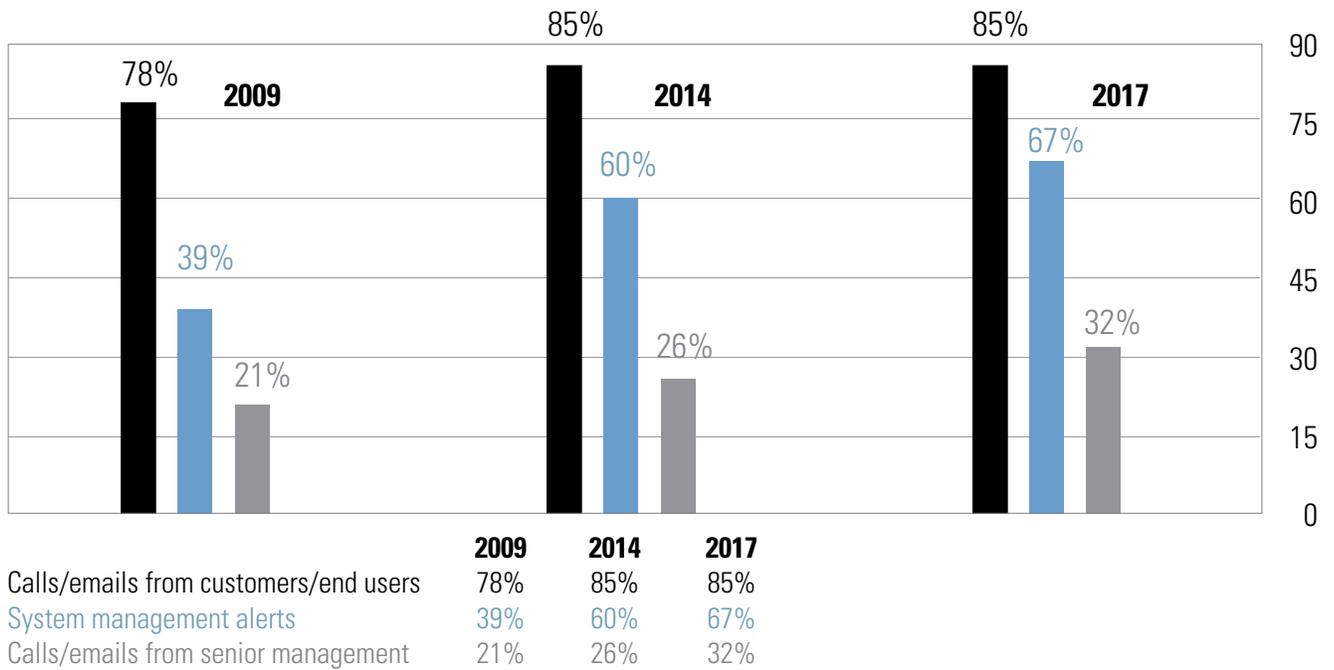


Figure 13: Frequency of Reported Issues—Internal Users

	Daily	Weekly	Monthly	Total
Received error messages	10%	25%	19%	54%
Slow response times	12%	18%	18%	48%
Application difficult to navigate	6%	9%	12%	27%
Issues with user permissions	5%	8%	13%	26%
Application down/unavailable	1%	8%	13%	22%
Kicked off page/site	3%	6%	12%	21%
Unable to proceed to new page	3%	5%	6%	14%
Issues with storage	1%	2%	5%	8%

Figure 14: Frequency of Reported Issues—External Users

	Daily	Weekly	Monthly	Total
Slow response times	7%	8%	14%	29%
Received error messages	4%	12%	11%	27%
Application difficult to navigate	4%	6%	8%	18%
Issues with user permissions	1%	7%	8%	16%
Application down/unavailable	1%	3%	11%	15%
Kicked off page/site	2%	5%	6%	13%
Unable to proceed to new page	2%	3%	4%	9%
Issues with storage	0%	2%	3%	5%

