

The 2014 SIM IT Key Issues and Trends Study

This article presents the major findings from the Society for Information Management's (SIM) 2014 IT Trends Study. Organizations continue to invest in IT to improve operations, reduce costs, and enable business strategies. IT budgets, hiring, and salaries are modestly increasing, and IT executives are cautiously optimistic that this trend will continue into next year. Overall, the Study finds that IT is becoming more strategic and business focused. As organizations become more digitized, their focus is shifting away from tactical and operational IT issues like efficiency, service delivery, and cost reduction to more strategic and organizational priorities like business agility, innovation, the velocity of change in the organization, IT time-to-market, and the value of IT to the business. These trends are confirmed by a corresponding shift in how CIOs are spending their time, how their performance is measured, and the skills that are most important to their success.^{1,2}

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Introduction

Since 1980, the Society for Information Management (SIM), in a joint effort with different universities, has conducted an annual survey of the key issues facing IT executives. Over time, these studies have expanded to include questions about spending, workforce, sourcing, reporting relationships, performance measurement, and various other IT organizational and management practices. They also explored how IT executives spend their time and with whom they spend it, as well as their assessment of the role and state of IT in their organizations. In addition to providing an annual snapshot of the state of IT, another important contribution of these multi-year studies efforts is the identification of important trends across the IT industry and profession. The 2014 SIM IT Trends Study, conducted in the second quarter of 2014, focused on six important areas:

1. IT management key issues and concerns
2. Largest IT investments and most important technologies
3. IT organization, role, budget, and staffing trends

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4. IT delivery trends
5. CIO reporting relationships, time allocation, background, tenure, and performance measures
6. Skills needed for the success of CIOs, mid-level IT professionals, and new IT hires.

An invitation was distributed by individual email with a personal link to all 4,612 SIM members. We received 1,002 responses (a record), of which, 839 were senior IT leaders from 717 organizations. We also analyzed separately the responses from 451 CIOs who identified themselves as the “top or highest IT person (e.g., the CIO)” among those who completed the questionnaire.³ The Appendix (available online at misqe.org) contains additional information about the research method.

I. Top Organizational IT Management Issues and Concerns

Similar to previous SIM IT Trends Studies, participants were asked to select up to three IT management issues from a list of 40 that they considered “most important” to their organization. For the second year, they were also asked to select up to three issues that were “most important or worrisome” to them personally. The top 10 most important organizational IT management concerns are shown in Table 1, together with the comparative rankings from prior SIM IT Trends Studies since 2003. Four new concerns appear in the top 10 this year, two of which are completely new (“Innovation” and “IT Value Proposition in the Business”). The other two result from “Time to Market/Velocity of Change” becoming three separate selections (“Velocity of Change in the Business,” “IT Time-to-Market/IT Speed of Delivery,” and “Velocity of Change in IT”), the first two of which appear in the organizations’ top 10 IT management concerns.

Comparing the remaining six top 10 with those of prior years, the concerns have been relatively stable, though their rankings did change, with “Security/Privacy” moving up to No. 2 from No. 7

³ 428 of these CIOs are from the 717 unique organizations, while organization affiliation was not available for 23 of the CIOs.

and “Business Cost Reduction” moving down from No. 4 to No. 9. “Alignment of IT with the Business” remains the No. 1 organizational issue for the second year. New items “IT Value Proposition in the Business” and “Innovation” were ranked No. 6 and No. 8 respectively, and “Revenue Generating IT Projects” held steady at No. 10.

Three items dropped out of the top 10 this year. “IT Cost Reduction and Controls,” which had been in the top 10 since 2003, dropped to No. 17. “IT Service Delivery,” added to the list last year when it was ranked No. 8, became “IT Operations/ITIL/IT Service Delivery/Keeping the Lights On” this year and fell to No. 22. “IT Efficiency,” in the top 10 since 2009, and ranked No. 9 last year after being separated from “IT Reliability,” dropped to No. 21.

Given the many high profile and costly security breaches in the past year, it’s no surprise that “Security” has moved up the list. The other changes in rankings indicate there has been a shift in priorities and focus away from tactical and operational IT issues like efficiency, service delivery, and cost reduction to more strategic and organizational priorities like business agility, innovation, the velocity of change in the organization, IT time-to-market, and the value of IT to the business.

It is noteworthy that only one of the selections, “Alignment,” was chosen by more than 20% of respondents. This suggests a significant amount of variance in focus and priorities across organizations in terms of the IT management issues they face.

1. Aligning IT with the Business

Aligning IT with the Business has been a top 10 concern since it first appeared in the SIM Studies in 1984. It was ranked No. 1 in eight of the last 12 years and in the top two in all but one. This year, 26.2% of organizations identified Alignment as one of their top three IT management concerns. Perhaps alignment is a persistent issue because organizations, markets, economies, and technologies are constantly changing, making alignment a continuous activity.

2. Security and Privacy

In this year’s Study, Security and Privacy were recombined into a single selection, since Privacy received no votes last year when listed separately

Table 1: Top 10 Most Important Organizational IT Management Concerns, 2003-2014 (2014 n=717)^(a)

IT Management Concerns/Issues	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	
Alignment of IT with the Business	1	1	2	1	3	2	1	2	1	1	1	1	
Security/Privacy (b)	2	7	9	8	9	9	8	6	3	2	3	3	
Business Agility/Flexibility (c) (d)	3	2	3	2	2	3	13	17	7		5	7	
Business Productivity	4	3	1	4	1	1	7	4					
IT Time-to-Market/Speed of IT Delivery	5	(d) New; was with "Velocity" in 2013, and "Agility" through 2012.											
IT Value Proposition in the Business	6	New											
Velocity of Change in the Business	7	(d) New; was with "Time to Market" in 2013, and "Agility" through 2012.											
Innovation	8	New											
Business Cost Reduction/Controls	9	4	Combined with "Business Productivity" through 2012.										
Revenue Generating IT Projects	10	10	4	9	6	8	17						

(a) Blank cells, unless otherwise noted, indicate that the issue was not asked in that year of the Study.
 (b) "Security" and "Privacy" were recombined this year. Separated in 2013, "Privacy" was not selected by any respondent.
 (c) "Flexibility" was added this year.
 (d) In 2013, "Business Agility and Speed to Market" became "Time to Market/Velocity of Change" and "Business Agility." This year, "Time-to-Market/Velocity of Change" was separated and became three selections: "Velocity of Change in the Business," "Velocity of Change in IT," and "IT Time-to-Market/IT Speed of Delivery."

for the first time. Security and Privacy has hovered between No. 6 and No. 9 since 2007 but moved up to No. 2 this year. Security and Privacy was selected as one of their top three issues by 17.6% of the 717 participating organizations.

3. Business Agility/Flexibility

Business Agility has ranked in the top three concerns since 2009, though this year, it fell from No. 2 to No. 3, with 16.7% of organizations choosing it as one of their top three IT management issues. Organizational agility requires IT to be fast as well as nimble, not just in terms of understanding the business and its requirements, but also by having a technology infrastructure in place that can be changed quickly and economically as business requirements change.

4. Business Productivity

Business Productivity, introduced into the SIM Study in 2007, was ranked No. 4 (down from No. 3 last year and No. 1 the previous year), with 15.8% of organizations selecting it as a top concern. Business Productivity has been in the top five in all but one year since its introduction and ranked as No. 1 three times. Its continued high ranking demonstrates that organizations are still looking to IT to help them to “do more with less.”

5. IT Time-to-Market

IT Time-to-Market is an enabler of Agility (No. 3), Productivity (No. 4), and the IT Value Proposition (No. 6). It is also a critical component of coping with the Velocity of Organizational Change (No. 7) and of rapidly changing Security requirements (No. 2). It is thus no surprise that IT Time-to-Market was ranked as the No. 5 organizational concern, selected by 14.9% of participating organizations.

IT Management Issues Most Important or Worrisome to IT Leaders

For a second year, we also asked respondents to select the issues that were personally “most important or worrisome (i.e., that keep you up at night).” As shown in Table 2, Security and Privacy moved from No. 2 to No. 1, with 25.5% of participating senior IT leaders selecting it as one of their three most important or worrisome IT management issues. IT Talent/Skill Shortage/

HR moved up from No. 3 to No. 2, with 20.9% of participants selecting it as a top concern. Alignment of IT with the Business, consistently a No. 1 or No. 2 organizational concern, fell as a personal concern from No. 1 to No. 3. The issues ranked No. 4 and No. 5 this year were, respectively, IT Time-to-Market/Speed of IT Delivery and IT Value Proposition (a new item).

Five items dropped out of the personal top 10: Business Continuity/Disaster Recovery (No. 4 last year), Business Agility (No. 6), IT Service Delivery (No. 7), Change Management (No. 8), and the CIO Leadership Role (No. 10). Particularly noteworthy is that the three selections that replaced last year’s Time-to-Market/Velocity of Change all ranked in the personal top 10 this year.

The changes in the top 10 personal concerns point to a shift in priorities and focus among senior IT leaders, away from tactical and operational IT issues like disaster recovery, service delivery, and change management to more strategic and organizational priorities like the IT value proposition, IT strategic planning, faster delivery, and coping with changing conditions.

II. Largest IT Investments and Most Important Technologies

Participants were asked to select, from a list of 47 technologies, up to three of their “organization’s largest/most significant current or near-future IT investments,” up to three that are “most important” to their organization, and up to three that cause “the greatest concern to me personally.” Some items on last year’s list were deleted (based on very low selection) or modified, and additional ones added to this year’s list. (The Appendix, available online at misqe.org, provides additional information about these and other changes.)

Table 3 lists the top 15 technologies identified by the 717 participating organizations as their largest IT investments, along with their rankings since 2003. Although the rankings have changed from last year, all but two of this year’s top 15 were also in the top 15 last year. The exceptions are “Data Center Infrastructure” (a new item), ranked No. 2 and “Legacy Applications,” tied at No. 15. The other addition to this year’s top 10 investments is “Security/Cybersecurity.”

Consistent with last year, a relatively small percentage of respondents selected any one

Table 2: IT Leaders' Personally Most Important or Worrisome IT Management Concerns (2013-2014)

Most Important/Worrisome Concerns of IT Leaders	2014 (n = 717)	2013 (n = 484)
Security/Privacy	1	2 (c)
IT Talent/Skill Shortage/HR	2	3
Alignment of IT with the Business	3	1
IT Time-to-Market/Speed of IT Delivery	4	New 6 (a)
IT Value Proposition to the Business	5	New
Prioritization Process for IT Projects	6	5
Velocity of Change in IT	7	New 6 (a)
IT Strategic Planning	8	11
Velocity of Change in Business	9	New 6 (a)
IT Disaster Recovery	10	4 (b)
<p>(a) Last year, "Time to Market/Velocity of Change" was one selection, but it was neither IT- nor business-specific. So this year, it became three items, all of which ranked in the top 10.</p> <p>(b) The selection "Business Continuity/Disaster Recovery" was ranked No. 4 last year and was split this year into two separate selections, "Business Continuity" and "IT Disaster Recovery."</p> <p>(c) This was simply "Security" last year.</p>		

technology, indicating that IT investments are spread across a broad range. Only the top nine were selected by more than 10% of respondents. This is similar to the IT management issues shown in Table 1, of which only the top 10 were selected by more than 10% of the participating organizations.

1. Analytics/Business Intelligence

Analytics/Business Intelligence (BI) is the No. 1 IT investment for the sixth year in a row. It has ranked in the top three since 2003, when it was first added to the list. BI was selected by 30.1% of organizations as one of their three largest or most significant IT investments. However, this percentage is down from 42% last year. It is worth mentioning that potential synergies exist between BI systems and the data made available via investments in ERP (ranked No. 3), CRM (No. 9), and Big Data (No. 10), as well as many of the other technologies listed in Table 3.

2. Data Center Infrastructure

Data Center Infrastructure was added to the list of options this year and jumped into second place, selected by 19.1% of responding organizations as one of their three largest IT

investments. Large investments in infrastructure are surprising given the increasing revenues of cloud providers and the many reported moves to "the Cloud." Increasing use of the Cloud is confirmed by the IT budget and cloud-usage data from this year's Study (see below). It is noteworthy that both this and last year's Study found nearly half of cloud-based IT services delivered via in-house private clouds. Thus it is not altogether surprising that nearly one fifth of respondents reported making large investments in Data Center Infrastructure; although, only five responses separated the technology investments ranked No. 2 and No. 4.

