

Today's Higher Education IT Workforce

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Overview

The professionals making up the current higher education IT workforce have been asked to adjust to a culture of increased IT consumerization, more sourcing options, broader interest in IT's transformative potential, and decreased resources. The skills they are asked to bring to the table are not as technical as they have been historically. Many are asked to adopt new roles or to be IT generalists, adapting not only to new technology but also to new methods of doing business within the institution. IT professionals' soft skills are more important than ever before; initiating and maintaining relationships with colleagues, faculty, staff, students, and administrators calls for communication and networking skills. Managing multiple, diverse, and complex projects requires strategic thinking and planning.

This study of today's higher education IT workforce—with more than 2,000 respondents—describes the demographic makeup of IT professionals, the factors that affect their salary, the roles IT staff are taking and the skills they need in those roles, the reorganization IT departments are undergoing, and the important factors underlying the retention of IT staff.

Key Findings

- **Soft skills are rated by chief information officers (CIOs), managers, and staff alike as being the most important skills for success.** Technical proficiency is more important for staff than for managers and CIOs, but still not as important as the ability to communicate effectively.
- **Non-CIO IT professionals at doctoral institutions make \$11,000 to \$26,000 more than their counterparts at other institutions.** CIOs at doctoral institutions make \$45,000 to \$60,000 more than their counterparts at other institutions.
- **The perception of the economic climate in higher education institutions is slowly improving.** However, most respondents still do not believe their particular institution's economic climate will improve in the near future.
- **Overall staffing levels are holding steady or increasing slightly.** However, nearly one-fifth (18%) of IT professionals are at high risk for leaving their current positions.
- **Benefits and quality of life are the top factors keeping IT professionals at their institutions.** These factors were rated more highly than compensation.
- **Monetary compensation is not a top factor in the retention of IT professionals.** However, the feeling that one is not being compensated fairly is a strong predictor of risk for leaving one's institution.
- **Nonmanagerial staff are not engaging in (nor are they being encouraged to engage in) the activities they deem most important for their professional growth and development.** Only about half are attending higher education IT conferences or taking the technical training classes they believe they need.
- **Attending conferences focused on higher education IT was rated one of the most important factors contributing to professional growth and development for all IT professionals.** Reading about current IT and higher education events was another important factor.
- **CIOs who are a member of their president's cabinet spend more time participating in and shaping the strategic initiatives of their institution.** About half of CIOs are cabinet members.
- **Support from Human Resources (HR) is viewed as crucial in hiring and retaining IT staff.** However, fewer than half of CIOs and managers agree that HR is supportive in hiring and retention efforts.

Introduction

The higher education IT workforce has historically been characterized by people who remained a long time at their institution, who were committed to the mission of higher education, and who worked individually in different domain areas. There has traditionally been a unique value proposition of working in higher education: better benefits than in industry, a sense of fulfillment in contributing toward an educational mission, and—often—the opportunity to experiment with technology.

However, several recent disruptions in higher education and technology have impacted today's higher education IT workforce:

- Technology is no longer an institutionally controlled domain. The consumerization of technology and the bring-your-own-everything (BYOE) era reflect a culture that demands anytime, anywhere access to technology throughout all regions of the campus and beyond. This means that—more than ever before—IT professionals are interacting with administrators, faculty, and students to provide service as well as round-the-clock support.¹
- Cloud computing, service management, business process reengineering, shared services, continuous improvement methodologies, and other new management practices have helped reshape IT's role as a service provider into that of a consultant, strategist, and process architect. The decline of IT's role in controlling hard resources has opened opportunities for IT professionals to use their softer skills in managing cloud usage, assessing interdepartmental efficiency, informing IT architecture and strategy, and playing more of a role generally in governance, risk, compliance, and identity management issues.²
- The proliferation of online courses and programs has necessitated the dedication of more IT resources to the delivery of e-learning services—sometimes straining these resources—and requiring additional capacity for IT departments and new roles for many IT personnel, such as those of course designers, professional development staff, and data analysts.³
- Budget cuts due to the economic downturn of the past several years led many higher education IT departments to reduce professional development opportunities, implement hiring freezes, and eliminate open positions.⁴ This, plus the proliferation of new technology and responsibilities, has led generally to a culture of “doing more with less,” thereby eroding part of the unique value of working in higher education.

The EDUCAUSE Center for Analysis and Research (ECAR) last conducted a study of the higher education IT workforce in 2010.⁵ The resulting report focused on CIOs.⁶ In fact, most studies of the higher education IT workforce focus on CIOs.⁷ For 2013, ECAR decided to focus on the entire higher education IT workforce: CIOs, non-CIO managers (hereafter referred to as “managers”), and nonmanagerial staff (hereafter referred to as “staff”), resulting in the largest study of the higher education IT workforce in recent years. This investigation focused on the following questions:

- How diverse is the higher education IT workforce? How young or old are IT professionals? How much education do they have? Are there recent changes in demographics in terms of gender and ethnicity?
- What skills are most important in the IT workforce? Are there new titles and roles for IT professionals?
- What has been the impact of the recession and budget cuts on outsourcing, retention, and staffing levels?
- Are CIOs and managers encouraging their direct reports to engage in the activities that are integral for their job and career success?
- What role does human resources (HR) play in supporting IT’s staffing efforts?

To answer these questions, ECAR conducted a survey of more than 2,000 IT professionals: CIOs, managers, and staff (Figure 1). Focus groups were also conducted with samples of survey respondents to glean more qualitative data to provide context for some of these questions.

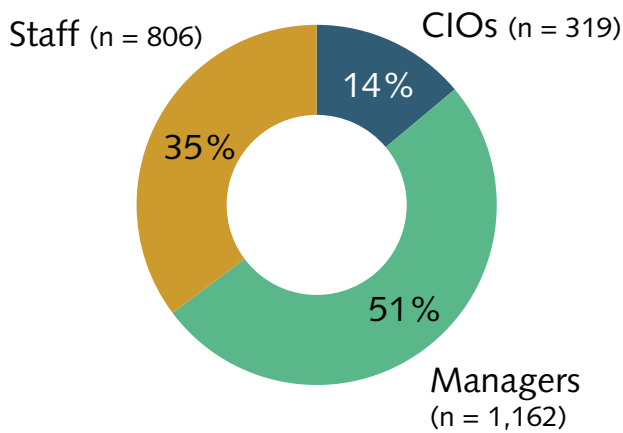


Figure 1. Percentage Breakdown of Respondents to the Workforce Survey

The Makeup of Today's IT Workforce: Gender, Age, and Ethnicity

Among CIOs, nearly one-quarter of the respondents were female (Figure 2). This proportion of males and females in the CIO population corresponds with other higher education survey information obtained in recent years and has not changed much in decades.⁸ However, the percentage of females in higher education CIO positions far outpaces that in industry, where females make up only 8% of the CIO population.⁹ The proportion of females in the IT workforce decreases as managerial status increases. In other words, there is a higher proportion of females in nonmanagerial than in managerial jobs. Only one-third of higher education IT managers are female, which is somewhat less than the 39% of female managers in the U.S. workforce in general.¹⁰