**Figure 15: Total Downtime Over Past 12 Months
(Total hours for all enterprise systems and apps.)**

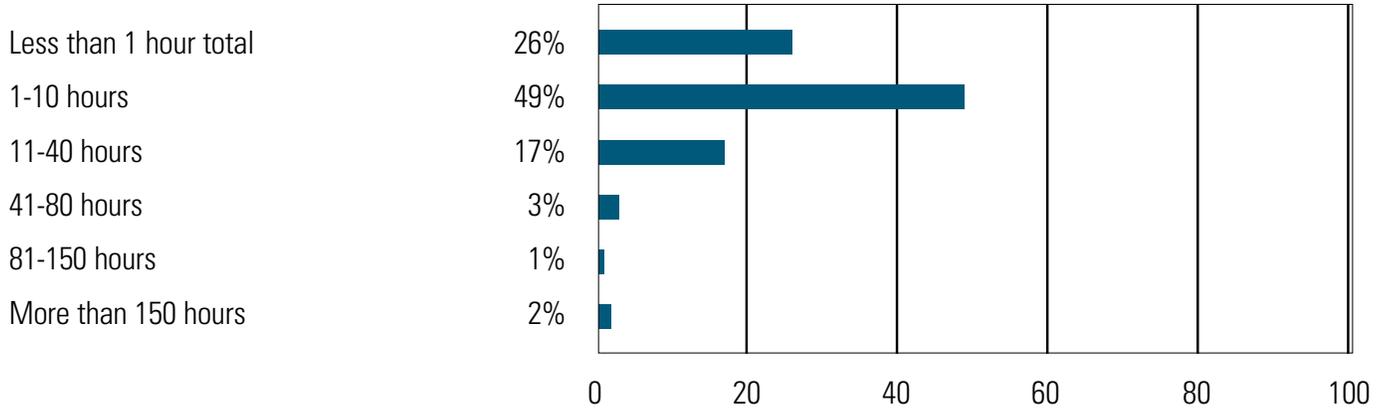


Figure 16: Total Downtime — Change over Past Four Years

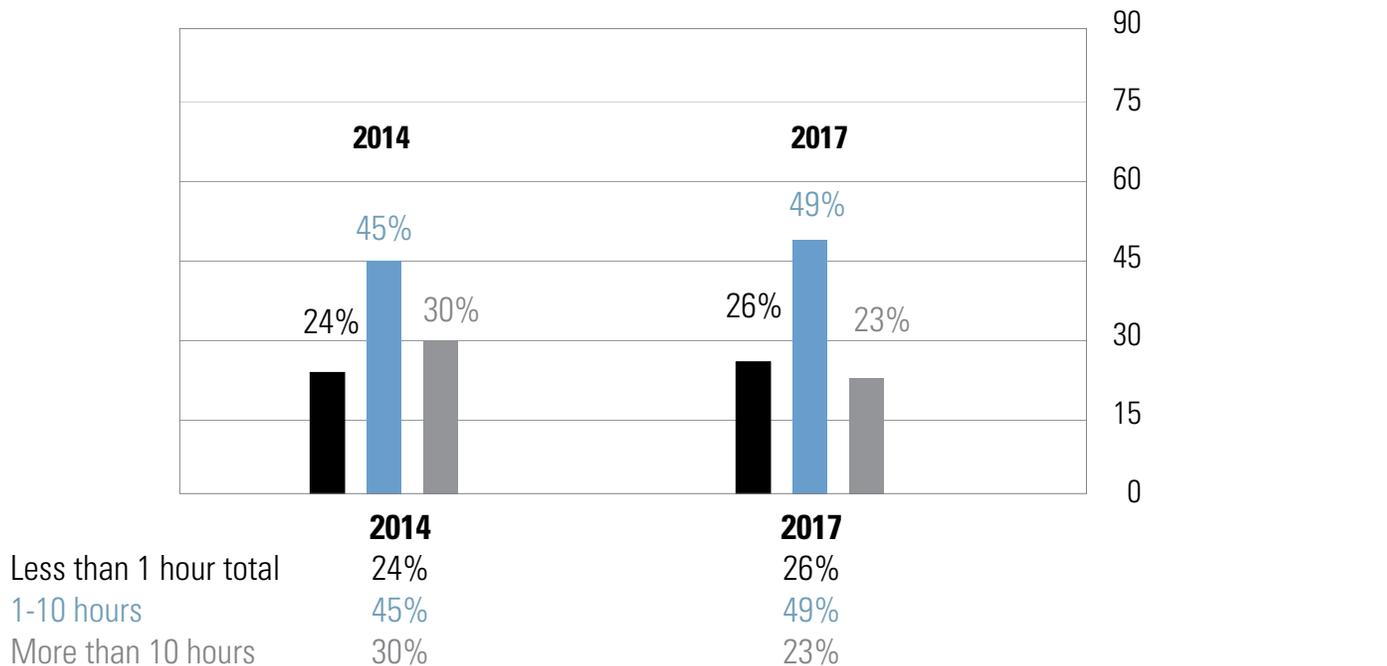


Figure 17: Time to Restore or Fix Down Application