3. Enterprise Resource Planning (ERP)

Investments in ERP systems have ranked No. 3 in five of the last six years. This year, it was selected as one of the three largest investments by 18.7% of respondents. Like data centers, ERP investments tend to be large. However, unlike data centers, ERP systems are designed to reduce business expenses and optimize business processes, both important management objectives. Also, ERP systems, by virtue of the comprehensive and integrated data they provide

Table 3: Top 15 Largest/Most Significant IT Investments, 2003-2014^(a)

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003
Analytics/Business Intelligence	1	1	1	1	1	1	2	2	2	3	2	1
Data Center Infrastructure	2	New										
Enterprise Resource Planning	3	4	3	3	3	3	14	6		5		
Application and Software Development (b)	4	6	11									
Cloud Computing (e.g., SaaS, PaaS, IaaS) (c)	5	3	2	2	5	17						
Customer Relationship Management	6	2	5	5	9	13						
Security/Cybersecurity (d)	7	14		11	8		8		1			
Integration/Enterprise Application Integration (e)	8	7	8	9	18	5	12	10		2	8	3
Network/Telecommunications	9	8	12									
Big Data	10	5	10									
Disaster Recovery	11	11	13	14	4	6	3	4				
Virtualization	11	13	15	7	2							
Mobile/Wireless Applications (f)	13	6	6	4	9	24				4		11
Customer/Corporate Portals	14	9	16									
Collaboration Tools	15	12	4	8	7	7						
Legacy Applications	15	16										

(a) Blank cells indicate that the technology was not asked about in that year of the Study.

(b) In 2013, this was “Apps” and ranked 6th and “Application Development” was 11th in 2012.

(c) In 2009, 2010, and 2011, “SaaS” was also included and ranked 15th, 9th, and 6th.

(d) In 2006 and 2008, this was listed as “Security Technologies” and simply “Security” in 2010, 2011, and 2013.

(e) In 2013, “Enterprise Application Integration” (EAI) ranked 7th and “EAI Management” (EAIM) 19th; in 2008-2012, only EAI/EAIM appeared; in 2007, only “Integrating Applications”; in 2005, “System Integration” ranked 2nd and EAI 10th; and in 2003, only EAI appeared.

(f) “Mobile/Wireless Applications” appeared in 2003, 2005, and 2009-2013, ranking 24th, 9th, 4th, 6th, and 16th. “Mobile Apps” also appeared in 2013, ranking 6th.

about internal operations, as well as about supply chains and customers, enable second- and third-order benefits when used in combination with BI and other systems. Thus it is not surprising that many organizations continue to make significant ERP investments.

4. Application and Software Development

Selected by 18.4% of respondents, Application and Software Development was ranked No. 4 this year. Interestingly, software development has been moving up the rankings since its introduction in 2012. This high ranking may come as a surprise, given the availability of off-the-shelf software, software-as-a-service (SaaS), and cloud computing. However, custom software development remains a critical undertaking in many organizations. Nearly 35% of the responding organizations are in industries where developing and/or using custom software is common.

5. Cloud Computing

Cloud Computing was selected by 15.6% of organizations as one of their three largest IT investments. Cloud Computing was first included in the 2009 Study, when both “Cloud Computing” and “Software-as-a-Service (SaaS, PaaS)” appeared separately. Since 2012, Cloud Computing has included SaaS, PaaS (Platform-as-a-Service), and IaaS (Infrastructure-as-a-Service). This year, Cloud Computing dropped to No. 5, down from No. 3 in 2013 and No. 2 in both 2011 and 2012.

Other technologies selected as one of their largest investments by more than 10% of respondents include Customer Relationship Management at sixth (selected by 13.8%), Security seventh (11.9%), Integration eighth (11.2%), and Network/Telecommunications ninth (11%). The items ranked 10th to 17th were each selected by between 5% and 9% of the respondents.

Organizations’ Most Important Technologies

The top 10 technologies identified by respondents as being most important to their organizations are shown in Table 4. These technologies map fairly well to those where the

organization is making the largest investments. As shown in Table 4, nine of the top 10 are present on both lists, but with different rankings.

Most Worrisome Technologies for Senior IT Leaders

This year’s top 10 most worrisome technologies for senior IT leaders are listed in Table 5, together with the 2013 rankings, which shows the top 10 remained fairly consistent over both Studies. Each of the top six this year was selected by more than 11% of respondents, with Nos. 7 thru 19 by between 5% and 10%. There are, however, some differences this year. In particular, BYOD, Enterprise Architecture, and CRM all dropped out of the top 10, to be replaced by Application Development (No. 5, up from No. 15 last year) and two new items, “Data Center Infrastructure”(No. 10) and “Innovative/Disruptive Technologies” (tied for No. 7). Security moved up from No. 2 to No. 1, being selected by 224 (31.2%) of the 717 respondents, while BI (No. 2) was selected by 22.3% of respondents. Disaster Recovery ranks as the No. 3 most worrisome technology this year, selected by 14.8% of respondents. Integration is No. 4 (14.5%), and Software Development (No. 5) was selected by 13.1%. The only other item selected by more than 10% of the respondents is Cloud Computing (No. 6).

This year’s ranking of the technologies that keep senior IT leaders “up at night” is about evenly divided between “keeping the IT lights on” (i.e., security, disaster recovery, legacy, and infrastructure) and “increasing business capabilities” (i.e., analytics, integration, software development, innovation, and ERP). Cloud Computing could be in both categories, and innovative/disruptive technologies could be a strategic and/or IT-value proposition category of its own.

III. IT Organization, Role, Budget, and Staffing Trends

IT Organization

Since 2006, the SIM Studies have asked whether the IT organization is Centralized or Decentralized/Federated/Hybrid. The 2014 data are shown alongside that for previous

Table 4: Organizations’ Top 10 Most Important Technologies (2014 n=717)

Most Important Technology to the Organization	Largest IT Investments for the Organization	Technology/Application
1	1	Analytics and Business Intelligence
2	3	Enterprise Resource Planning
3	4	Application and Software Development
4	6	Customer Relationship Management
5	8	Integration/Enterprise Application Integration
6	2	Data Center Infrastructure
7	5	Cloud Computing
8	7	Security and Cybersecurity
9	9	Networking and Telecommunications
10	15	Legacy Applications

Table 5: Top 10 Most Worrisome Technologies for IT Leaders (2013-2014)

Technology	2014 (n=717)	2013 (n=484)
Security and Cybersecurity	1	2
Analytics and Business Intelligence	2	1
Disaster Recovery	3	3
Integration	4	7
Application Software Development	5	15
Cloud Computing	6	4
Legacy Applications	7	8
Innovative/Disruptive Technologies	7	New
Enterprise Resource Planning	9	9
Data Center Infrastructure	10	New

years in Figure 1. This suggests that, while IT is centralized in the majority of organizations, there may be a slow-moving trend toward

more decentralized IT structures and fewer centralized ones. However, the distinction between centralized and decentralized/federated IT organization structures may be blurring, as IT governance becomes more federated, and IT delivery becomes more centralized; although, various nuanced combinations also occur.

Role of IT in Strategy and Innovation

For the first time, this year’s Study included questions about the role of IT in business strategy and innovation. Respondents were provided with several statements and asked to identify the degree to which they agreed or disagreed with them on a five-point Likert scale. Table 6 summarizes the responses of the most-senior IT leaders in the 717 organizations.

The average scores for all the statements are greater than 3.0 (i.e., on the Agree side of the scale), with a range of 3.35 to 4.2. When asked if IT leadership is involved in the strategic planning process, the average score was 3.84, with 70.7% responding either Strongly Agree or Agree (35.7% and 35.0%, respectively). However, 16.9% indicated a lack of involvement, with 5.2% answering Strongly Disagree and 11.7% Disagree. The average score for IT’s role in helping to shape business strategy was 3.67, with 62.2% selecting either Agree or Strongly Agree (36.3% and 25.9%,

Figure 1: IT Organization Structure 2006-2014 (2014 n=717)

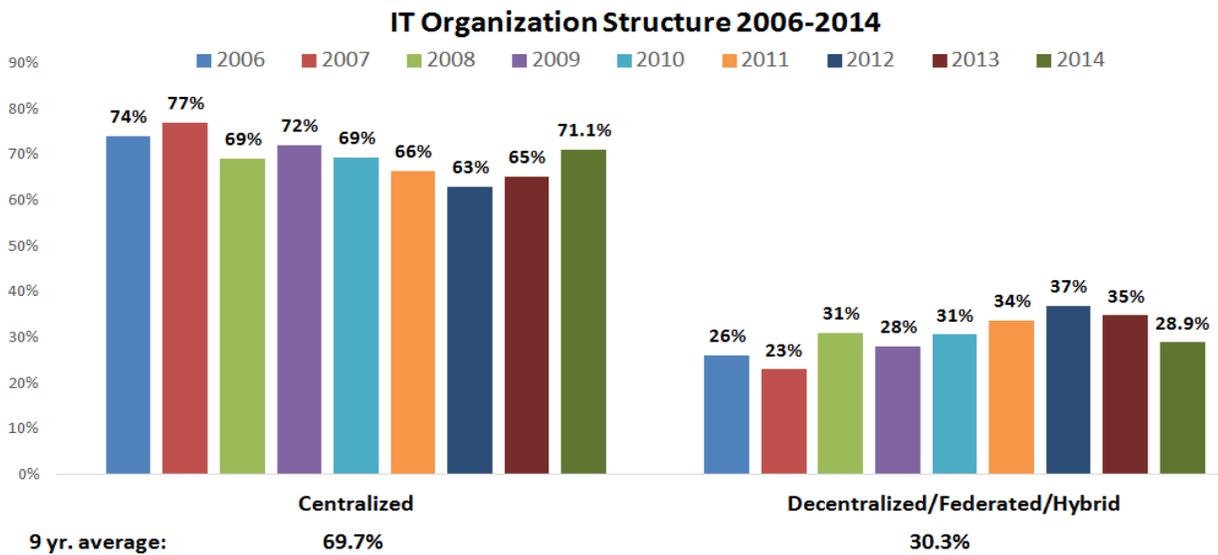


Table 6: IT Alignment, Credibility, and Role in Strategy and Innovation

	N	Strongly Disagree = 1	Disagree = 2	Neither Agree nor Disagree = 3	Agree = 4	Strongly Agree = 5	Don't Know or N/A	Average Score (out of 5)
IT leadership is involved in strategic business planning	717	5.2%	11.7%	12.4%	35.0%	35.7%	0.0%	3.84
IT helps shape business strategy	614	3.9%	14.2%	18.6%	36.3%	25.9%	1.1%	3.67
IT enables business strategy	614	1.1%	3.7%	8.6%	45.6%	39.6%	1.3%	4.20
IT and business strategy are done together, as one	615	8.5%	18.7%	18.9%	34.8%	17.7%	1.5%	3.35
IT is involved in providing innovation	614	2.6%	6.5%	10.9%	47.1%	31.9%	1.0%	4.00
IT has high credibility with executive leadership	717	5.4%	9.3%	12.4%	35.8%	36.7%	0.4%	3.89
In my organization, IT is aligned with the business	717	4.0%	6.1%	9.1%	40.2%	40.4%	0.2%	4.07

respectively). However, nearly 19% Neither Agree nor Disagree, and over 18% responded negatively.

When asked about IT’s role in enabling business strategy, over 85% of the responses were positive, with the average score a very positive 4.2. Less than 5% of the responses were negative, and 8.6% were neutral. This was

the most positive response to any of the seven statements.

Just over half of the organizations reported that IT and business strategies were developed together. Although undoubtedly positive, with an average score of 3.35, this was the lowest score and positive response rate to any of

the statements. The negative response rate was 27.2%, and nearly 20% were neutral. Organization size may be a factor in this; although, other considerations are no doubt at play as well.

Respondents were much more sanguine about IT's role in providing innovation to the organization, with almost 80% positive (31.9% Strongly Agree and 47.1% Agree). The average score was an even 4.0, although, nearly 11% were neutral and almost 10% negative.

Interestingly, the credibility of IT with executive leadership mirrored closely the results for IT's involvement in strategic planning, with an average score of 3.89. This perhaps suggests that the more IT leaders are involved in the strategic planning process, the more credibility they build with upper management. The majority (72.5%) of respondents chose a positive response, agreeing that IT has high credibility with executive leadership; however, nearly 15% were negative and nearly one-eighth neutral.

With respect to IT's alignment with the business, over 80% of senior IT leader respondents either Strongly Agree or Agree that IT is aligned, with just over 10% responding negatively and about 9% neutral. Nevertheless, other C-suite executives appear to be less positive about IT's contribution to strategy, innovation, and organizational performance.⁴ This perceptual divergence between IT leadership and many others in the C-suite raises questions about how IT leaders are defining "alignment"

4 Many other studies have found that business executives are skeptical about IT's contribution to the business. For example:

- A 2014 survey of 3,500 executives by Forrester found that "a majority of business leaders think that their IT departments are more of a burden than a help. ... CIOs are considered to be gatekeepers; they're not seen as innovators or helping with driving new business" (see <http://formtek.com/blog/it-business-cios-get-no-respect/>).
- "Only about a quarter [of CFOs] said their IT department 'has the organizational and technical flexibility to respond to changing business priorities' or 'is able to deliver against the enterprise/business unit strategy'" (see <http://www.itbusinessedge.com/cm/blogs/hall/survey-cio-cfo-relationship-still-prickly/?cs=47533>).
- "Only 13% [of financial executives in 2013] view their IT function as transformational" (see <http://www.financialexecutives.org/KenticoCMS/Research/FERF-Files/Survey-Analysis-CFOs-Top-Imperatives.aspx>).
- "Only 43% [of CEOs] say that IT actively collaborates with the business side on organizational strategy and innovation" (see <http://www.oneconnectinc.com/blog/the-good-and-bad-news-disparities-regarding-cio-perceptions/>).

and how thoroughly they understand the goals and requirements of their organizations. Nevertheless, it is possible that the members of SIM, self-selected and peer reviewed into North America's only professional organization for senior IT leaders, represent a somewhat unique subset of IT executives.