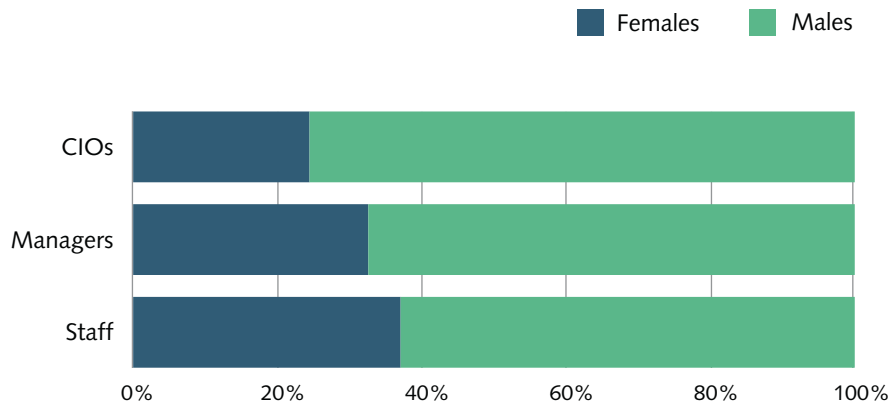


Figure 2. Percentage of Males and Females in Each Higher Education IT Job Category

Since 2010, there has been no significant change in the percentage of females in CIO positions. However, the percentage of female managers has decreased from 38% in 2010 to 33% in 2013. For staff, the percentage of females has decreased from 43% to 37%. Therefore, overall, there is a significantly lower proportion of females in the higher education IT workforce today than there was in 2010.

The distribution of CIOs by age is similar to that in 2010. Managers and staff, though, are older than they were in 2010. The median age for managers has increased by three years (from 47 in 2010), and the median age of staff has increased by five years (from 43 in 2010). The number of individuals aged 45 and over has increased since 2010 for both managers and staff. Table 1 shows the median age by job category, and Figure 3 shows the age distribution by job category.

Table 1. Age Ranges of IT Professionals

Job Category	Median Age	Minimum	Maximum
CIOs	52	31	73
Managers	50	22	72
Staff	48	19	70

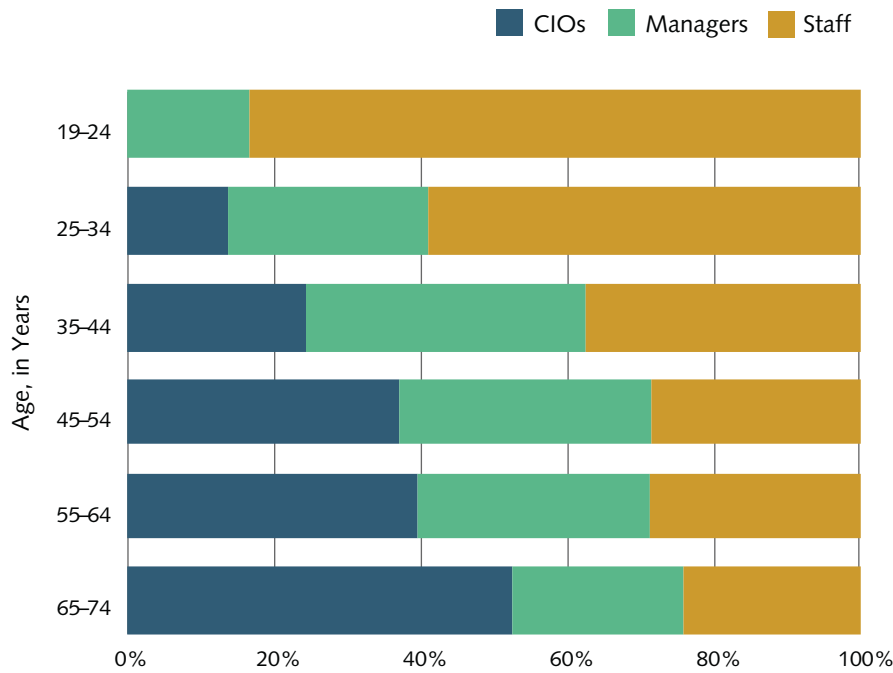


Figure 3. Age Distribution in Each Job Category

This survey reveals that there has been some diversification of the IT workforce since 2010, especially among CIOs: The percentage of CIOs who are minority (non-white) has risen to 13% (from 4% in 2010).¹¹ There has also been a 5 percentage-point increase in minority managers (from 8% to 13%); however, this percentage is much less than the 21% representation of minority managers in the general U.S. workforce. In addition, there was a slight increase in minority staff (from 10% in 2010 to 12% in 2013). However, it remains the case that the majority of the IT workforce—nearly 90%—is white. This percentage is far greater than in the U.S. labor force in general, where only 68% of the workforce is white.¹² Figure 4 shows the breakdown by ethnicity for each job category.

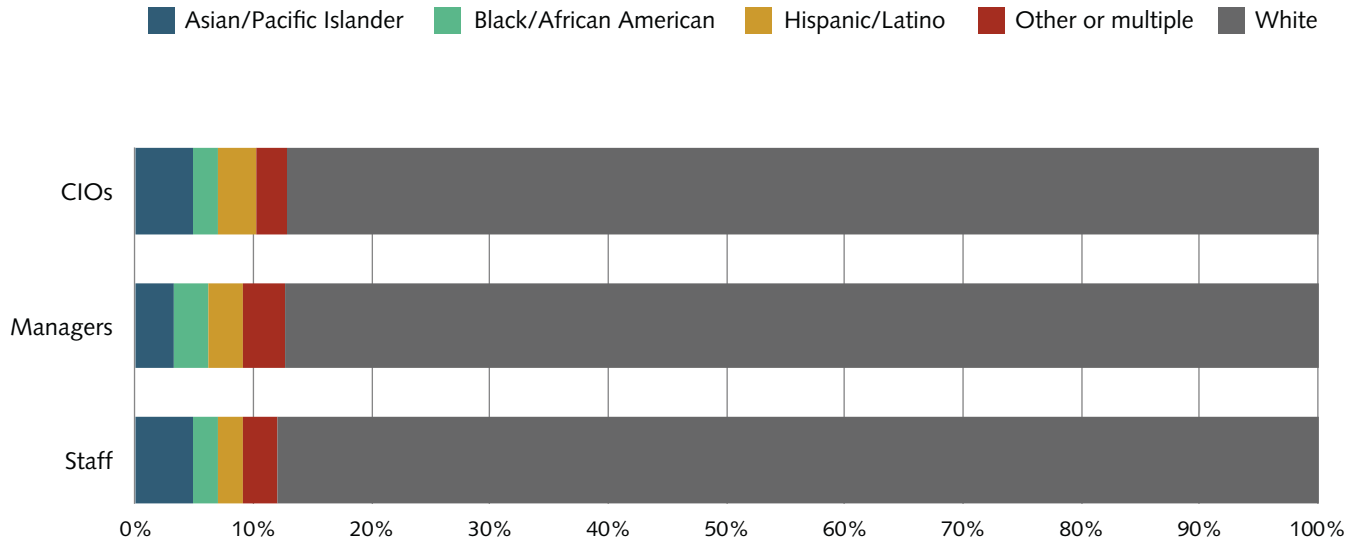


Figure 4. Breakdown by Ethnicity in Each Job Category

The IT Professional Pipeline

The career trajectory for an aspiring CIO typically involves rising from another IT management position. CIOs are likely to have more than a decade of prior higher education IT experience and at least a master's degree.