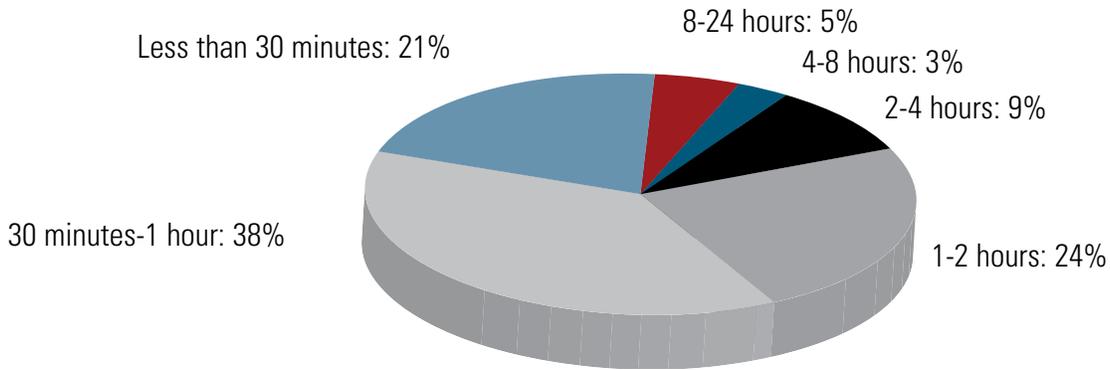


Figure 18: Time to Restore or Fix Down Application

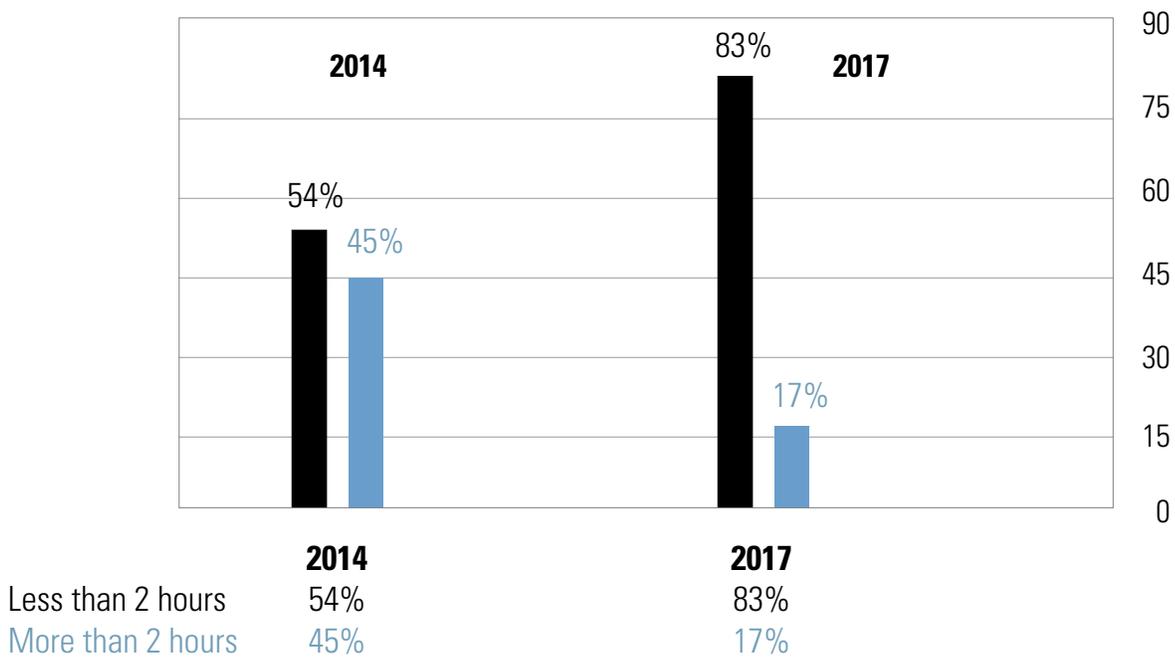


Figure 19: Length of Time to Update Monitoring Solutions When Applications are Changed or Updated

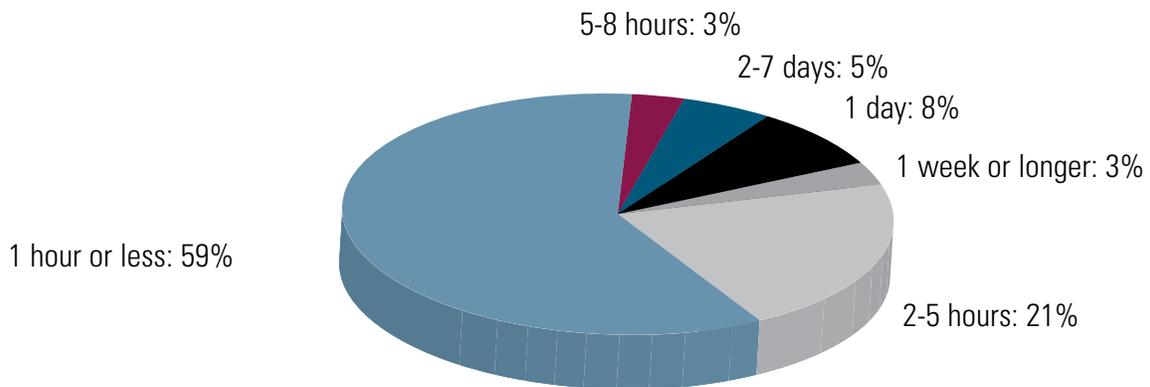
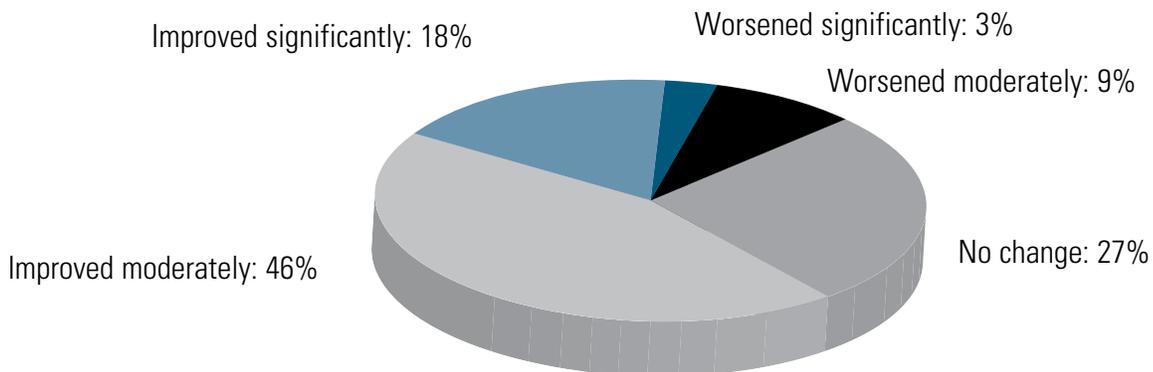