IT Spending

The IT spend as a percentage of corporate revenue averaged 5.145% in the 493 organizations that provided data in the 2014 Study, up from 4.95% last year, with a median value of 2.50%, up from 2.24% last year. Given that the average annual revenue of the responding organizations is \$5.58 billion (with 564 reporting), and assuming that all 717 Study participants have about the same average revenue and percentage of IT spending to revenue, we estimate the average IT budget at about \$287 million and that the sample represents over \$200 billion in annual IT spending.⁵ As indicated in Figure 2, average IT spending as a percentage of revenue for the past three years has been significantly above the 10-year (2005-2014) average of 4.08%. This may represent a "new normal," but it could to some extent indicate "catch-up" IT investments making up for the lean "Great Recession" years of 2008 to 2010, when both revenue and IT investment contracted in most organizations (see Figure 3). The year-on-year increase is also being driven by new investments in cloud and shared services, digital marketing and analytics, and health care informatics, as well as by the increasing digitization of organizations in general.

5 On the other hand, the IT spending levels reported by 535 responding organizations averaged \$105.2 million, with a median of \$8.5 million. Assuming all 717 have about the same average IT spending levels, this would give an estimated \$75 billion plus in annual IT spending. The difference in the two estimates is due to several factors, including (1) there is a difference between the sample of respondents to the two questions as indicated by the different number responding to them; (2) in general there is a large variance in the data since there is a great diversity among the organizations of the responding SIM members as indicated in the Appendix; and (3) they are calculated differently, as the \$105 million is the average of the budgets reported, and the \$287 million is calculated by multiplying the \$5.58 billion average revenue reported times the average of IT spending as a percentage of revenue (5.145%, which is the average of the individual calculation of this for each respondent who provided both of the required pieces of data). Reality is likely somewhere between these two estimates.

Figure 2: Percentage of Revenue Allocated to IT Budget 2005-2014 (2014 n=493)

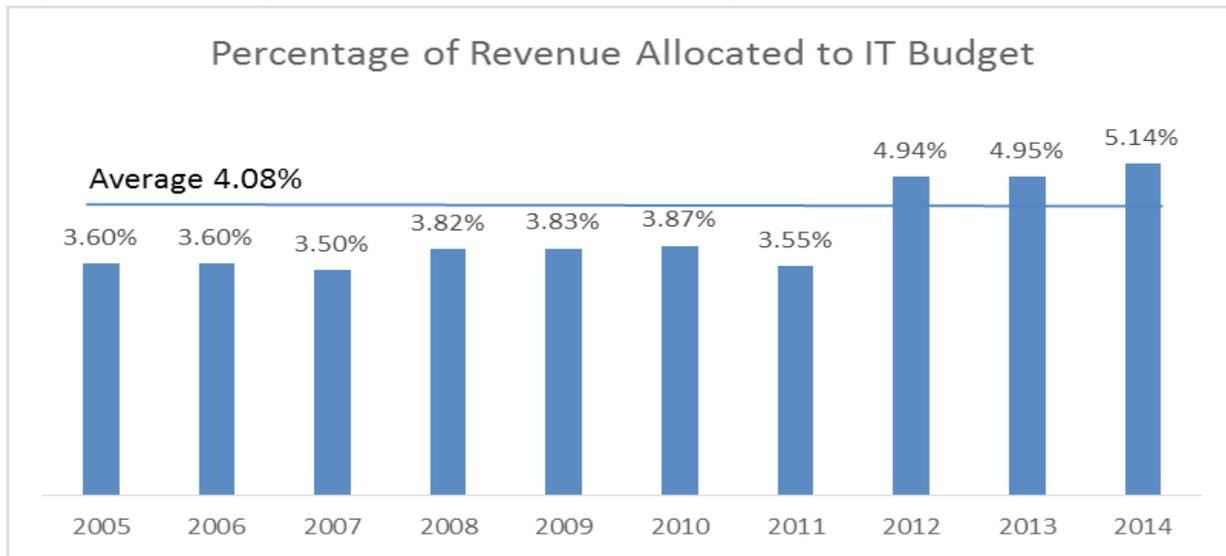
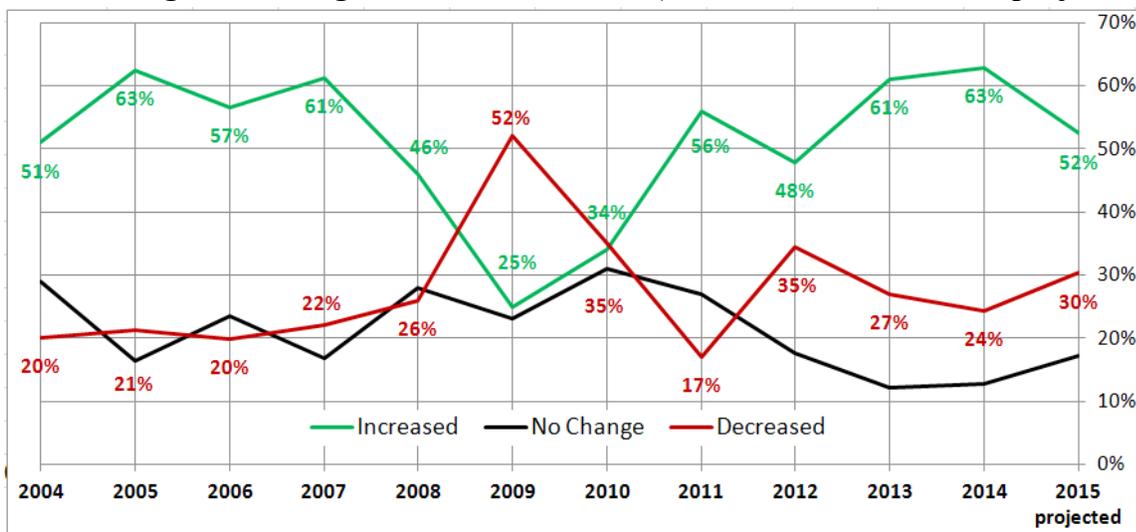


Figure 3: Change in IT Budget from Previous Year (2004 to 2014 actual, 2015 projected)



IT Budgets

Economic conditions have a significant impact on IT budgets, as indicated by Figure 3, which shows the changes in IT budgets from our SIM Studies over time.

This year, the number of organizations reporting IT budget increases is 62.9%, up slightly from last year’s 61.0% and above the 2005 high of 62.5%. Organizations with IT budgets remaining flat are up slightly to 12.7% and those with decreasing budgets are down from 27.0% to 24.4%. However, when asked to project next year’s IT budget, the outlook is

more pessimistic, with only 52.4% anticipating an increase in 2015. This represents a 16.7% decline in the number of organization’s currently reporting budget increases. Moreover, 17.3% (over a third more than this year) project flat budgets, and 30.3% anticipate a decrease in IT spending (nearly a quarter more than this year). These projections could be a signal of increasing economic uncertainty, an anticipated overall weakening in the broader economy, or the end of the “catch up” period in IT investments following the Great Recession.

IT Budget Allocations

Since 2009, when the SIM Study first began gathering IT budget data, the survey has focused on two major budget categories: people and things. This year, we added a budget category for “Services (SaaS, PaaS, IaaS, cloud, processes, etc.)” and divided things into the three separate categories of Hardware, Software, and Facilities.

Overall, with 512 organizations providing data, IT budgets are up 1.88% this year, with a median increase of 2.0%. IT spending is expected to grow next year, but at a slower pace, with 485 organizations projecting an average increase of 0.91%, with a median of 1.0%. But, as shown in Table 7, the projected increase is not evenly distributed across all budget categories.

While overall IT budgets are expected to rise, spending contractions are predicted in all categories except Employees and Cloud Services. The increase in spending for Employees is consistent with projections that both total and average IT salaries will also rise next year by about 1.3% (with medians for both of 2.0%). Yet Table 7 makes clear that the vast majority of senior IT leaders (66% to 82%) expect IT budget allocations in all categories to remain flat next year, with more organizations decreasing than increasing spending in every category apart from Employees and Services. Even next year’s anticipated growth in Employee and Services spending shows only 19% and 26% of organizations, respectively, predicting spending increases, while 68% predict no change.

As for how these numbers stack up against the data from 2009 to 2013,⁶ the people-related budget categories (Contractors, Consultants, and Employees) align fairly well. Since hardware, software, and facilities were combined in prior years, adding together this year’s separate Hardware, Software, and Facilities categories also yields a reasonably comparable situation. The results of this are shown in Table 8.

Albeit an imperfect mapping, especially since there is no way to calculate what amount in prior years should go into the new Services category, some insights can be gleaned from this analysis. Not surprisingly, in light of the inclusion of this

new category, every spending category except “Things” (i.e., the combined Hardware, Software, and Facilities category) is below its six-year (2009-2014) average, and spending on Things is only at its average. Even when weighing the six-year averages so that they total to 100%, this year, only Employees and Things are above their averages, and this holds true for next year’s projections as well. This may be unexpected since one could reasonably expect that spending on things like Hardware, Software, and Facilities would contract when cloud-based services increase. However, with 31.1% of all IT services and solutions cloud-based this year (up from 26.5% last year), and about 55% of that delivered via public/external capabilities (about the same as last year’s 54.3%), that leaves nearly 83% of all IT services and solutions delivered via in-house capabilities.

IT Staffing and Salaries

The average number of “full-time IT employees (IT FTEs, not including contractors or consultants)” who “report under or to the top IT person” is 342 in the 648 organizations responding. Nearly 70% of respondents reported 100 IT FTEs or less. Moreover, 40.6% have 25 or fewer IT FTEs, 28.4% between 26 and 100, 21% between 101 and 500, and only 10% with 501 or more.

On average, 10.4% of IT FTEs are offshore, including the 65.1% of responding organizations reporting that none of their full-time IT employees work outside of their organization’s home country. Those that do have offshore IT FTEs, fall into the following range of responses:

- Between 1% and 10% of FTEs offshore: 11.0% of respondents
- Between 11% and 20%: 12.8% of respondents
- Between 21% and 50%: 4.8% of respondents
- Between 51% and 100%: 6.3% of respondents.

As shown in Figure 4, 45.7% of the 508 organizations responding reported an increase in the number of internal IT employees this year, 21.1% reported a decrease, and 33.3% reported no change. On average, internal IT employment

⁶ For details about the budget allocations previously used in the Study, see last year’s report in Kappelman, L. A., McLean, E. R., Luftman, J. and Johnson, V. “Key Issues of IT Organizations and Their Leadership: The 2013 SIM IT Trends Study,” *MIS Quarterly Executive* (12:4), 2013, pp. 227-240.

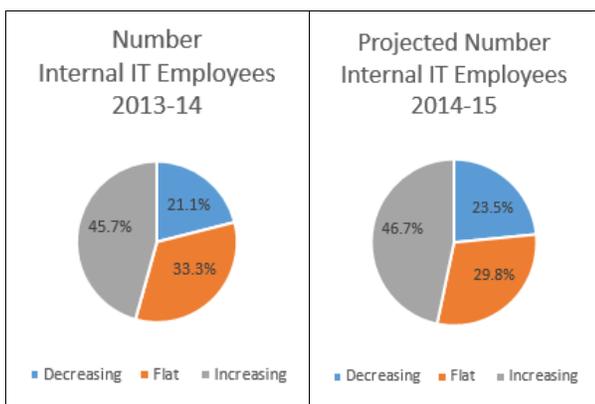
Table 7: IT Budget Allocations 2014 Actual and 2015 Projected (n=366)

Budget Category	Percentage Allocated to Category			Percentage Projecting 2015 Allocations Will:		
	2014 Actual	2015 Projected	Projected Change 2014-2015	Decrease	Flat	Increase
Hardware	15.7%	15.4%	-0.3%	25%	66%	10%
Software	17.9%	17.6%	-0.3%	18%	67%	14%
Facilities (including supplies and consumables)	5.6%	5.4%	-0.2%	13%	82%	5%
Employees	38.5%	38.8%	0.3%	13%	68%	19%
Consultants	6.5%	6.1%	-0.4%	12%	77%	11%
Contractors	5.8%	5.4%	-0.4%	12%	81%	7%
Services (SaaS, PaaS, IaaS, cloud, processes, etc.)	10.1%	11.3%	1.2%	6%	68%	26%

Table 8: 2009-2014 IT Budget Allocation (Actual) and 2015 Projection

	2015 Projected	2014	2013	2012	2011	2010	2009	2009-2014 average adjusted to 100%	2009-2014 Average
Employees	38.8%	38.5%	40.3%	40.0%	40.0%	46.0%	43.0%	38.1%	41.3%
Contractors	5.4%	5.8%	9.5%	11.0%	5.0%	12.0%	12.0%	8.5%	9.2%
Consultants	6.1%	6.5%	3.1%	9.0%	11.0%	10.0%	12.0%	7.9%	8.6%
Hardware, Software, Facilities	38.4%	39.2%	47.1%	40.0%	44.0%	32.0%	33.0%	36.2%	39.2%
Cloud Services	11.3%	10.1%						9.3%	10.1%

Figure 4: Change in Number of Internal IT Employees (2013-2014 actual n=508; 2014-2015 projected n=486)



rose 0.9% (median 0%, standard deviation 4.2%). Looking to next year, nearly 47% of the 486 organizations responding anticipate an increase in staffing, while only 23.5% anticipate staffing reductions, and 29.8% expect no change.