Nearly 80% of CIOs came from a management position, either as another institution's CIO or as an IT manager (Figure 5). This means that 20% of CIO respondents did not come directly from a management position. Nearly three-fourths of CIO respondents (71%) had not been CIOs in their prior position.

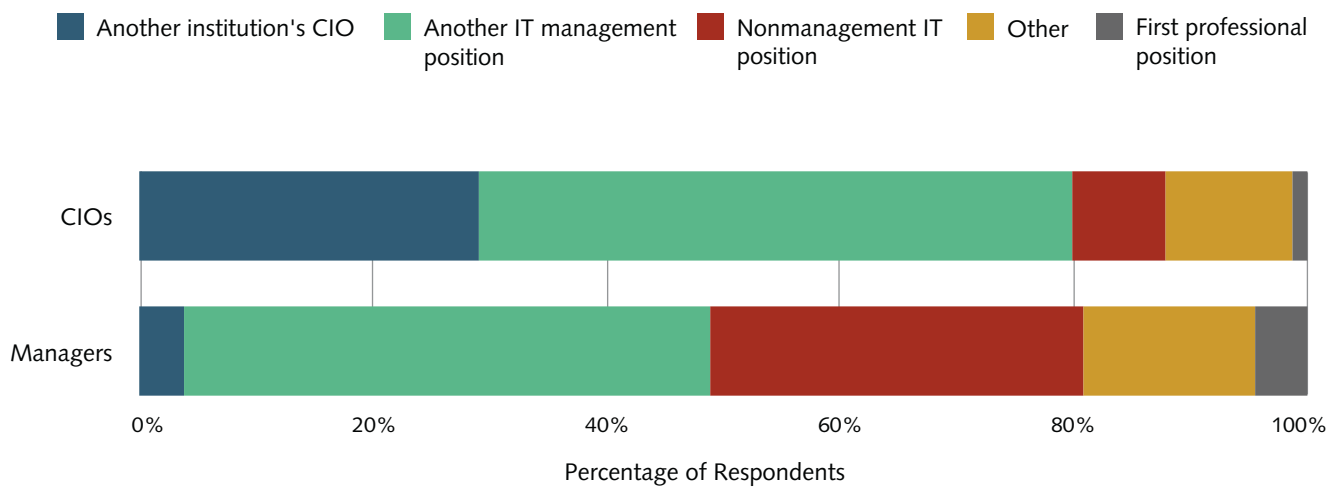


Figure 5. Previous Positions of CIOs and Managers

Nearly 15% of managers and 11% of CIOs responded “other” when asked about their previous position. Most of these “other” responses were faculty, library, instructional design, or research positions. The majority of respondents (89% of CIOs, 87% of managers, and 85% of staff) held a position in IT immediately prior to their current one. Figure 6 displays the median number of years worked in the current institution and in the area of higher education IT.

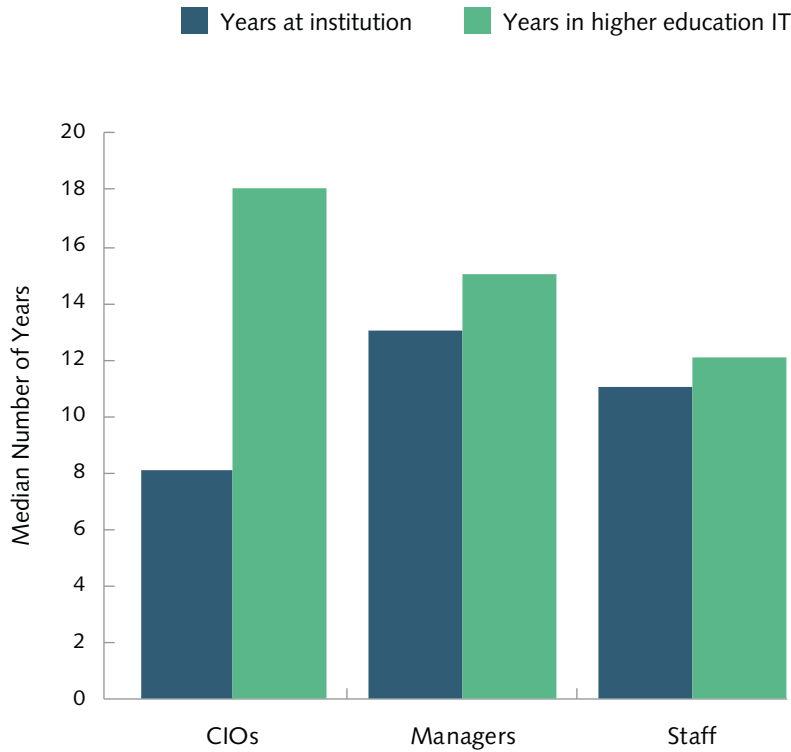


Figure 6. Median Number of Years at the Current Institution and in Higher Education IT

The data also suggest that mobility is common for CIOs; among the three job categories, they have the least tenure at their current institution while having the greatest number of years in higher education IT. The length of time at their current institution for managers and staff is lowest at associate's institutions (median = eight years for both). CIOs' tenure at associate's institutions, however, is somewhat longer than at other institutions (median = 12 years). In addition, CIOs at doctoral institutions (as compared to those at nondoctoral institutions) have the greatest number of years in higher education IT (median = 23 years).

Figure 7 shows the distribution of education level for each job category. Bachelor's and master's degrees are the standard for both managers and staff, although a higher percentage of managers have master's degrees and a higher percentage of staff have bachelor's degrees. The standard for CIOs is to have a master's degree, and nearly one-fifth of CIOs have a doctoral degree. Those with a doctoral degree are, on average, five years older than those without.