Figure 20: Change in Frequency of End User Issues Over Past Three Years



CLOUD RISES

While a majority of managers and professionals see cloud as their future, it's going to take some time until cloud is supporting a large portion of IT infrastructure and assets. Respondents are aware of the risks associated with cloud, but are looking for ways to gain more control over ever-expanding cloud implementations.

Does cloud have an impact—either positive or negative—on overall performance of enterprise systems or applications? While a large segment of those running on the cloud—and who are aware of its impact—indicate it's better (24%), still, a small percentage (17%) say it has degraded performance. (See Figure 21.)

The above may be related to the question of whether running on the cloud impacted the manageability of their enterprise systems and applications infrastructure. Among those who run on the cloud and are aware of the impact, 25% indicate it has improved manageability, while 22% say it has made things harder. It should be noted that companies that adopt platform as a service or infrastructure as a service, are responsible for the performance and availability of their applications, whereas cloud providers are typically only responsible for the underlying technologies. (See Figure 22.)

What role do managers and professionals see cloud playing in the development or implementations of their ERP, core enterprise applications suites or databases in the next three years? A majority, 57%, see some type of cloud role for their core enterprise application suites, which include a range of functions. About half of this subgroup also sees a “robust, strategic” role for cloud in the development or implementation of these systems. A majority also see a role for cloud in supporting their ERP applications. (See Figure 23.)

Interestingly, managers in the survey were more bullish on cloud prospects than staff professionals. Thirty-three percent of managers see a strategic role for cloud-based ERP, versus 23% of their staff counterparts. In addition, 31% of managers see

potential in other cloud-based enterprise applications, versus 27% of staff members. Staff professionals are more inclined to see a robust future in cloud-based databases, however. (See Figure 24.)

Respondents were asked about the main risks in moving applications or systems to the cloud. Any glitches or disruptions in service will likely be at least partially someone else's responsibility to identify, find, and fix. As shown in the previous section of this survey report, issues with applications and systems aren't always immediately known to IT personnel, and adding a cloud vendor between themselves and customers may slow down the identification process even further. Vendor lock-in also is top of mind for many respondents (40%), an issue that also ties in with loss of control, as it could be a messy process to move systems in or out of cloud environments that have proprietary hooks. (See Figure 25.)

Which capabilities do respondents find helpful for cloud migration projects? Most respondents value three key capabilities:

- Ability to discover and baseline my current state;
- ability to provide guidance on which assets to migrate; and
- ability to compare the baseline with my new state.

This demonstrates that IT professionals are looking for greater visibility and control over current and future states. (See Figure 26.)

Figure 21: How Cloud Impacted Performance/Availability of Enterprise Systems or Applications

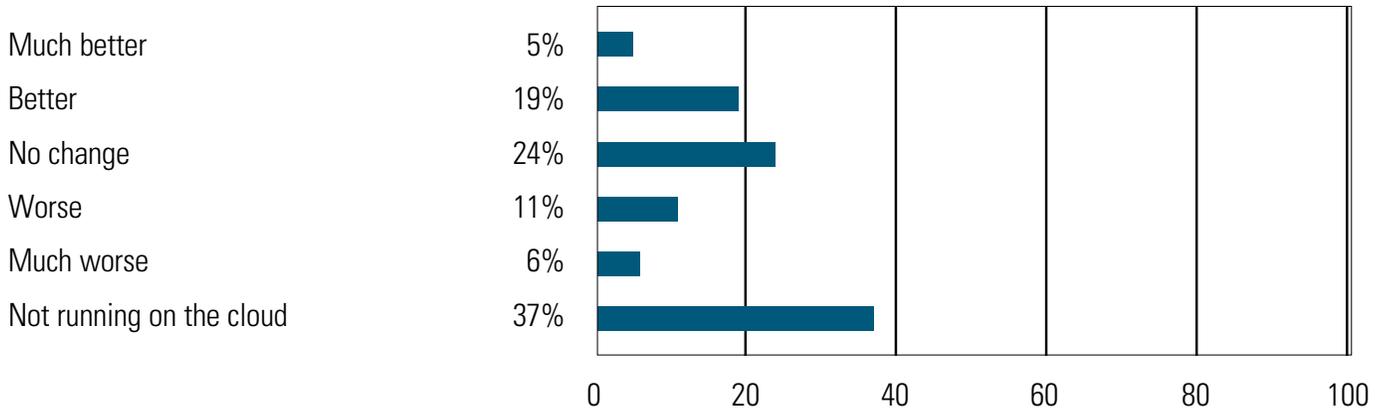


Figure 22: How Cloud Impacted Manageability of Enterprise Systems and Applications Infrastructure