Seventy-nine percent of the 499 organizations responding reported that average IT salaries increased in 2014, 14% reported no change, and 7% reported a decrease. Looking forward, 69.8% anticipate increases in average IT salaries next year, and 9.5% expected salaries to remain flat. Nevertheless, 20.7% anticipate decreases in average IT salaries in 2015.

Use of IT Contractors and Consultants

Thirty-six percent of the respondents reported using between one and five contractors or

consultants, 12% reported using between six and 10, nearly 20% reported using between 11 and 50, 12.5% reported using over 50, and almost 20% reported using none. More than 40% of responding organizations reported an increase in the number of contractors and consultants used this year compared to last year; with 21% reporting a decrease and 36.1% reporting no change.

On average, 14.8% of contractors and consultants are located offshore, with 67.2% of respondents reporting none offshore, 21.4% reporting between 1% and 50%, and only 11.3% indicate that more than 50% of their contractors and consultants are located offshore.

IT Staffing: Turnover and Retirements, and Education and Training

Last year's SIM Study reported that staff turnover was up more than 25% on 2012. That trend continues, with this year's turnover rate for FTEs at 8.97%, more than 36% higher than last year. As indicated in Figure 5, this is the highest level since the Study began tracking the IT turnover rate in 2006 and well above the nine-year average of 6.26%.

To better understand the staff turnover rate, respondents were asked what percentage of their turnover was "involuntary (i.e., the result of downsizing, layoffs, terminations, etc.)" or "voluntary (i.e., quitting, retirements, etc.)" For the 419 organizations reporting more than zero turnover, the average voluntary turnover accounted for nearly twice the involuntary turnover (66.5% vs. 33.4%). This ratio implies that, this year, the voluntary turnover rate was about 5.97%, and the involuntary rate was 3%.

For the first time last year, the Study asked senior IT leaders to estimate "what percentage of the IT employees in your organization (IT FTEs) are going to retire within the next five years?" The average five-year retirement estimate in 2013 was 5.46% (or about 1.09% per year, on average). This year, the average increased by more than 26.6% to 6.91% (or about 1.38% per year, on average). Assuming that 1.38% of the voluntary turnover rate is due to retirements, it appears that the remaining 4.59% (or about half of the 8.97% total turnover rate for IT FTEs this year) is

due to IT employees moving to what they believe are better employment opportunities.

Employee education and training are believed to be effective ways of increasing staff retention. In last year's Study, the proportion of the IT budget spent on IT staff education and training increased by a significant 63% over the previous year to 4.68%, more than 1% above the 2009-2013 average of 3.47%. As shown in Figure 6, this trend continued in 2014, with responding organizations reporting that, on average, 4.99% of their IT budgets are allocated to education and training.

IV. IT Delivery Trends

Cloud-Based IT Services and Solutions

Organizations reported that, on average, 31.1% of all their IT services were delivered via the "Cloud," up from 26.5% last year. As shown in Figure 7, 90.5% of responding organizations indicated that they use the Cloud to some extent, up from 81.2% in 2013. More than a third obtain more than 30% of all their IT services via the Cloud, up from 27% in 2013; nearly a quarter obtain more than 50%, while over 40% obtain 10% or less of all IT services via the Cloud, which is down nearly 18% from 51% last year. Clearly, the use of cloud-based capabilities to deliver IT services and solutions is growing.

The 478 respondents who indicated that they use cloud-based services to some extent were then asked what percentage of cloud-based IT services are provided by an internal/private cloud or by an external/public cloud. On average, with 405 organizations responding, 45% of cloud-based IT is delivered via internal/private capabilities and 55% via external capabilities. Therefore, with 31.1% of all IT services and solutions cloud-based this year, and about 55% of that delivered by external capabilities, 82.9% of all IT services and solutions currently are delivered via in-house capabilities, down from 85.6% last year. Over half of the 405 respondents (52.1%) indicated some combination of internal and external cloud, 35.2% indicated external only, and 12.7% indicated internal only.

Respondents were also asked to indicate what percentage of external cloud-based IT services are provided as Software as a Service (SaaS),

Figure 5: Full-Time IT Employee Actual Turnover Rate 2006-2014 (2014 n=539)

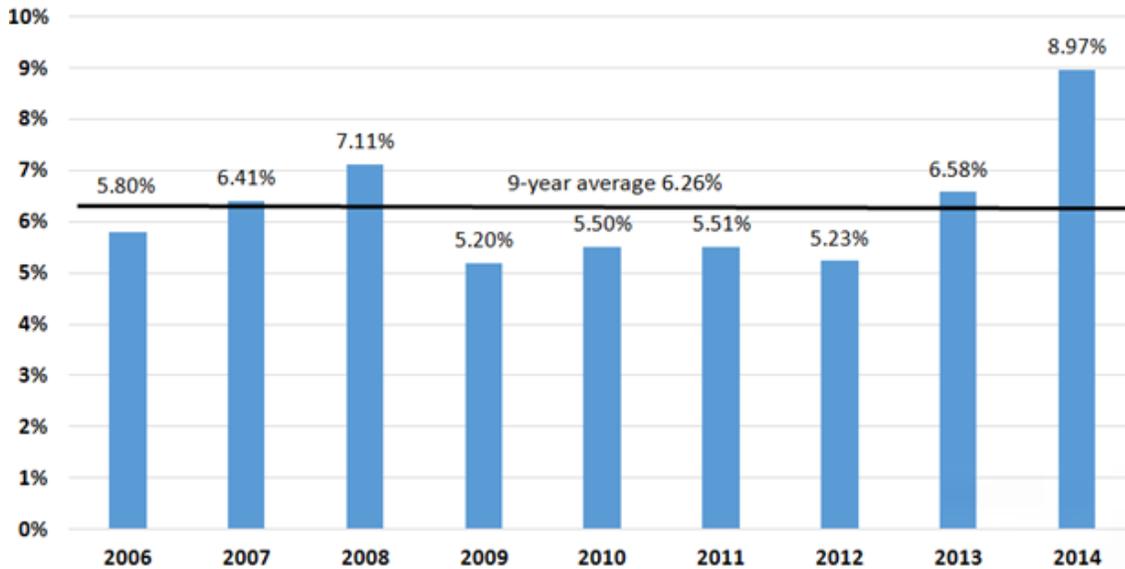
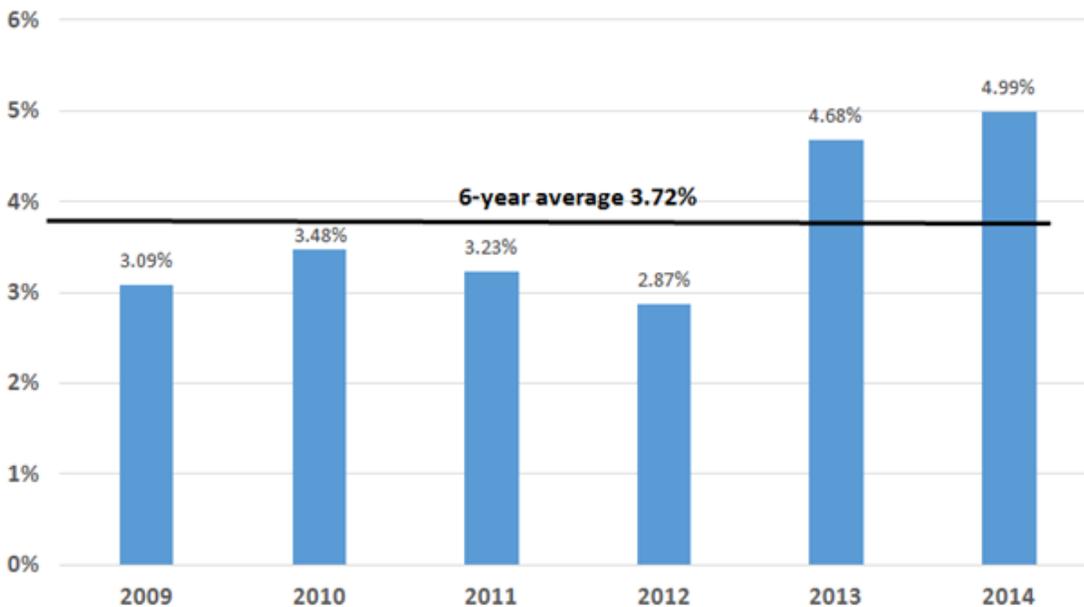


Figure 6: Percentage of IT Budget Spent on Training and Education (2014 n=539)



Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Process as a Service (PaaS). The results, with 260 organizations responding, are shown in Table 9. The vast majority (77.7%) use SaaS, with far fewer using IaaS (27.7%), PaaS (18.5%), and PraaS (6.5%). Interestingly, 2.7% selected “other” and provided suggestions to improve next year’s questionnaire. Excluding

those who do not use a particular cloud capability at all and focusing on the 55% of the 31.1% that is externally provided, externally-sourced SaaS is used to deliver 12.9% of all IT services and solutions, IaaS for 2.1%, and PaaS for 1.3%.

Figure 7: Distribution of Organizations by Percentage of IT Delivered by Cloud Services (n=528)

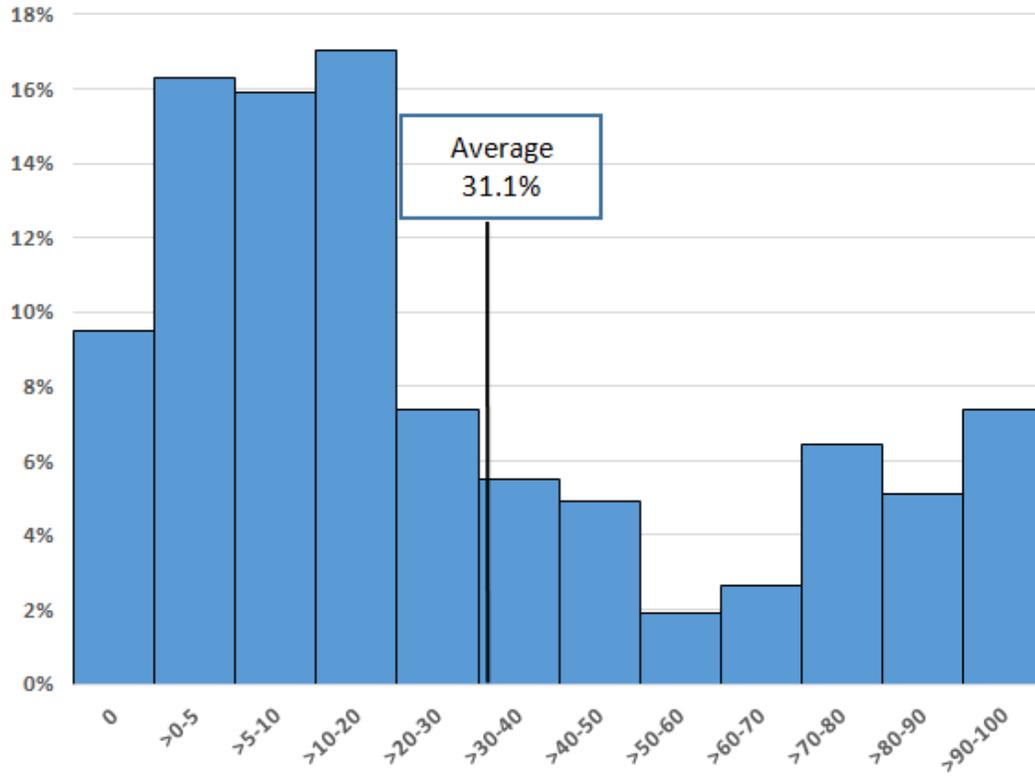


Table 9: Percentage of External IT Services Delivered by Different Cloud Capabilities