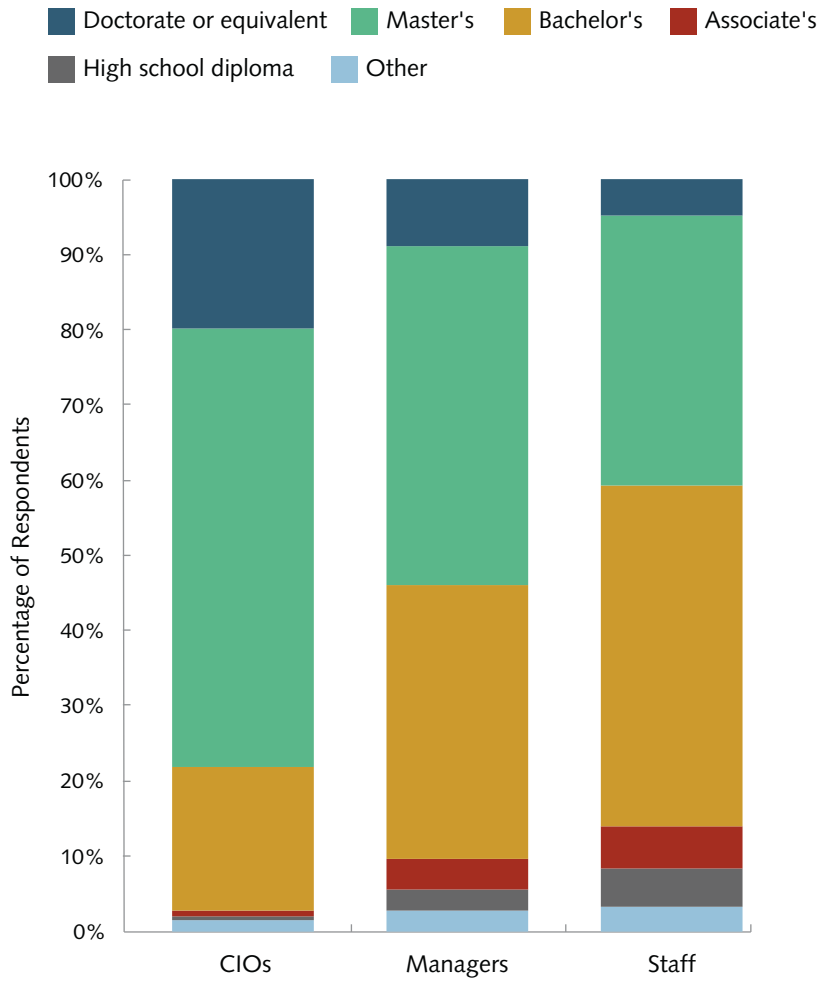


Figure 7. Education Levels of CIOs, Managers, and Staff

Salaries

Median salaries for each of the three job categories are shown in Figure 8.