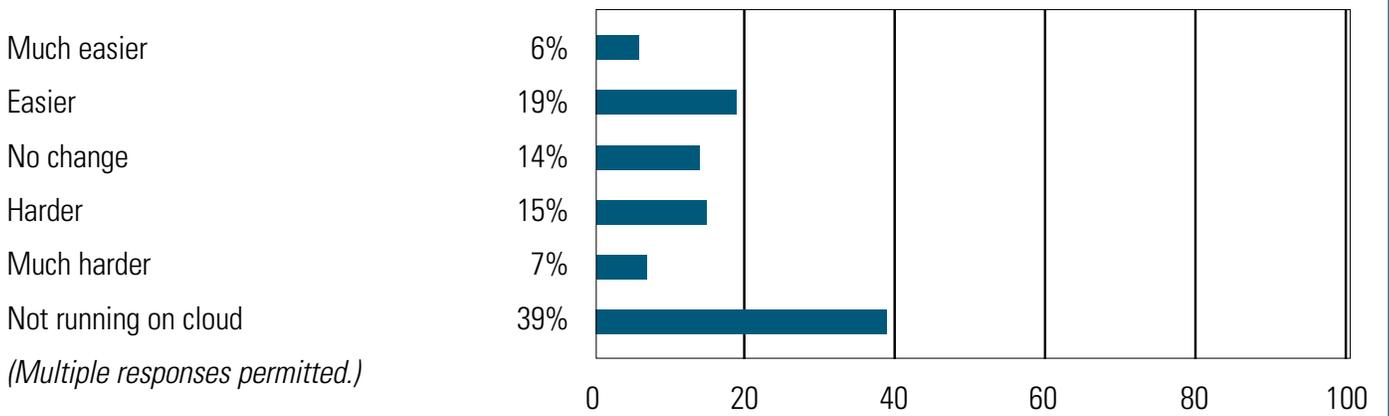


Figure 23: Role of Cloud in Development or Implementations of ERP, Core Enterprise Applications, or Databases in Next Three Years

	Robust/strategic role	Limited role	Total
Core enterprise applications suites	28%	29%	57%
ERP	29%	23%	52%
Databases	24%	24%	48%

Figure 24: Robust or Strategic Role for Cloud—By Job Role

	Managers	Staff
Core enterprise applications suites	31%	27%
ERP	33%	23%
Databases	20%	25%