	SaaS	IaaS	PaaS	PraaS	Other
Percentage of those using the cloud at all	77.7%	27.7%	18.5%	6.5%	2.7%
Average utilization (including those with zero use)	62.4%	10.1%	6.1%	2.7%	1.3%
Average utilization of those using it	75.5%	12.2%	7.4%	3.3%	1.6%
Average of all IT delivered this way	12.9%	2.1%	1.3%	0.6%	0.3%

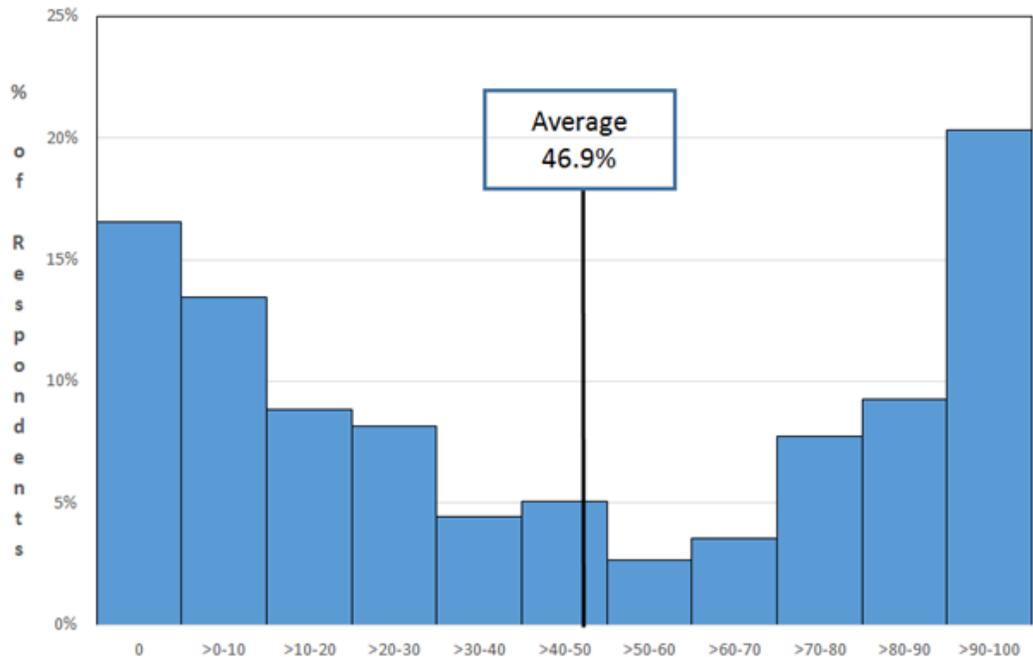
Shared IT Services

Respondents were also asked to report on the percentage of IT services that are delivered as a shared service. Of the 452 responses, 83.4% indicated that their organizations use some level of IT shared services, a significant increase from the 70.1% reported last year. As indicated in Figure 8, on average this year, 46.9% of all IT services are delivered as shared services.

Respondents who indicated that some IT is delivered as shared services were then asked what percentage of those services were delivered via either an internal/private cloud or

an external/public cloud. Responses from 267 organizations indicate that, on average, 62.2% of IT shared services are hosted internally (median 80%, standard deviation 40.7%) and 36.1% externally (median 20%, standard deviation 40.2%), with “other” providing the remaining 1.7%. Interestingly, 22.1% don’t use internal capabilities at all, and 30.7% don’t use any external capabilities for IT shared services. Over a third deliver 90% to 100% of their shared services via internal private systems, and 77.9% use internal capabilities to deliver at least some of their IT shared services. Not surprisingly, the

Figure 8: Distribution of Organizations by Percentage of IT Delivered as Shared Services (n=452)



use of external capabilities for IT shared services delivery was lower, with only 21.7% reporting 90% to 100% utilization and only 69.3% reporting at least some use of external delivery capabilities.

Service Catalogs and Chargebacks

This year's SIM Study asked new questions related to the use of service catalogs and chargebacks. Respondents were asked to state on a five-point scale the degree to which they agree or disagree with two statements: "In my organization, we have an IT services catalog." and "We charge users for the IT services they consume." Results from the 615 respondents are shown in Table 10.

The responses to both statements are tilted toward Disagree, with an average score of only 2.78 for service catalogs and 2.30 for chargeback. The results are somewhat divided for the use of IT services catalogs, with 46.5% selecting either Strongly Disagree or Disagree and 36.3% either Strongly Agree or Agree. The remaining 17.2% selected either neutral (i.e., "Neither Agree nor Disagree") or indicated they did not know.

The average score for chargeback was only 2.3, so this practice is less common than IT services catalogs. As shown in Figure 9, only 24.7%

Strongly Agree or Agree with the chargeback statement, while 60.8% Strongly Disagree or Disagree. Thus the responses are strongly skewed toward not using chargebacks.

V. CIO Reporting Relationships, Time Allocation, Background, Tenure, and Performance Measurement

To better understand the role and activities of IT leaders, we used the responses from the 451 people who identified themselves as the "top IT person (e.g., the 'CIO') in their organizations. Interestingly, these include 47 CIOs (10.4%) who do not consider themselves to be IT employees.

CIO Tenure

Respondents reported longer tenure as CIO than any year in the last nine, except for 2012 (see Figure 10). The median tenure was 4.0 years, up from 3.55 in 2013. The average organization tenure of these CIOs was 8.26 years, with a median of 6.0 years, both of which are very similar to last year.

Table 10: The Use of Service Catalogs and Chargebacks (n=615)

	Strongly Disagree = 1	Disagree = 2	Neither Agree nor Disagree = 3	Agree = 4	Strongly Agree = 5	Don't Know or N/A	Average Score
In my organization, we have an IT services catalog	21.3%	25.2%	13.8%	25.9%	10.4%	3.4%	2.78
We charge users for the IT services they consume	38.7%	22.1%	11.9%	17.7%	7.0%	2.6%	2.30

Figure 9: Responses to “We Charge Users for the IT Services They Consume” (n=615)

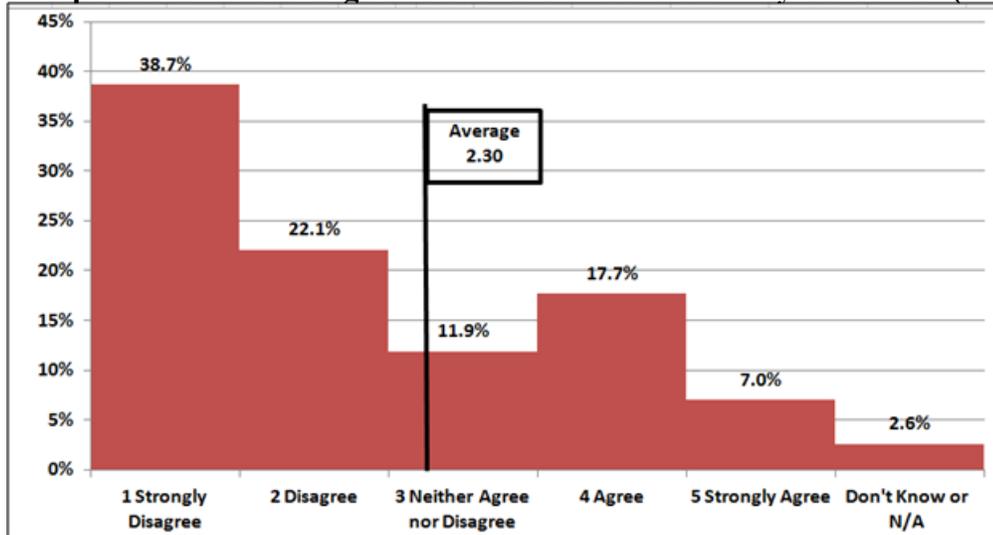


Figure 10: Average Job Tenure of CIOs (2006-2014) (n=451 CIOs)



CIO Reporting Relationships

Some researchers have found that the role of the CIO is related to whom the CIO reports.⁷

7 Carter, M., Grover, V. and Bennett, R. “The Emerging CIO Role of Business Technology Strategist,” *MIS Quarterly Executive* (10:1), 2011, pp. 19-29, found there to be a relationship between to whom CIOs report and the focus and activities of CIOs. However, Laplante, P. A. and Bain, D. M. “The Changing Role of the CIO: Why IT Still Matters,” *IT Professional* (7:3), 2005, pp. 45-49, found no association between CIO reporting relationship and job activities.

Nearly 45% (44.2%) of the top IT executives in this Study report directly to the CEO, 25.7% report to the CFO, and 15.0% report to the COO (see Table 11). Nearly 10% (9.4%) report to the leader of a business unit or function or to a department executive.

The data in Table 11 suggest there is a slow moving trend of an increasing percentage of CIOs reporting to business unit executives, a steady state in CEO and CFO reporting, and a decreasing percentage of CIOs reporting to COOs. Other studies confirm an increase in CIOs reporting to CEOs,⁸ but such trends, if present, do not appear particularly strong.

This year, for the first time, CIOs were asked to what extent they agree (on a five-point scale) with the statement “I am on the top management team that makes strategic business decisions.” As shown in Table 12, the average score was high, at

8 “44% of CIOs report to the CEO, up from 39% last year,” in Nash, K. S. “State of the CIO 2014: The Great Schism,” *CIO*, January 2014, available at <http://www.cio.com/article/2380234/cio-role/state-of-the-cio-2014-the-great-schism.html>.

Table 11: To Whom the CIOs Report, 2005-2014

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Avg
CEO	43%	45%	31%	43%	46%	44%	49%	43%	44.7%	44.2%	43%
CFO	22%	25%	29%	28%	24%	31%	32%	27%	27.1%	25.7%	27%
COO	21%	16%	22%	14%	14%	11%	12%	19%	14.4%	15.0%	16%
Business Unit Executive	6%	9%	7%	3%	9%	4%	5%	10%	9.2%	9.4%	7%
Other	9%	5%	10%	12%	7%	10%	2%	2%	4.6%	5.8%	7%
								n=	284	448	

Table 12: CIOs with a Seat at the Strategy Table (n=364)

	Strongly Disagree = 1	Disagree = 2	Neither Agree nor Disagree = 3	Agree = 4	Strongly Agree = 5	Don't Know or N/A	Average Score
I am on the top management team that makes strategic business decisions	4.7%	9.1%	8.8%	21.4%	55.2%	0.8%	4.14

4.1. Over 76% confirmed that they do have a seat at the business strategy table, 55.2% Strongly Agree with the statement, and only 13.8% indicated they do not participate in business strategy.

CIO Previous Employment

Overwhelmingly, CIOs previously held an IT position (89.8%), although that is a little lower than last year and below the five-year average of 91.2% (see Table 13).

Previously, 62.3% were in an IT position in another organization (up from 53.5% two years ago), and 27.5% were in an IT position in their current organization (down from 36.6% two years ago).

However, Table 13 shows that more CIOs are being hired from prior non-IT positions, 10.2% this year, up from 9% last year, and above the five-year average of 8.8%. Perhaps more importantly, and confirming the trend of more hiring from outside the organization, 71.6% of this year's 10.2% came from a non-IT position in an outside organization, which is far above the five-year average of 51.8%. There is a corresponding decrease in those being promoted to CIO from

within, regardless of whether they were in a prior IT position or not.

CIO Performance Measurement

Respondents were asked to select, from a list of 33, up to three of their organization's "most important performance metrics" for in-house IT, outsourced IT, and their own performance. All 451 CIOs responded, and Table 14 shows the percentage selecting each metric in each of these three areas, together with the rankings for each metric in each area. The table is sequenced by the rankings of the CIO's job performance measures. The left-most column shows a "focus" code to one of three groups of metrics: IT, Business Operations, and Strategic.

Table 14 shows that only three of the CIOs' top 10 performance measures are focused on IT, while the other seven are business focused. The top two—"Value of IT to the business" (selected by over 40%) and "IT's contribution to strategy" (selected by nearly 28%)—have a strategic focus, as do three of the top four, and four of the top 10 for CIOs. Since performance measures are tied to incentives and deliverables, this points to a current overall strategic and business focus

Table 13: CIO Prior Employment (2010-2014) with Subtotals (n=451 CIOs)

	2014	2013	2012	2011	2010	5-year Average
IT, same organization	27.5%	32.0%	36.6%	31.3%	38.0%	33.1%
IT, outside organization	62.3%	59.0%	53.5%	61.6%	54.0%	58.1%
Non-IT, same organization	2.9%	5.0%	5.0%	4.0%	4.0%	4.2%
Non-IT, outside organization	7.3%	4.0%	5.0%	3.0%	4.0%	4.7%
Outside organization	69.6%	63.0%	58.4%	64.6%	58.0%	62.7%
Same organization	30.4%	37.0%	41.6%	35.4%	42.0%	37.3%
Prior IT position	89.8%	91.0%	90.1%	92.9%	92.0%	91.2%
Prior non-IT position	10.2%	9.0%	9.9%	7.1%	8.0%	8.8%

of CIOs, a good thing indeed. Thus, it is not surprising that 54.6% of the 383 CIOs responding to the statement “I am on the top management team that makes strategic business decisions” answered “Strongly Agree” and 20.9% answered “Agree,” while only 14.1% chose “Disagree” or “Strongly Disagree.”