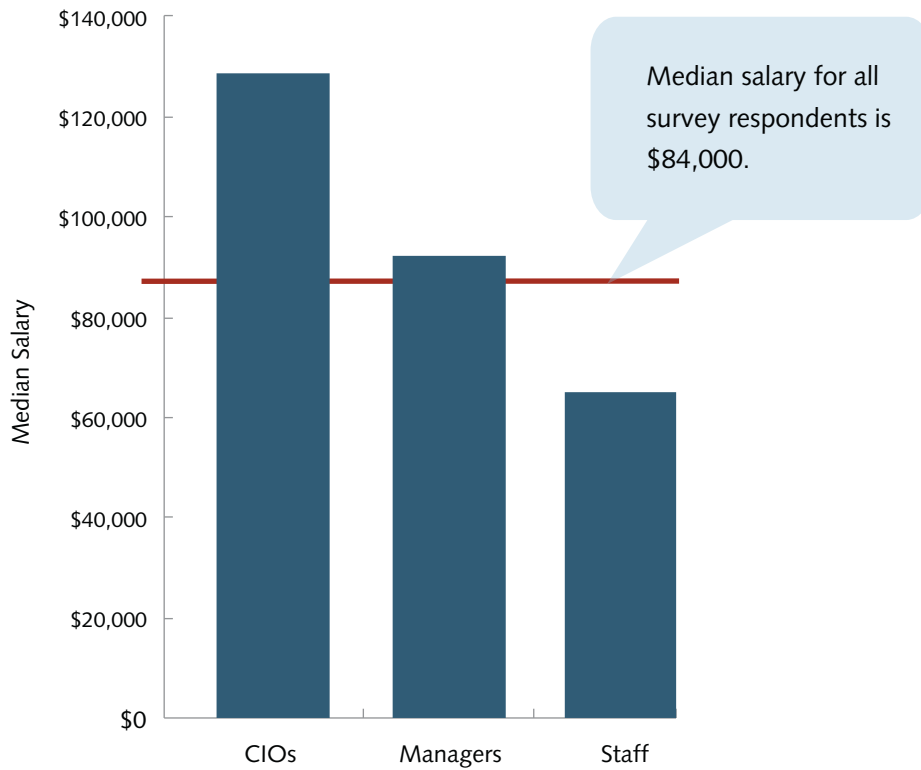


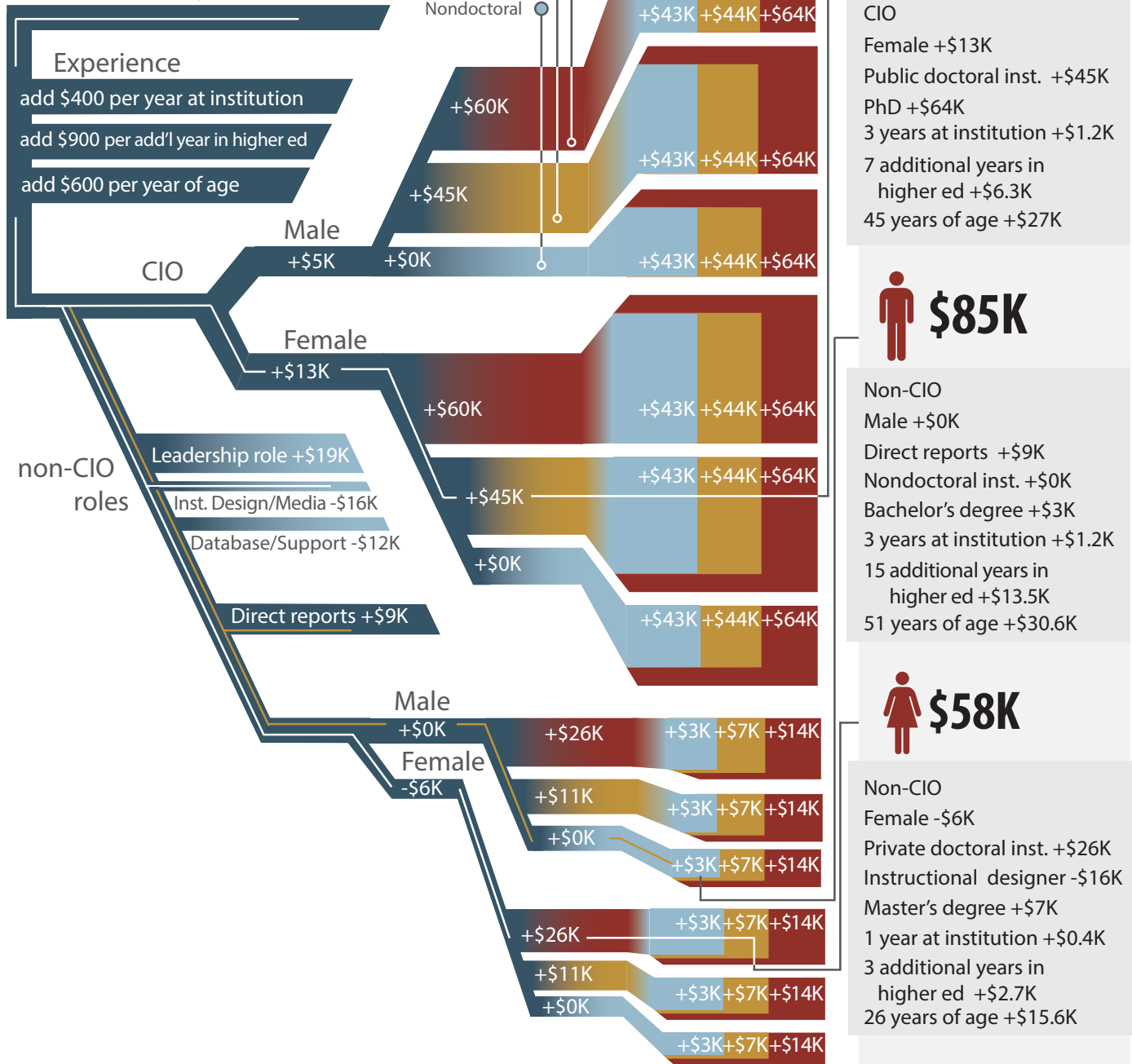
Figure 8. Median Salaries

IT salaries are related to a number of factors. Figure 9 depicts a salary model containing the factors that significantly affect IT professionals' salaries. Starting with an initial salary of \$28,000, one can see how salaries are affected by age, years at current institution, additional years in higher education outside the current institution, job family (leadership; database, client support, network support; instructional design/media), managerial status, type of current institution, type of degree, and gender. Ethnicity is not a significant factor after accounting for other factors.

The greatest factor affecting salary is institution type. IT professionals make more at doctoral institutions—and even more at private doctorals.¹³ Salaries also increase with higher levels of education, particularly with a doctoral degree. Non-CIO professionals make more in positions of leadership or when they have direct reports. Although females make less than males in non-CIO positions, they make more than males as CIOs.

In this diagram, follow the path from the initial salary to find the value of various factors in average pay across the industry. Lines lead to example salaries that follow the sum of these components.

Initial salary \$28K



Note: Degree factors are not cumulative. They refer to highest degree earned.

Figure 9. Factors Affecting Higher Education IT Salaries

One comment frequently made by focus group members is that retention of IT staff is difficult because they can make more in industry, but our survey results show that higher education IT professionals earn about the same as, if not a bit more than, IT professionals in other industries. The median salary for all survey respondents is \$84,000. For non-CIOs, it is \$80,000. IT professionals who are seeking higher salaries outside higher education may not fare well currently. According to the “2013 IT Skills & Salary Report,” the median salary of industry IT professionals, \$77,500 (which includes all managerial and nonmanagerial job roles), is lower than last year, and economic recovery in industry is expected to remain slow.¹⁴

The Economic Climate and the State of Hiring in Higher Education IT

We asked respondents a number of questions related to perceptions of the economic climate, the forces shaping staffing, and the direction in which today's IT workforce is headed. Although there are some indications of progress against the difficult challenges of the recent recession, many of our respondents continue to describe an atmosphere of economic constraint.

Perceptions of the Institution's Economic Climate

Participants were asked two questions about their institution's current economic climate: whether their institution's financial situation had worsened or improved in the past three years, and whether they think their institution's financial situation will worsen or improve in the next three years. The percentages agreeing that the situation has improved or will improve are shown in Figure 10.

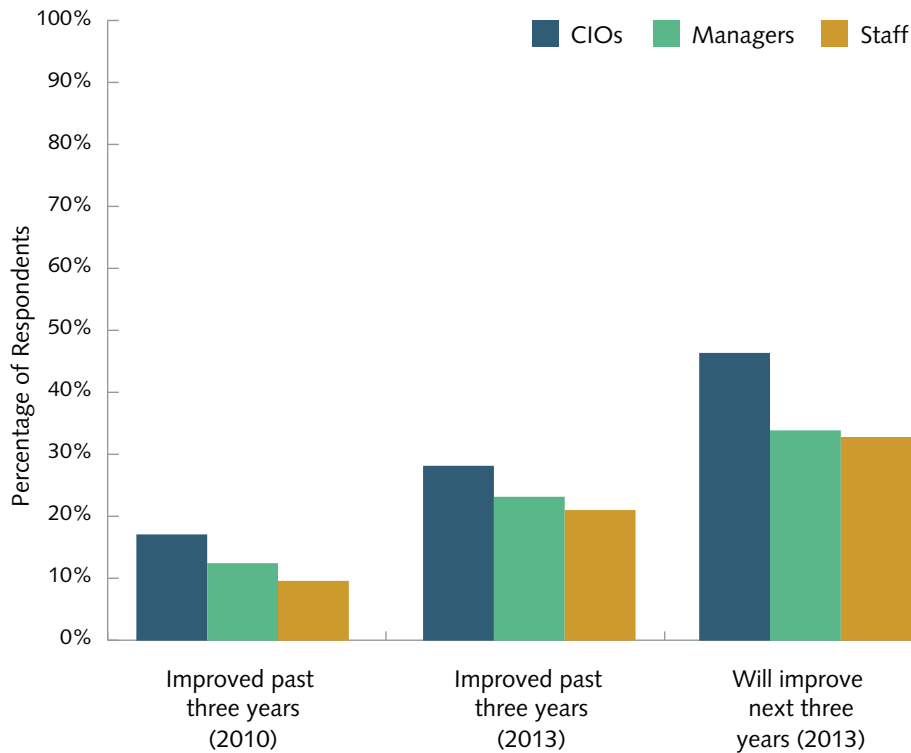


Figure 10. Optimism Regarding the Economic Climate at One's Institution

The percentage of participants in 2013 stating their institution's situation had improved in the past three years is higher than in 2010. In addition, 2013 participants' optimism about the next three years is even higher. CIOs are the most optimistic of

"[The economic downturn resulted in] keeping all of our best people and trimming the fat, but now [the best people] are leaving for other jobs as they are becoming available."

—IT manager

all three groups. However, despite an upward trend of optimism, most individuals are still not of the opinion that their institution's economic climate has improved or will improve. More than half of CIOs—those perhaps in the best position to judge the economic outlook—do not believe their institution's economic situation will improve in the next three years.

Approximately one-third of all respondents said the likelihood they will leave their institution has increased because of the current economic climate (Figure 11). Participants' assessments of their institution's current (past three years) and predicted (next three years) financial situation are only weakly related to their likelihood of pursuing professional opportunities outside their institution. In other words, those who rate their institution's economic situation more positively are only a little less likely to pursue professional opportunities outside their institution. In addition, although there is a somewhat more optimistic outlook for the higher education economy overall than there was in 2010, all three groups are more likely to pursue professional opportunities outside their institution than they were in 2010. These results likely mean that perceptions of the higher education economic climate are not the sole or even the primary factor in staff turnover. This may be good news for CIOs and managers who are concerned that a factor outside their control—their institution's economic situation—is at the heart of current or future staff turnover. Later sections of this report focus on the factors related to retention and risk of having IT professionals leave, many of which *are* within IT management's sphere of influence.