Figure 25: Perceived Cloud Risks

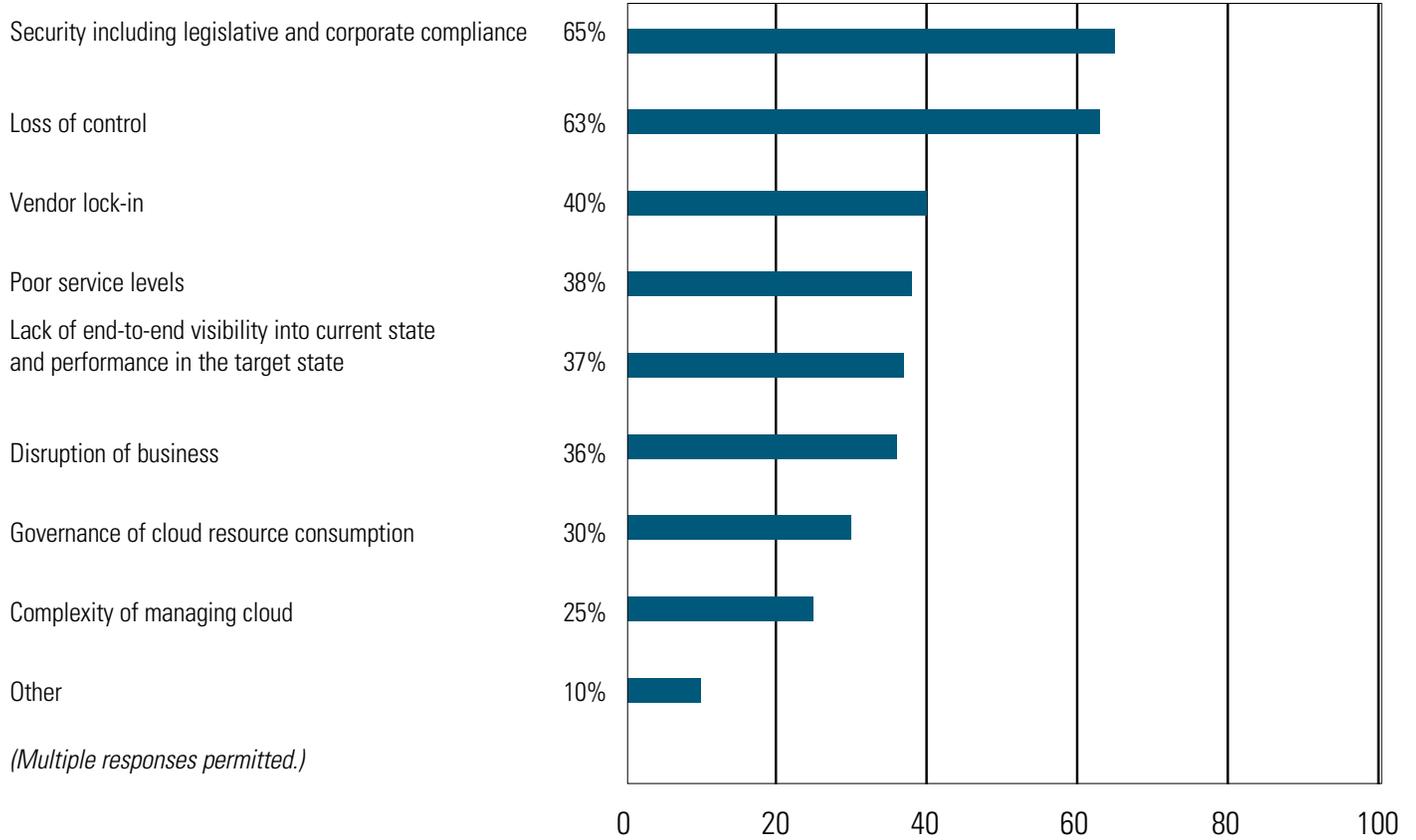
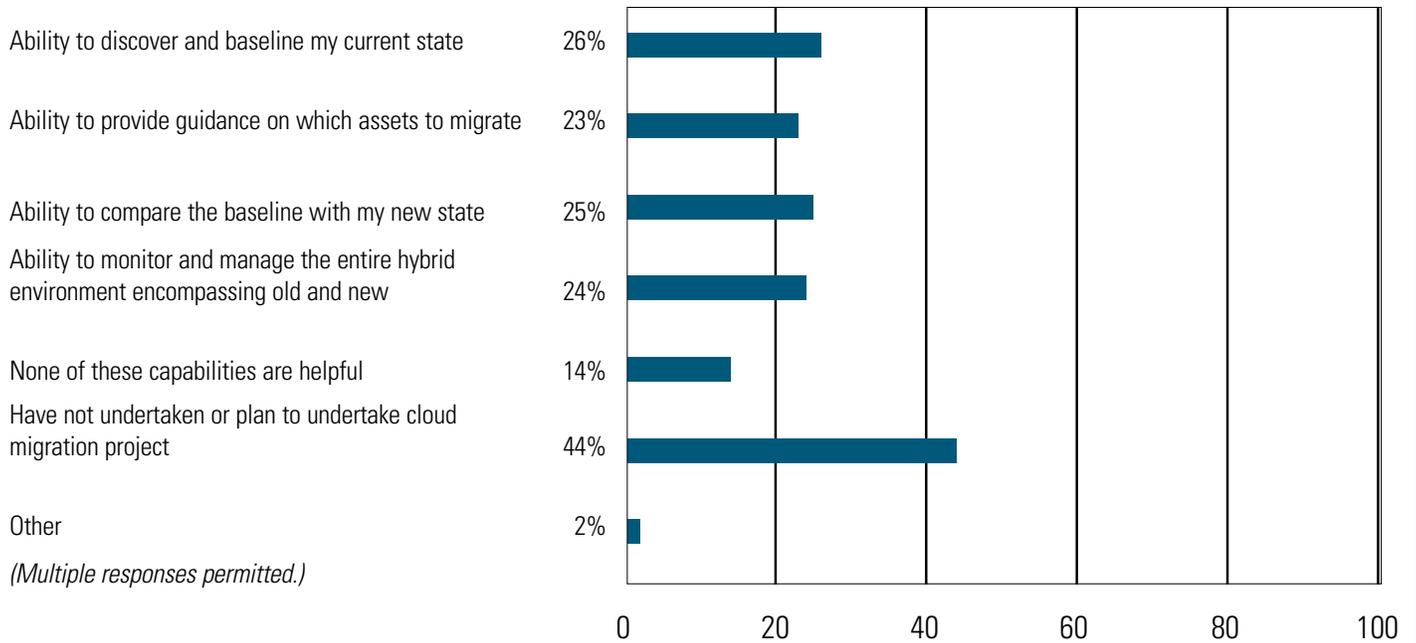


Figure 26: Helpful Cloud Migration Capabilities



CONCLUSION

Information technology performance excellence isn't a luxury. In this era, when many organizations are staking their future on digital engagement, it is a necessity. This survey of 464 enterprise IT managers and professionals finds that most are still wrapped up in maintaining their infrastructure or legacy systems amid a growing movement to commit more strongly to systems of innovation. Six in 10 respondents agree that the amount of resources going into legacy maintenance is hurting their organizations' competitiveness.

Several factors contribute to a lack of clarity about how cloud helps boost the performance of corporate systems and applications. These include a lack of visibility into performance of existing systems, mostly reactive IT whose staff who are constantly battling emergencies and don't have a good handle on long range planning, and a lack of tools that can supplement IT staff's effort to reduce the clutter and free staff time for more important work. While a majority of respondents see cloud as

their future, it's going to take some time until cloud is supporting a large portion of IT infrastructure and assets.

The key is to take control of the entire hybrid estate (both on-premises and cloud, in whatever proportions exist) with better monitoring and management. Understand what you have today, understand the workloads, and understand the growth. Then determine how cloud can help. With the right planning and tools, you will be able to know the impact of moving to the cloud with confidence, even before you move anything.