“Availability” was the only IT-focused performance measure to appear in the top five for CIOs, selected by nearly 19% of respondents. Note that “Availability” is No. 1 for both In-house IT and Outsourced IT, selected by 36.4% and 25.7%, respectively.

Nevertheless, the performance metrics for CIOs and In-house IT do have a lot in common. This too is not unexpected, since success at “keeping the IT lights on” is a prerequisite for an IT leader to earn a seat at the strategy and business innovation tables. There are three common entries in the top five and seven in the top 10 of both the CIO and In-house IT measures. The three measures that appear in only the CIO top 10 are all business focused and largely strategic: “Innovative new ideas” (selected by over 20%) and “Business cost reduction/controls” and “Revenue growth” (both selected by 9.5%). Nevertheless, with two of In-house IT’s top five performance measures focused on the business, and only half of the top 10 IT focused, it’s clear that in-house IT organizations have a strong emphasis on aligning IT with the business.

As might also be expected, the Outsourced IT performance measures indicate that outsourced

IT is more focused than in-house IT on keeping the IT lights on.

The most troubling entry in Table 14 is that nearly 20% of CIOs reported they have no measures in place for Outsourced IT. In fact, “None” was the third most selected “performance measure” for Outsourced IT. This suggests a profound immaturity in a large percentage of organizations when it comes to managing vendor relationships, a very important capability in an era of increasing outsourcing and use of external cloud services.

How CIOs Spend Their Time, with Whom, and What They Do

Since 2007, the SIM Study has included questions about how CIOs spend their time, with whom, and on what activities. Respondents were asked to give the percentages of their time spent working with seven categories of people (plus an “other” category). The results are shown in Figure 11.

On average, respondents reported they spent over 30.3% of their time with IT employees within their organization. Over 40.3% of their time was spent interacting with business people within their organization (19.8% with C-level and 20.5% with business non-IT, non-C-level), indicating they have a significant focus on the overall business. Only 8.0% of their time is spent interacting with IT contractors, vendors and service providers; and another 8.8% interacting with customers or suppliers of the

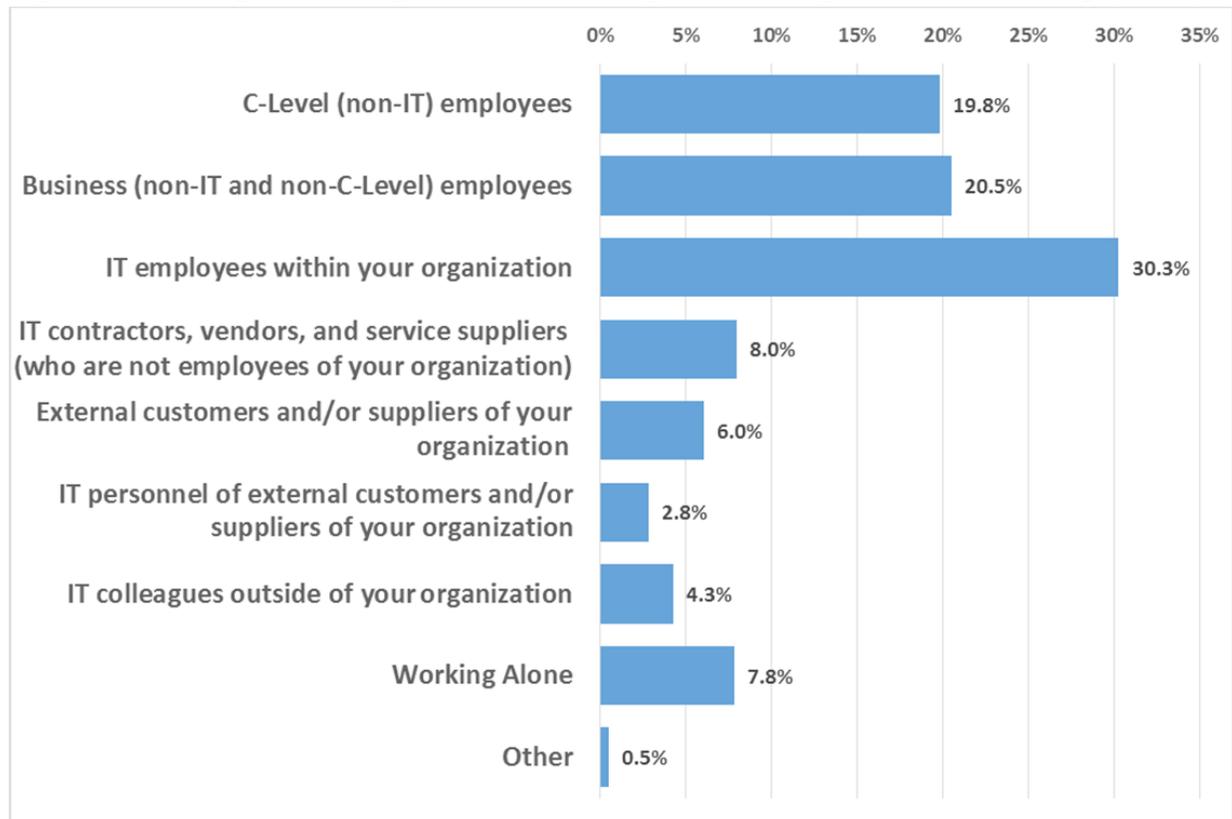
Table 14: CIO Performance Measures (with Internal and Outsourced IT Metrics)

Focus	Used for:	CIO		In-house IT		Outsourced IT	
	Performance Measures	% selecting	Rank	Rank	% selecting	Rank	% selecting
S	Value of IT to the business	40.80%	1	2	27.49%	10	9.76%
S	IT's contribution to strategy	27.72%	2	9	10.64%	22	1.77%
B	Customer satisfaction (internal)	21.29%	3	3	24.17%	9	10.20%
S	Innovative new ideas	20.18%	4	17	7.10%	17	4.21%
I	Availability (uptime)	18.63%	5	1	36.36%	1	25.72%
I	Projects delivered on time	17.74%	6	4	23.28%	2	21.29%
I	IT cost controls	13.30%	7	8	12.42%	6	17.07%
B	Productivity improvement	12.20%	8	6	14.19%	11	9.09%
B	Business cost reduction/controls	9.53%	9	11	7.98%	7	10.64%
S	Revenue growth	9.53%	9	16	7.32%	29	0.67%
I	Projects delivered on budget	9.31%	11	7	13.30%	5	17.52%
B	Satisfaction of internal IT customers	8.65%	12	10	8.65%	15	5.32%
B	Project ROI	8.20%	13	13	7.76%	14	6.43%
B	Improved decision making	7.54%	14	19	4.88%	25	0.89%
B	Total cost of ownership	5.76%	15	14	7.54%	7	10.64%
B	IT spending as a % of revenue	5.32%	16	11	7.98%	20	2.88%
B	Time-to-market	4.88%	17	14	7.54%	16	4.66%
S	Profit growth	4.88%	17	23	3.10%	25	0.89%
B	Employee attrition/retention/turnover	4.66%	19	20	3.77%	25	0.89%
I	SLA target compliance	3.33%	20	18	5.54%	4	17.96%
I	Help desk performance	2.66%	21	5	16.19%	12	7.76%
I	IT cost/headcount reduction	2.66%	21	21	3.55%	18	3.33%
S	Increases in new products/services	2.66%	21	25	2.88%	18	3.33%
I	Quality/defect rates in software	2.44%	24	21	3.55%	13	7.10%
S	Return on equity	2.22%	25	25	2.88%	25	0.89%
-	NONE (no measure in place)	1.77%	26	28	1.33%	3	19.29%
S	Earnings per share	1.77%	26	31	0.67%	31	0.22%
S	Compound annual growth rates	1.55%	28	32	0.44%	32	0.00%
S	Industry specific measures	1.33%	29	28	1.33%	24	1.11%
I	IT spending per employee	1.33%	29	23	3.10%	30	0.44%
B	Workforce reduction	0.67%	31	30	0.89%	21	2.22%
B	Lower error rates by users	0.67%	31	27	1.55%	23	1.33%
S	Stock price	0.00%	33	32	0.44%	32	0.00%

FOCUS: I = IT, B = Business Operations, S = Strategic

n = 451 CIOs

Figure 11: Average Percentage of CIOs’ Time Spent Working with the Following (n=305)



organization (6.0%) and their IT employees (2.8%). Networking with IT colleagues outside their organization, such as at conferences and in professional societies like SIM, accounts for 4.3% of their time. In short, about 46.3% of the average CIO’s time is spent focused on the business and 45.3% on IT, while working alone accounts for 7.8%.

Those respondents who indicated they spent any time at all with C-level (non-IT) personnel were asked about the frequency of their interactions with these executives and with the board.

Table 15 indicates that, on average, CIOs most frequently interact with CFOs, with 82.6% meeting with their CFO daily or weekly. About two-thirds reported meeting at least weekly with COOs and CEOs (67.0% and 63.0%, respectively), and 51.5% reported at least weekly meetings with the chief marketing officer (CMO). The least amount of regular interaction was with the chief legal officer (CLO) and the board, with just over 36% meeting daily or weekly with the CLO and

just 6.8% meeting daily or weekly with the board. More than a third of CIOs reported no interaction at all with the board, and over 50% reported meeting either once a year or not at all.

Table 16 compares the frequency of CIO interactions reported this year with the equivalent data from last year. It shows a significant increase in regular interaction between the CIO and other members of the executive management team, supporting the conclusion that CIOs, and IT in general, are becoming more strategic and business focused as organizations become more digitized.

CIOs who indicated that they spent time interacting with other C-level executives were also asked about the quality/value of these interactions to increasing the contribution and value of IT in their organizations. Their responses are also shown in Table 16, along with the equivalent data from last year. There is little change between the two years. This year, interactions with CEOs and COOs were viewed as Positive or Very Positive by 82.4% and 81.9%

Table 15: Frequency of CIO Interactions with Other Executives

	CEO	COO	CFO	CMO	CLO	Board
Daily	16.6%	30.5%	30.7%	14.1%	5.2%	1.1%
Weekly	46.4%	36.5%	51.9%	37.4%	30.9%	5.7%
Monthly	24.9%	10.2%	11.3%	19.6%	25.3%	14.3%
Quarterly	6.9%	2.3%	2.1%	3.7%	12.3%	28.3%
Annually	3.1%	1.1%	1.4%	2.2%	4.5%	16.8%
None	2.1%	19.5%	2.5%	23.0%	21.9%	33.7%
n =	289	266	283	270	269	279

Table 16: Frequency and Value of CIO Interactions with Other Executives (2013-2014)

Role	Interact w/ at least once a week			Interact w/ monthly		Value/Quality of Interactions				Number of CIOs responding	
	% change 2013-2014	2014	2013	2014	2013	Very Positive/ Positive		Neutral		2014	2013
CEO	29%	63%	49%	25%	21%	82%	83%	14%	14%	289	139
COO	67%	67%	40%	10%	8%	82%	78%	15%	16%	266	92
CFO	40%	83%	59%	11%	13%	77%	75%	20%	19%	283	136
CMO	78%	51%	29%	20%	15%	68%	68%	25%	29%	270	78
C-Legal	90%	36%	19%	25%	27%	46%	47%	44%	51%	269	81
BOD	241%	7%	2%	14%	16%	65%	61%	29%	39%	279	72

of respondents, respectively, and 77.1% viewed their interactions with CFOs as Positive or Very Positive. Interactions with marketing, legal, and the board were also considered Positive or Very Positive by 68.1%, 46.1%, and 65.4% respectively.

Interestingly, the percentage of CIOs reporting Negative or Very Negative value ratings for their interactions with CEOs, CFOs, and COOs decreased slightly from last year but increased slightly for CMOs, CLOs, and the board.

Finally, respondents were asked to identify which, of 17 activities on a list, they spent their time on and with whom they worked when performing these activities (from a list of those people with whom they previously indicated that they interacted). The data from each respondent can be conceptualized as a matrix, with the

17 activities on one axis and the respondent’s customized “with whom” list on the other.

The number of “votes” or “selections” in each cell of the matrix was totaled and standardized to total 100%. The average percentages are shown in Table 17, allocated to separate subtotals for IT- and business-related activities.

VI. Skills Needed for the Success of CIOs, Mid-Level IT Professionals, and New IT Hires

The IT industry has often experienced hiring challenges, generally related to the availability of personnel with the right experience and skills to meet current demand.