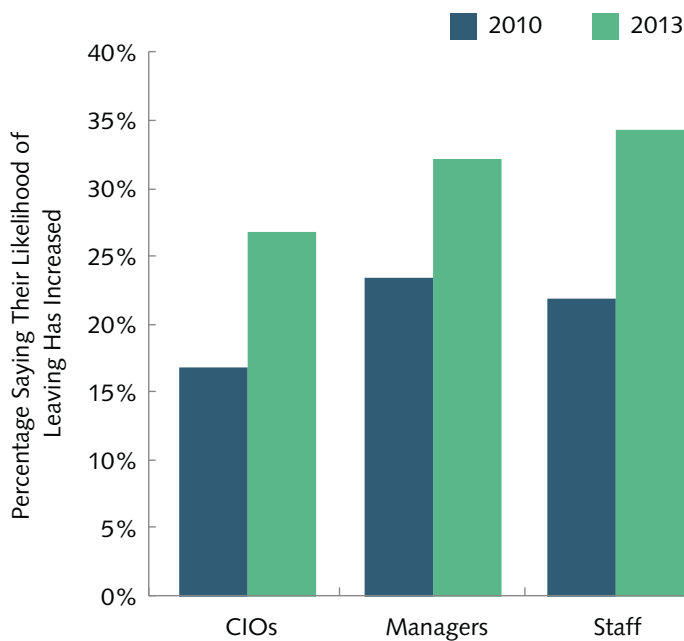


Figure 11. Percentage of Respondents Saying Their Likelihood of Leaving Has Increased because of the Current Economic Climate

The State of Hiring in IT

Managers and CIOs were asked several questions about the state of hiring in IT (Figure 12). More than half agreed that they are unable to create needed IT positions. More than one-fourth agreed that hiring for open IT positions has been suspended. Respondents were split as to whether either outsourcing or cloud resources will reduce the number of IT positions in the next three years. A third of CIOs and managers predicted they will lose positions due to outsourcing and cloud resources, indicating that many managers and CIOs do not see a rosy outlook for hiring in the near future.

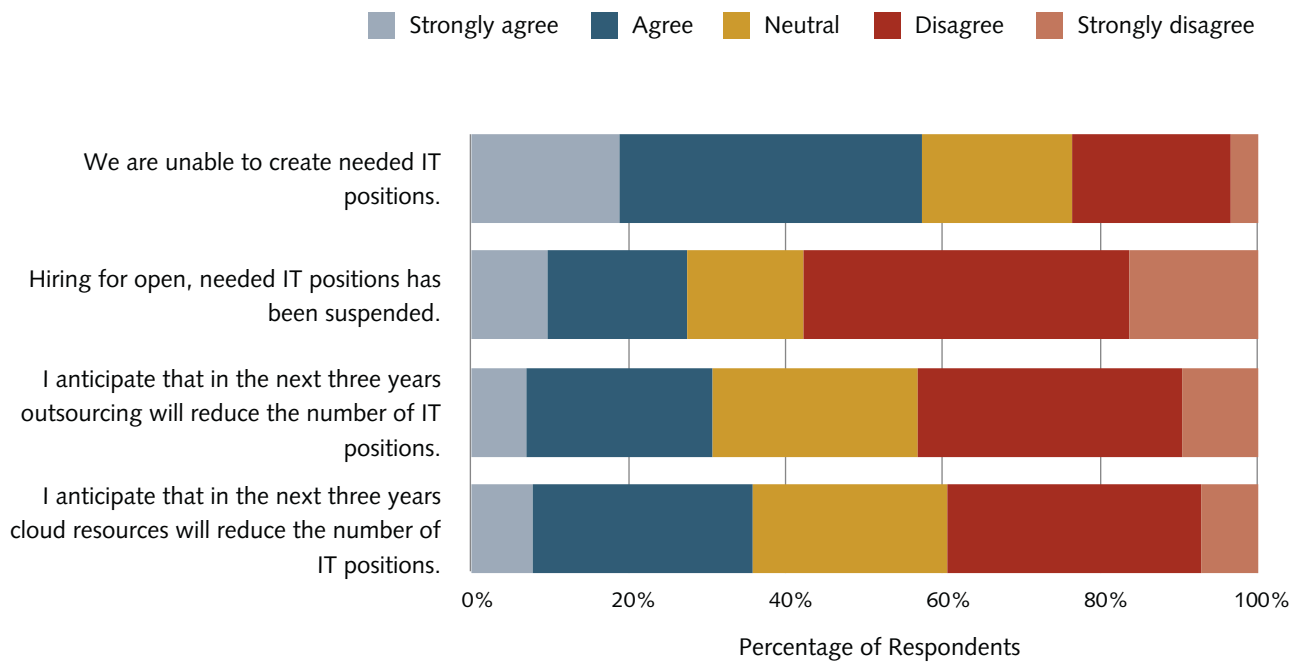


Figure 12. The State of Hiring in IT

CIOs and managers were asked which positions were in short supply at their institution. The most frequently cited position needing to be filled is that of analyst (Figure 13). In addition, when asked which positions were added last year, analyst is the top position cited. (Although “analyst” may have multiple meanings, clarification of this concept was not possible, given that this was an open-ended question.) These results corroborate the findings in previous ECAR studies showing that more analysts are needed in higher education IT, particularly for analytics and e-learning initiatives.¹⁵