Enterprise managers and professionals need to continue to focus and advocate for greater automation within their growing enterprises. Most organizations continue to depend on manual or word-of-mouth communications to understand the full extent of the customer and user experience they are delivering. Businesses depend on performance excellence to deliver continuing profitability and market growth. They are turning to their technology professionals to make this happen.

Figure 27: Primary Job Title

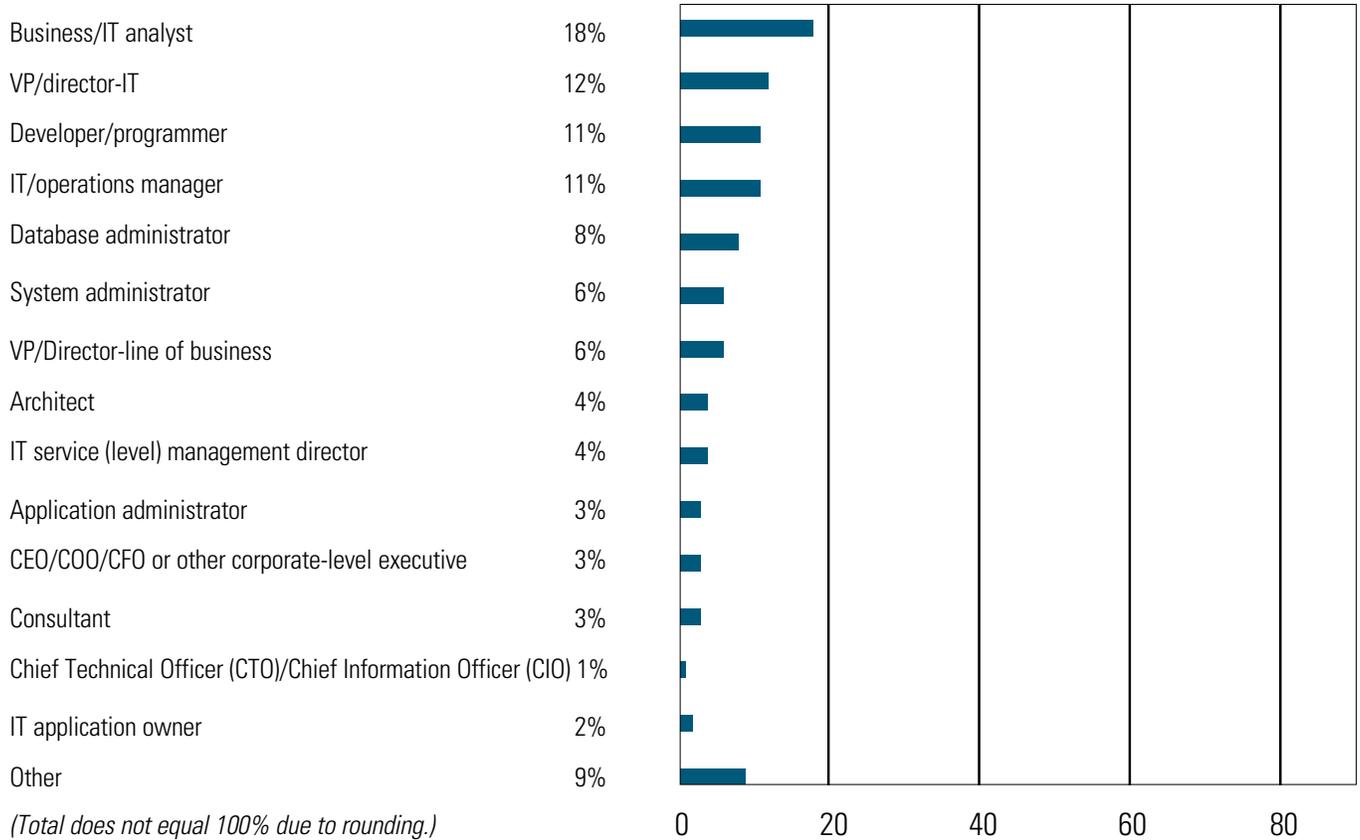


Figure 28: What are your organization's annual revenues?