Table 17: What CIOs Do with Their Time

Activities Performed by CIOs	% selecting an activity (standardized to 100%)	
	IT	Business
Business priorities, strategy, architecture		8.1%
IT priorities/strategy	8.0%	
Managing organizational change		6.8%
Non-IT-related activities		5.1%
Evangelist for the business		4.8%
Business research		5.1%
IT evangelist	5.9%	
IT governance	5.4%	
IT human resources and talent management	4.7%	
IT operations/facilities management	5.1%	
Knowing the needs of IT customers		6.6%
Knowing the needs of customers of the business		6.5%
Project management	6.7%	
Software development	4.1%	
Technical research	5.9%	
Resource allocation/budgeting	6.0%	
Sub Totals	51.7%	42.9%
Managing my personal network	5.4%	
Total	100.0%	

To better understand the IT skills issue, respondents were provided with a list of 37 skills and capabilities, with three columns for answers, and asked to select the three skills or experiences they believe are most important for their own success in their jobs and for the success of mid-level IT professionals and new IT hires. The skills are listed alphabetically in Table 18, together with (for each of the three job categories) the percentage of respondents selecting each skill and the ranking of the skill in each category.

The Top Five Skills

The top five skills in each of the three job categories include just nine skills (see Table 19). It is clear that a CIO’s success requires quite a different set of skills than the other two categories.

Technical Knowledge was ranked as the No. 1 skill required of a new IT employee, selected by 47.4% of respondents. Problem Solving (39.4%) and Collaboration (38.5%) were selected as the next most important success skills for new hires, with fourth-ranked Functional Area Knowledge selected by 22.1%.

The top five skills for success of mid-level IT professionals are the same as for new IT hires but in a different order. Collaboration was ranked No. 1 (selected by 33.7%), with Problem Solving and Technical Knowledge tied for No. 2, with 19.9% each. Mid-level managers and CIOs share People Management in their top five skill rankings. All three categories share Oral Communications at fifth place, which is the only skill in the top five of each category.

With three unique skills in their top five (Decision Making, Providing Leadership, and Strategic Planning), CIOs see the skills needed for their own success as quite different from those needed for the success of their reports. Their No. 1 skill is Providing Leadership, selected by 34.3% of respondents. People Management (29.5%) was No. 2; it was also No. 2 for IT middle management (17.6%). Strategic Planning (23.7%) is No. 3, with Decision Making (23.4%) No. 4. The similarities and differences in the top five skills in each of the three job categories are shown in Figure 12.

Figure 12, like Table 19, is sorted by the rankings of most important skills for CIO success, and it makes clear that a CIO’s success requires a very different set of skills than the other two

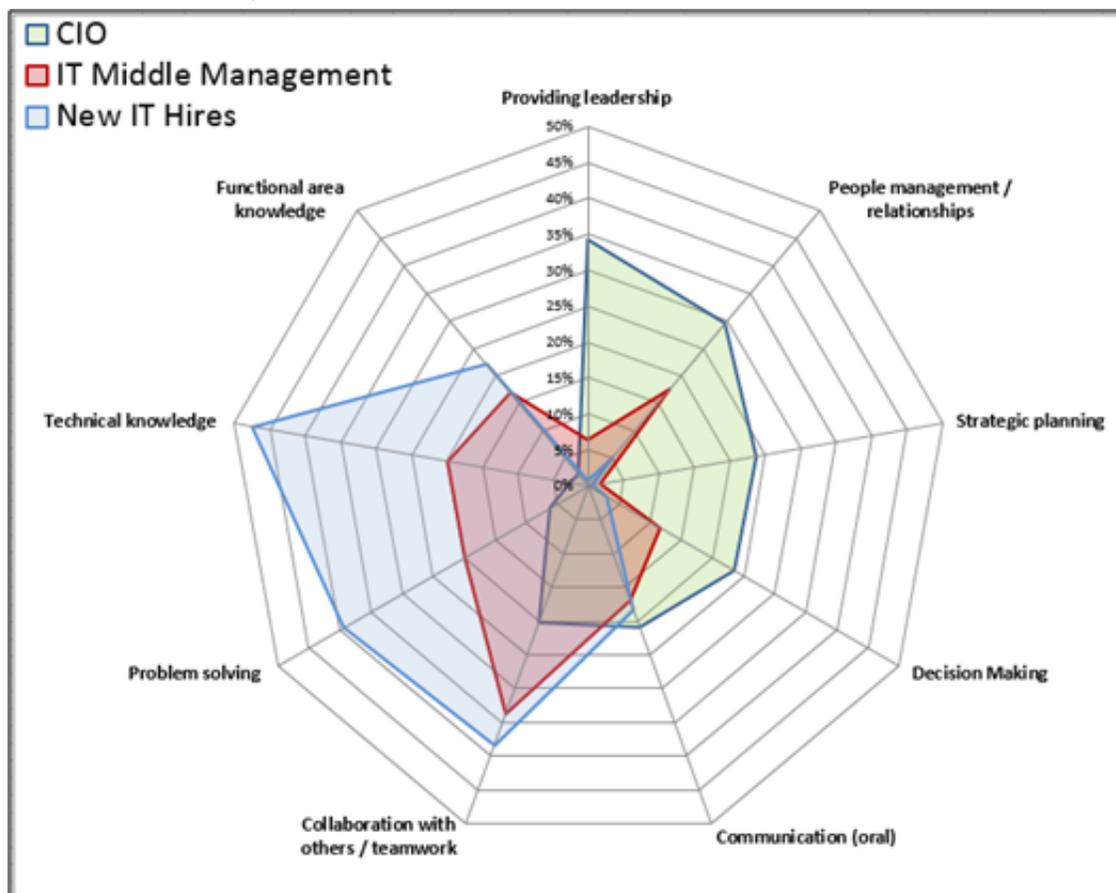
Table 18: Most Important Skills for the Success of CIOs, Mid-Level IT Professionals, and New IT Hires (n=312 CIOs)

Skills (Sorted Alphabetically)	CIO		Mid-Level		New IT Hires	
	Rank	% selecting	Rank	% selecting	Rank	% selecting
Accounting/finance	17	5.1%	34	0.6%	30	0.6%
Analytics/statistics	21	3.2%	26	2.9%	23	2.2%
Budgeting	12	9.6%	27	2.6%	34	0.3%
Business analysis	9	11.9%	7	16.7%	7	8.7%
Change management	10	11.2%	15	7.7%	23	2.2%
Collaboration with others/teamwork	6	20.2%	1	33.7%	3	38.5%
Communication (oral)	5	20.8%	5	17.0%	5	18.3%
Communication (written)	15	6.1%	14	8.0%	7	8.7%
Decision making	4	23.4%	9	11.5%	19	2.9%
Delegation	14	7.1%	24	3.2%	34	0.3%
Emotional intelligence	7	16.0%	15	7.7%	10	7.7%
Empathy	30	1.0%	33	1.0%	21	2.6%
Enterprise architecture	22	2.6%	21	3.8%	27	1.0%
Entrepreneurship	20	3.5%	34	0.6%	30	0.6%
Ethics/tolerance	29	1.3%	30	1.3%	21	2.6%
Functional area knowledge	24	2.2%	5	17.0%	4	22.1%
Golf	33	0.3%	36	0.3%	27	1.0%
Honesty/credibility	8	15.4%	10	11.2%	6	15.4%
Innovation	13	8.7%	13	8.3%	11	7.4%
Integration	34	0.0%	28	2.2%	17	3.5%
Managing expectations	11	9.9%	11	10.3%	18	3.2%
Marketing/sales	24	2.2%	36	0.3%	37	0.0%
People management/relationships	2	29.5%	4	17.6%	13	5.1%
Planning	24	2.2%	18	5.4%	26	1.3%
Problem solving	15	6.1%	2	19.9%	2	39.4%
Programming	33	0.3%	30	1.3%	12	6.7%
Project integration/program management	30	1.0%	21	3.8%	27	1.0%
Project leadership	19	3.8%	11	10.3%	25	1.6%
Project management	18	4.8%	8	14.1%	16	3.8%
Project plan/budget/schedule	30	1.0%	24	3.2%	34	0.3%
Providing leadership	1	34.3%	17	6.4%	30	0.6%
Software testing	33	0.3%	30	1.3%	19	2.9%
Strategic planning	3	23.7%	29	1.6%	30	0.6%
Systems analysis and design	33	0.3%	21	3.8%	13	5.1%
Technical knowledge	22	2.6%	2	19.9%	1	47.4%
Technology architecture	27	1.9%	18	5.4%	15	4.8%
User relationship management	27	1.9%	18	5.4%	7	8.7%

Table 19: Top Five Most Important Success Skills for CIOs, Mid-Level IT Professionals, and New IT Hires (n=312 CIOs)

Skills (Sorted by CIO Rankings)	CIO		Mid-Level		New IT Hires	
	Rank	% selecting	Rank	% selecting	Rank	% selecting
Providing leadership	1	34.3%	17	6.4%	30	0.6%
People management/relationships	2	29.5%	4	17.6%	13	5.1%
Strategic planning	3	23.7%	29	1.6%	30	0.6%
Decision making	4	23.4%	9	11.5%	19	2.9%
Communication (oral)	5	20.8%	5	17.0%	5	18.3%
Collaboration with others/teamwork	6	20.2%	1	33.7%	3	38.5%
Problem solving	15	6.1%	2	19.9%	2	39.4%
Technical knowledge	22	2.6%	2	19.9%	2	47.4%
Functional area knowledge	24	2.2%	5	17.0%	4	22.1%

Figure 12: Comparison of the Top Five Most Important Success Skills for CIOs, Mid-Level IT Professionals, and New IT Hires



levels. Examining this graphical representation of the similarities and differences among these

three career categories or stages also points to a skill-based career path for new or mid-career

IT professionals who aspire to managerial roles. So where technical and problem-solving skills reign paramount for new IT hires, for CIOs, technical knowledge and capabilities seem of little importance to their success, while executive-level managerial skills like Providing Leadership, Strategic Planning, Decision Making, and relationship skills, like People Management and Emotional Intelligence, are quite critical.

Nevertheless, the relative importance of Oral Communications and Collaboration skills across all three career categories, as shown in Figure 12, suggests a set of core skills that are important throughout the career of an IT professional. In fact, Collaboration/Teamwork is the only success skill selected by at least 20% of the CIO respondents for all three categories; and Oral Communications is the only one selected by at least 15% for all three levels.

Summary and Conclusion

The 2014 SIM IT Trends Study points to the changes in IT priorities and spending as enterprises continue to become more digitized and tightly connected. There is still a demand for IT leaders to increase the efficiency and productivity of IT and of the organization as a whole. Additionally, though, there is also

increasing demand for IT to deliver more speed, agility, innovation, and security—in other words, more overall business value. So it is not surprising that more CIOs are being appointed from outside organizations and from non-IT backgrounds. Nor is it surprising that there are significant changes in how IT leaders spend their time, who they spend their time with, and what they do with their time.

It is quite likely that the CIO role is the most complicated and demanding job in organizations today. The CIO, and his or her team, must manage an increasingly more complex IT infrastructure, as well as multifaceted IT organization structures and governance processes, to ensure robust, aligned, and secure IT services for the organization. Additionally, they must also constantly scan for new and emerging technologies that will provide business value and help shape the future of the enterprise. Moreover, all this has to be done in an environment filled with uncertainty and risk, growing regulation, legal ambiguity, and global competition, as well as more sophisticated and aggressive cyber criminals. In the face of these challenges, it is undoubtedly a tough time to be a CIO, or any IT leader. But it is also a great time to be in the field, if you're up for the excitement and challenges.

The 2014 SIM IT Key Issues and Trends Study: Appendix

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Research Methods, Design, and Delivery of SIM's IT Trends Study

Founded in 1968, the Society for Information Management (SIM) is the United States' oldest and largest professional organization for senior IT leaders. 2014 marked the 35th anniversary of SIM's IT Trends Study. Over the past 35 years, this research has evolved into a comprehensive and detailed assessment of the state of organizational IT and its leadership. Over the past decade, the study has been done on an annual basis to better identify trends in this fast-paced profession.

The nature of the Study is such that the population studied is limited to members of SIM and thus is a convenience sample (as is the case for just about all research of this kind). Most (682, or 95.1%) of the responding 717 organizations are U.S. based, with 20 (2.8%) in Europe, 10 (1.4%) in non-U.S. North America, and five (0.7%) based in Australia and Asia. Given the diverse representation of the sample collected across industries (as shown in Table A1 on the next page) and organizations of all sizes (as shown in Figure A1 on the next page), we believe it is reasonable to assume these 717 organizations provide a good representation of the state of IT in the U.S. Furthermore, since SIM is an independent, not-for-profit professional organization, with no marketing or political motivations, and the research is conducted by a team of academicians, it makes for a reasonably unbiased study and report.