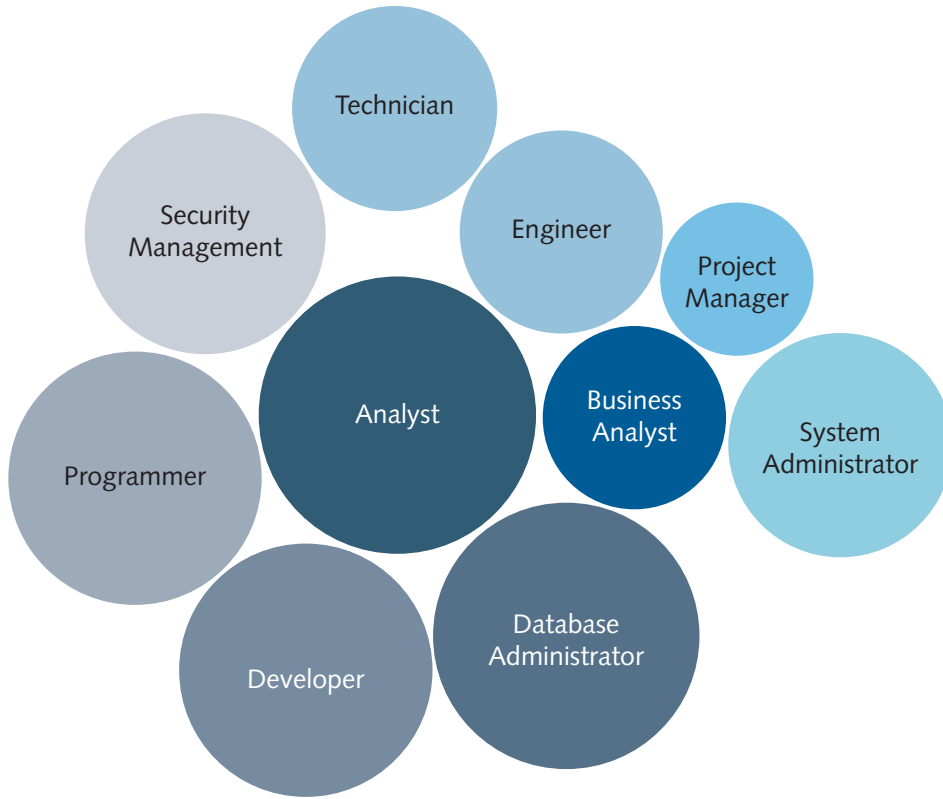


Figure 13. Top-10 Positions/Skills in Short Supply

CIOs were asked how many positions (not including replacement hires) were added to central IT in the past year, as well as the number of positions that were lost due to layoffs or attrition. (Attrition includes those who resign or are discharged and are not replaced.) Figure 14 displays the percentage of gains and losses in IT staff FTE in the past year (as reported by CIOs). From these findings, it appears that overall staffing is holding steady or increasing slightly in comparison with 2010 data.¹⁶

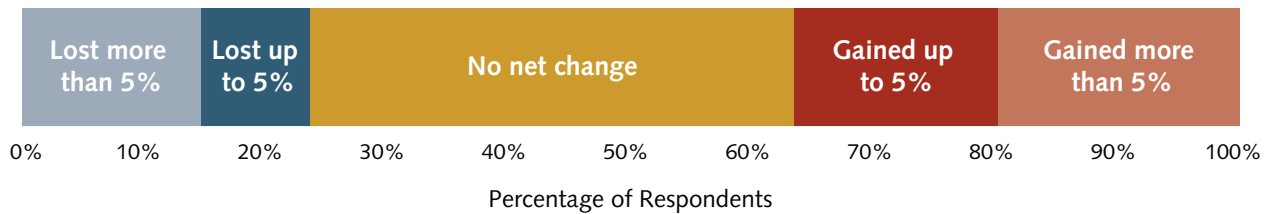


Figure 14. Net Positions Lost and Gained, as a Percentage of Total Central IT Staff

More than one-third (37%) of IT organizations have added staff in the last year, and nearly a quarter (24%) have lost staff. Losses were due slightly more to attrition than to layoffs. Among those CIOs reporting a loss of FTEs in the past year, 55% reported that all losses were due to attrition, and 30% reported that all of their lost FTEs were due to layoffs. CIOs indicated that there has been more voluntary turnover in 2013 than there was in 2010 (84% of CIOs agreed that there was “low voluntary turnover” in 2010, compared to 77% in 2013).

Only 16% of CIOs reported layoffs in the past year. Of those with layoffs, about half (54%) laid off up to 5% of the central IT staff. Another quarter (27%) laid off between 5% and 10%. This left about one in five CIOs with layoffs (19% of those with layoffs, or 3% overall) who laid off more than 10% of their staff.

CIOs were also asked whether central IT had reorganized in the past year. Forty percent of the IT units experienced at least minor reorganization in the past year. The extent and type of reorganization that has occurred are summarized in Figure 15. Those IT units that had a loss of staff in the past year were more likely to have experienced some form of reorganization ($p = .01$). This high incidence of reorganization suggests that IT units may be reshaping to fit a new reality of perpetual decreased budgets rather than waiting out a bad economy. CIOs were asked to describe the reorganization that has occurred in central IT in the past year; Table 2 summarizes the most common responses. Nearly all the reorganization descriptions mentioned involve changes in staffing: eliminating or creating positions, realigning positions, or changing job descriptions or reporting lines.

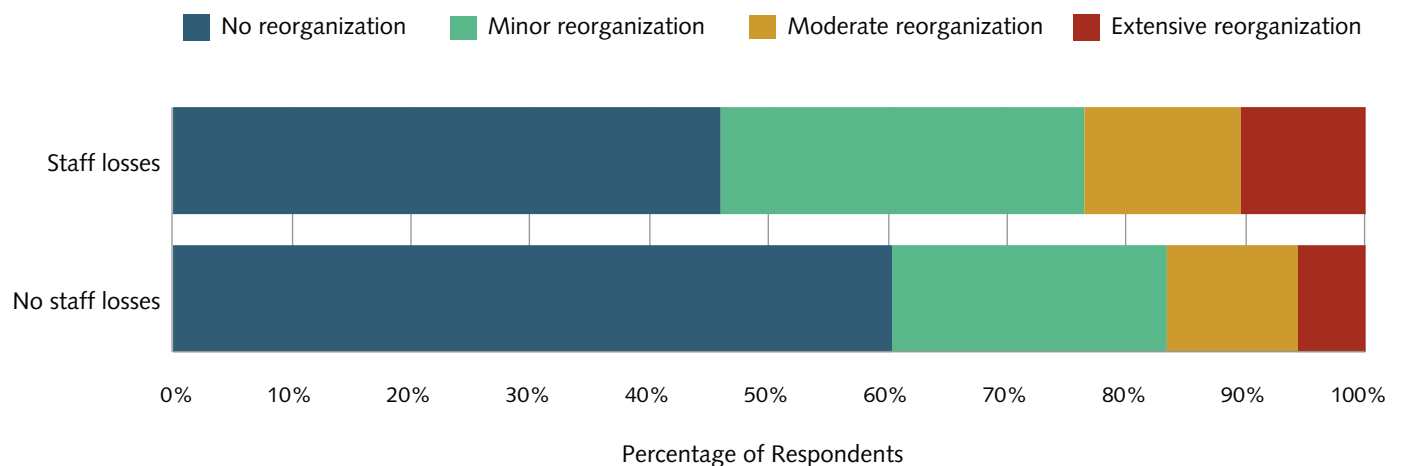


Figure 15. Percentage of Central IT Units Undergoing Various Degrees of Reorganization

Table 2. Most Common Types of Reorganization in IT

Overall Staffing Changes and Daily Operational Management	Redefining IT
Aligned positions more closely with functional roles	Moved departments under IT umbrella
Changed reporting lines to streamline daily operations	Removed departments from under IT umbrella
Eliminated or repurposed positions and merged or split groups to reflect performance expectations and organization goals	Merged previously separate departments (IT and library, IT and instructional development, IT and educational technology)
Eliminated positions to flatten hierarchy or created positions to build hierarchy	Used more outsourcing
Changed job descriptions and duties to better reflect actual work	Restructured by removing certain functions
Created jobs to staff new areas (mostly cloud computing and security)	Added innovations in help desk, client services, and instruction
Reorganized to promote job growth, make better use of existing skills	
Had changes in leadership	
Focused more on efficiency, streamlining, realignment, security, and effectiveness	

The Skills Needed in Today's Higher Education IT Workforce

The new hires of today's IT workforce are not mere replacements. More than one-third (34%) of staff respondents were hired not to replace someone but rather in a newly created role (Figure 16). The same is true for more than one-third (36%) of managers. This may be evidence that the IT profession in higher education has diversified in terms of the skill sets needed. In addition, nearly one-quarter (23%) of CIOs were hired into a newly created role. This result may reflect the elevation of the CIO role in the past decade, as "newly created" CIOs have been in their positions an average of eight years. CIOs hired into a newly created role are more likely to be in an associate's, a bachelor's, or a master's institution and less likely to be in a doctoral institution.