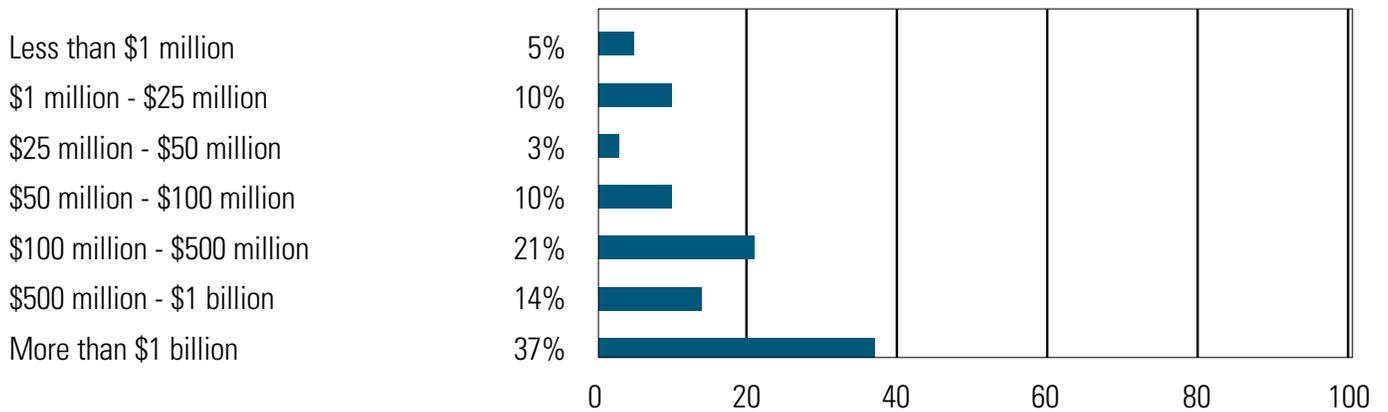
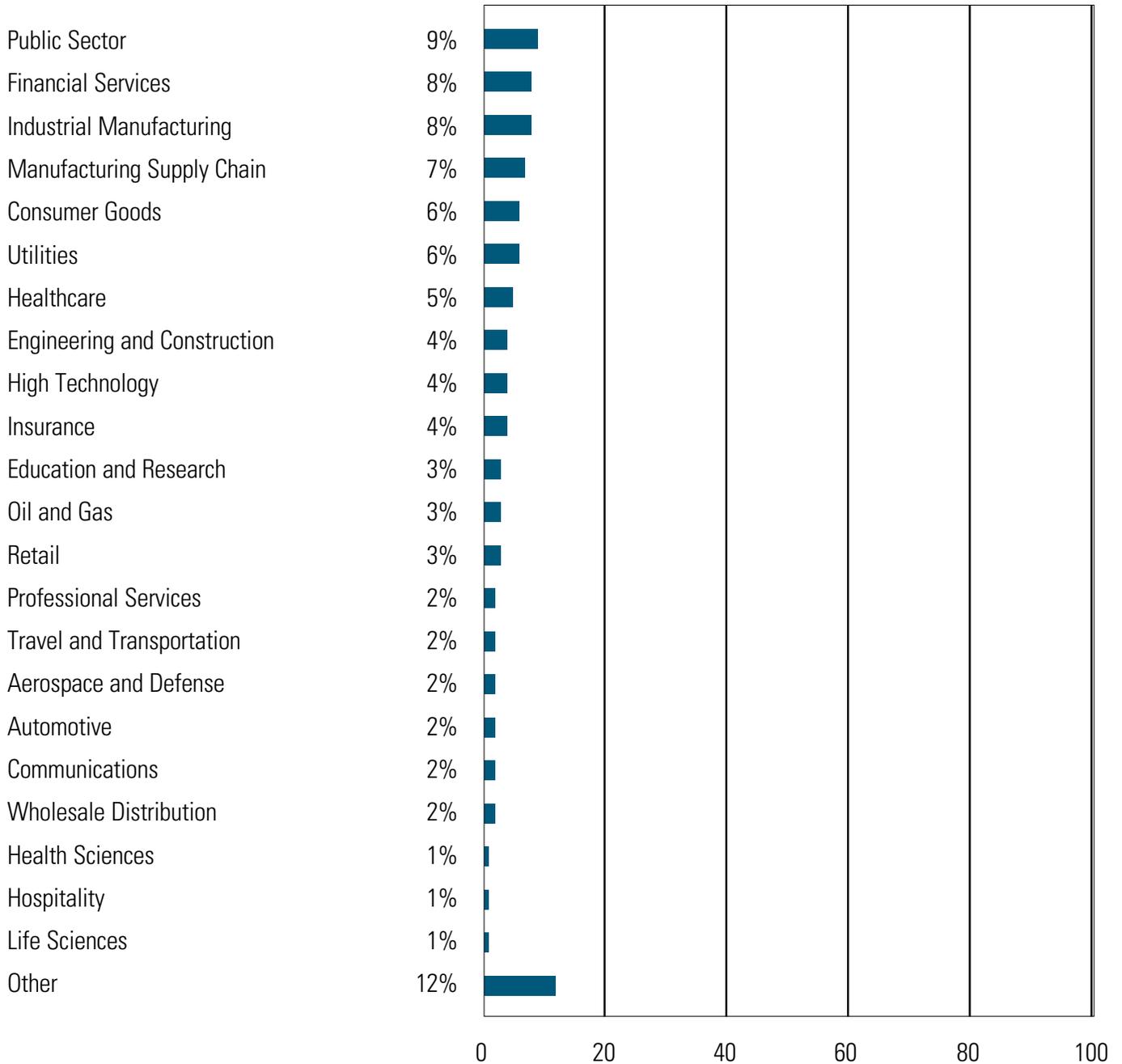


Figure 29: What is your primary industry?



NEXT GENERATION TECHNOLOGIES ADDRESS THESE CHALLENGES

There is good news for organizations that find themselves grappling with the challenges discussed in this report. A new generation of monitoring, management, and analytics solutions has emerged which addresses these challenges by bringing all monitoring data into a single unified data platform powered by machine learning. One such solution is the Oracle Management

Cloud, which provides complete visibility into heterogeneous IT environments, encompassing cloud and on-premises, and helps IT teams to detect issues early and avoid emergencies. To see if it can help your organization, Oracle is providing a free 30-day trial. Click here to sign up (<http://www.oracle.com/managementcloud>).