Although the average annual revenue is fairly large, at \$5.578 billion for the 564 organizations answering that question, as shown in Figure A1, their median revenue is \$500 million, and the majority (57.7%) of responding organizations has revenues between \$100 million and \$5 billion. In other words, the organizations participating in this Study vary significantly by revenue, much like those in the rest of the U.S. economy.

The questionnaire design process followed prior SIM studies and copied closely last year's study. The lists of concerns/issues and investments/technologies were updated, with many items being added, split, deleted, or revised. New items were based on suggestions from last year's participants, the research team (consisting of the authors and SIM members Barbra Stewart, Bill Peterson, and Russell Douglas), and members of the SIM Enterprise Architecture Working Group (SIMEAWG) that served as a Delphi review panel and piloted the online questionnaire. Items that were removed were those not selected by at least 2% of respondents



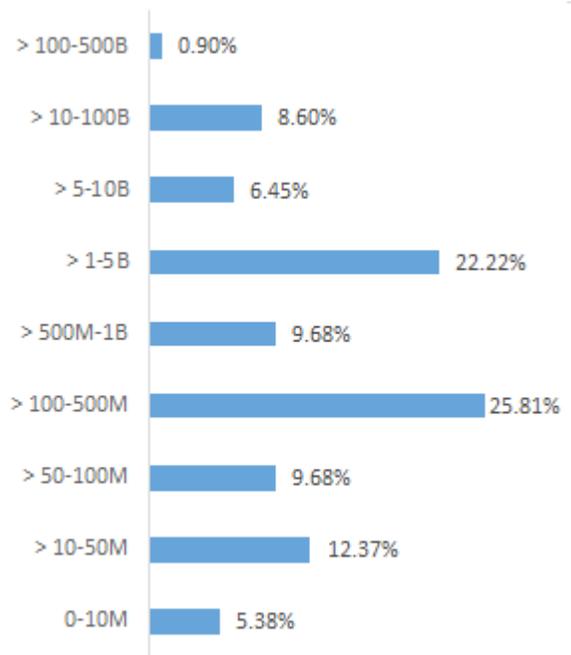
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INDIANA UNIVERSITY

Table A1: Response by Industry for 717 Unique Organizations

Industry	%
Financial Services	14.78%
Manufacturing	13.11%
Health/Medical	9.90%
Education	7.81%
Government	5.30%
IT Services/Consulting	5.02%
Retail/Wholesale	4.88%
Business Professional Services	4.60%
IT Hardware/Software	4.04%
Not-for-Profit	3.35%
Energy	3.07%
Consumer Goods	2.09%
Medical Technology	2.09%
Real Estate	2.09%
Transportation/Distribution	2.09%
Hospitality/Travel/Leisure/Tourism	1.95%
Media/Entertainment	1.95%
Construction	1.67%
Other	1.67%
Automotive	1.53%
Telecommunications	1.39%
Utilities	1.26%
Chemical	1.12%
Aerospace/Defense	0.98%
Printing/Publishing	0.84%
Electronics/Semiconductors	0.56%
Agriculture	0.14%
Mining/Minerals	0.14%

last year. Table A2 shows what changes were made to the list of “IT management concerns/issues” for this year’s study.

Figure A1: Total Revenue of Organization in US\$ (n=564)



Similarly, the list of “IT investment priorities and concerns” was modified this year. The methodology for selecting choices was the same as described for the “IT management issues and concerns.” For the first time, in addition to selecting up to three of their “largest/most significant investments” and “technologies of greatest concern to me personally,” respondents were also asked to select their “organization’s most important technologies.” A complete list of changes is shown in Table A3 (page A4).

Finally, the list of performance measures was significantly increased from 14 to 32. The performance measures for the In-house-IT question were added to the SIM IT Trends questionnaire in 2012. Last year, this was expanded to include performance measures for Outsourced IT. In this year’s Study, the measures used to assess the performance of IT leadership were also included. This expanded list of measures and the addition of this third assessment category allows for more insight into how the performance of IT and its leadership is being assessed. Table A4 (on page A4) summarizes these changes.

Table A2: Modifications to List of IT Management Concerns/Issues

Added	Removed
<ul style="list-style-type: none"> ● “Flexibility” added to “Business Agility” ● “Innovation” ● “In-sourcing (IT previously outsourced)” ● “IT Agility” ● “IT Credibility” ● “IT Governance” ● “IT Performance Measures/Incentives” ● “IT Value Proposition to the Business” ● “Project Management” ● “Shadow IT/Rogue IT” ● “Velocity of Change in Business” 	<ul style="list-style-type: none"> ● “Outsourcing” ● “Societal Impact of IT” ● “Sourcing Decisions” ● “Vendor Management”
Changed	
<ul style="list-style-type: none"> ● “Other” turned into a suggestion rather than a selection. ● “Time-to-Market/Velocity of Change” became three selections this year: “Velocity of Change in the Business,” “Velocity of Change in IT,” and “IT Time-to-Market/IT Speed of Delivery.” ● “Business Continuity/Disaster Recovery” was split into two separate selections: “Business Continuity” and “IT Disaster Recovery.” ● “Compliance and Regulation (HIPAA, SarBox, SAS70, PCI, etc.)” was changed to “Legal Compliance-HIPPA, SarBox, SAS70, PCI, etc.” ● “Enterprise/IT Architecture” was changed to “Enterprise Architecture.” ● “IT Change Management” was changed to “Change Management.” ● “IT Organization Design/Structure” was changed to “IT Organization.” ● “IT Reliability/Quality/Availability” was changed to two options: “IT Quality” and “IT Reliability.” ● “IT Talent/Skill Shortage/Human Resources (Training, Retention, Development)” was combined from “Human Resources (Training, Retention, Development)” and “Talent/Skill Shortage.” ● “IT Operations/ITIL/IT Service Delivery/Keeping the lights on” was changed to “IT Service Delivery.” ● “Security and Privacy” were recombined for this year’s study. “Privacy” was separated the prior year but was not selected by a single respondent. 	

To better understand the role of the CIO, the “how IT leaders spend their time” sections of this year’s questionnaire were significantly expanded and improved. In prior years, respondents were asked how they spend their time and were given a list of 11 options. These options included activities (“what” CIOs do), as well as groups of people (with “whom” CIOs do it). Since activities happen with people, there was some confounding in the data collected. To improve this, this year, the activities were split from the groups of people and collected for both separately and in

combination. Both lists were also expanded. The left-most column of Table A5 (page A5) lists the nine people categories offered to respondents this year; the column to its right lists the four options from last year. To the right of this, there is a list of the 17 activities used this year, with the six 2013 equivalents in the far right column. Unchanged this year were the “what CIOs do with their time” questions regarding the frequency of their interactions with other C-level executives and the contribution of those interactions to the value of IT to the organization.

Table A3: Modifications to List of IT Investment Priorities and Concerns

Added	Removed
<ul style="list-style-type: none"> ● “Data Center/Infrastructure” ● “Innovation/Disruptive Technologies” ● “Insourcing (of IT previously outsourced) ” ● “Integration” ● “IT Management Applications/IT for IT (e.g., application portfolio management, network management)” ● “IT Services Catalog” ● “Master Data Management” ● “Research and Development” ● “Shared Services” 	<ul style="list-style-type: none"> ● “Business Rules Engine” ● “Global Position Sensing” ● “Green Computing” ● “GRID Computing” ● “Mainframes” ● “Open Source” ● “Server Visualization” ● “Service Oriented Architecture” ● “Speech/Voice Recognition” ● “Supplier Portals” ● “Systems Development Tools” ● “Systems Management Tools” ● “Other” – turned into a suggestion rather than a selection
Changed	
<ul style="list-style-type: none"> ● “Application/Software Development” was changed to “Apps.” ● “Disaster Recovery” was changed to “Disaster/Recovery.” ● “IT Service Management/ITIL” was changed to “ITIL/IT Process Management Practice.” ● “Security/Cybersecurity” was changed to “Security.” ● “Social Networking/Media” was changed to “Social Networking/Media/Computing.” ● “Tablets/Smart Phones/Mobile Devices” was combined from “Tablets” and “Smart Phones.” 	

Table A4: Additions and Changes to the List of Performance Measures

Added	
<ul style="list-style-type: none"> ● “Availability (Up time)” ● “Business cost reduction/control” ● “Employee attrition/retention/turnover” ● “Help-desk performance” ● “IT cost control” ● “IT cost/headcount reduction” ● “IT spending as a % of revenue” ● “IT spending per employee” ● “IT’s contribution to strategy” 	<ul style="list-style-type: none"> ● “NONE - no measures” ● “Profit/growth/profit/PE/PEG/EPS” ● “Quality/defect rates in software” ● “Stock price” ● “Time to market” ● “Total cost of ownership” ● “Value of IT to the business” ● “Workforce reduction”
Changed	
<ul style="list-style-type: none"> ● “User satisfaction” was changed to “Increased customer/client satisfaction.” ● “Lower error rates by users/customers” was changed to “Lower error rates.” ● “Other” as a selection was replaced with a suggestion box for changes. ● “SLA target compliance” was changed to “SLA target.” 	

Table A5: Changes to the Lists of What CIOs Do and With Whom They Do It

People	2013 Equivalent	Activity	2013 Equivalent
C-Level (non-IT)	Interacting with non-IT C-level	Business priorities, strategy, architecture	Business priorities/strategy
Business (non-IT, non-C-level)	Interacting with non-IT non-C-level	Business research	--
		Evangelist for the business	--
IT Employees	Interacting with internal IT employees	IT evangelist	--
		IT governance	IT governance
IT Contractors, vendors, and service suppliers (not employees)	Interacting with IT vendors	IT HR and talent management	IT human resources
		IT operations/facilities management	IT operations
External customers and/or suppliers	--	IT priorities/strategy	IT priorities/strategy
IT personnel of external customers and/or suppliers	--	Knowing the needs of customers of the business	--
		Knowing the needs of IT customers	--
IT colleagues outside the organization	--	Managing my personal network	--
Working alone	--	Managing organizational change	--
Other	Other		

To improve the quality of the data collection by reducing the possibility of list order bias, the lists of issues, investments, and performance measures were provided to half of SIM’s membership in alphabetical and to the other half in reverse alphabetical order. Although it is beyond the scope of this report to include a detailed discussion of sampling procedures, it is clear that the responses provided by the two subsamples are somewhat different, with a tendency for more selections to come from the beginning of the list regardless of the order in which the items were presented. Therefore, by combining the two subsamples in the final result, we believe that this bias has been largely mitigated, and this year’s findings on these questions (i.e., management issues, technology

investments and concerns, and performance measures) are more accurate than ever before.

Several measures were taken to increase the response rate. For the second year, gift cards were used as an incentive for participation in the Study. There were 15 \$250 gift cards with the winners randomly drawn from those completing the main section of the questionnaire, with 10 more awarded to those who completed each of the two optional bonus sections, for a total of 35 gift cards. This division between “main” and “optional” sections kept the time needed to complete the primary questionnaire to about 15 minutes, with the whole questionnaire taking 25 to 30 minutes to complete. In addition, a “Chapter Challenge” was introduced this year, which encouraged competition among the chapters of SIM, with the three chapters with

the highest percentage of members completing the main questionnaire winning \$1000, \$500 or \$250 for their STEM and/or scholarship activities. Additional resources will be directed to this chapter competition in future years, since although the overall response rate was about 21%, the winning chapter, Arizona, had a 44% response rate, and the two runners up (Dallas and Houston) each had more than a 30% response rate. These prizes were provided thanks to the generous support of the survey sponsors: IDC, Infogix, Manager Mechanics, NoMagic, Paladin Consulting, and Pariveda Solutions. Also new this year, each participant received a personalized report benchmarking their answers against the aggregate results.

The questionnaire was finalized on April 6, 2014. A total of 4,882 SIM members were invited to participate via an email containing a unique personal link to the online questionnaire. 270 of these emails proved to be bad addresses and immediately bounced back, resulting in a research population of 4,612 potential participants. Overall, 1,002 participants completed the main questionnaire, for a response rate of 21.4%; 795 completed the first optional "bonus" section, and 696 completed the second bonus section.

To encourage participation, SIM members were reminded regularly about the importance of the study through SIM's weekly and monthly emailed newsletters, which also mentioned the gift cards and other incentives, and provided status updates on the chapter competition. SIM's LinkedIn and Twitter presence was also used for this purpose. Furthermore, 10 reminder emails were sent over a nine-week period to those who had not at least started the questionnaire. Data collection ended on June 8, 2014.

Upon conclusion of data collection, the authors conducted the analysis and prepared the comprehensive report for SIM members and the personalized benchmark report for each participant. Ken (Kittipong) Boonme joined the research team in the fall and assisted with data validation and development of the slide deck and personal report. The findings of each year's SIM IT Trends Study are presented during SIM's annual SIMposium conference, which, this year, was in Denver, Colorado, on November 2-4, 2014. That presentation slide deck is provided, free of charge, to the general public following the conference. It is available at <http://www.simnet.org/?ITTrendsStudy>.