Rating Skills by Importance

Participants were asked to rate a number of items in terms of their importance for success in their current IT position (Table 3). The ability to communicate effectively was rated as the top skill for success among CIOs, managers, and staff alike. Technical proficiency is more important for staff than managers and CIOs, but the ability to communicate effectively is essential for success across the higher education IT workforce. This result reflects findings in the general (non-higher education) IT industry: The soft skills of communication and managing relationships are rated as more important than technical skills among all IT professionals, including those in entry-level positions.¹⁷ This finding also mirrors what employers in general most want in new hires: good communication skills.¹⁸ It is important to note, however, that this finding does not negate the importance of technical proficiency for staff. It is likely that, although technical skills are necessary, communication and other soft skills differentiate and provide professionals with a competitive advantage (given equivalent levels of technical skills). Any skills listed in Table 3 with a mean rating above 4 were, on average, rated as important on the scale provided. In addition, as is noted later in the report, formal technical training is rated by staff as the most important activity contributing to professional growth and development (see Table 5).

"By project management I mean the ability to manage multiple people who don't report to you and coordinate their efforts and get what you need from them to have a successful project, whether that's a software implementation or training or even a hardware implementation."

—IT manager

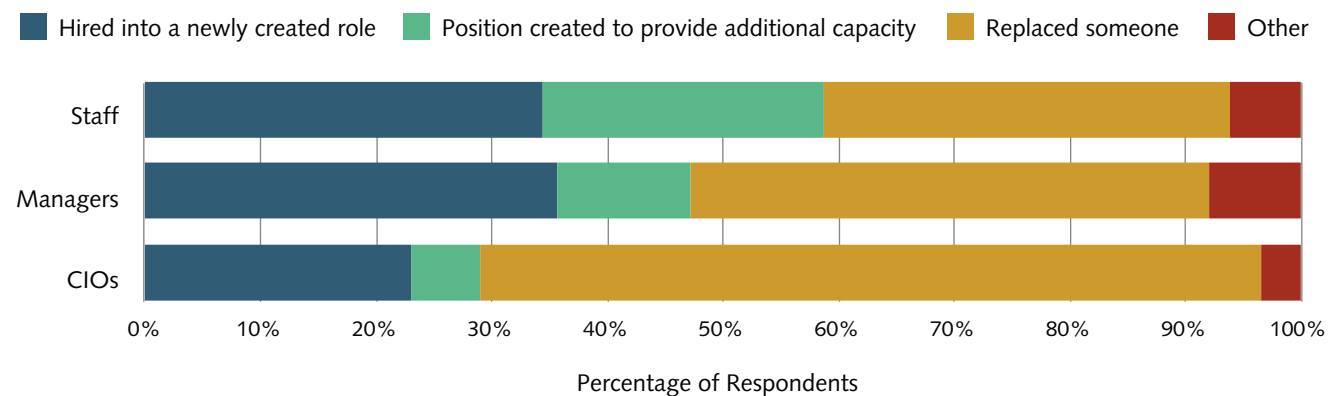


Figure 16. Reasons IT Professionals Were Hired

Table 3. Skills Most Important for Success

Rank	CIOs	Managers	Staff
1	Ability to communicate effectively (4.94)	Ability to communicate effectively (4.88)	Ability to communicate effectively (4.79)
2	Strategic thinking and planning (4.83)	Strategic thinking and planning (4.70)	Strategic thinking and planning (4.48)
3	Ability to influence others (4.79)	(tie) Ability to influence others (4.60)	(tie) Ability to manage complex projects (4.34)
4	Ability to manage other relationships in my institution (4.69)	(tie) Ability to manage my staff (4.60)	(tie) Ability to manage other relationships in my institution (4.34)
5	Ability to manage my staff (4.68)	Ability to manage complex projects (4.51)	Ability to influence others (4.29)
6	Ability to negotiate (4.65)	(tie) Ability to negotiate (4.50)	Ability to use data to make decisions, plan, manage (4.28)
7	Understanding non-IT business processes and operations (4.55)	(tie) Ability to manage other relationships in my institution (4.50)	Technical proficiency (4.26)
8	Ability to use data to make decisions, plan, manage (4.49)	Ability to use data to make decisions, plan, manage (4.45)	Ability to manage processes (4.25)
9	Ability to manage complex budgets (4.48)	Ability to manage processes (4.39)	Ability to negotiate (4.16)
10	Ability to manage complex projects (4.46)	Ability to manage services (4.32)	Understanding non-IT business processes and operations (4.06)
11	Ability to manage processes (4.24)	Understanding non-IT business processes and operations (4.28)	Ability to manage services (4.01)
12	Ability to manage vendors (4.21)	Ability to manage my boss (3.99)	Ability to manage my boss (3.71)
13	Ability to manage services (4.20)	Ability to manage vendors (3.87)	Ability to manage relationships outside my institution (3.53)
14	Ability to manage my boss (4.12)	Technical proficiency (3.83)	Ability to manage my staff (3.45)
15	Ability to manage relationships outside my institution (4.03)	(tie) Ability to manage complex budgets (3.75)	Ability to manage vendors (3.35)
16	Technical proficiency (3.52)	(tie) Ability to manage relationships outside my institution (3.72)	Ability to manage complex budgets (2.78)

Note: Means listed after each item are derived from a 1 (not at all important to my success) to 5 (very important to my success) scale. Different shadings illustrate how the top-five skills for each job category track across categories.

Focus group members elaborated on the burgeoning importance of soft skills for today's IT workforce. The specific skills they said they need or look for are communication, project management, and problem solving. They highlighted the importance of being able to talk to faculty.

Focus group members also commented on the importance of hard skills. Mobile application design, SQL, database administration, software installation, proficiency in security certificates, and running reports remain important skills for IT professionals.

Skill Proficiency

Respondents were asked to assess their proficiency on a scale from 1 (very low) to 5 (very high) on the same items ranked as necessary for success in the previous section. Figure 17 depicts mean proficiency and its relation to the mean importance of each skill. Differences in proficiency ratings between CIOs, managers, and staff were not pronounced.

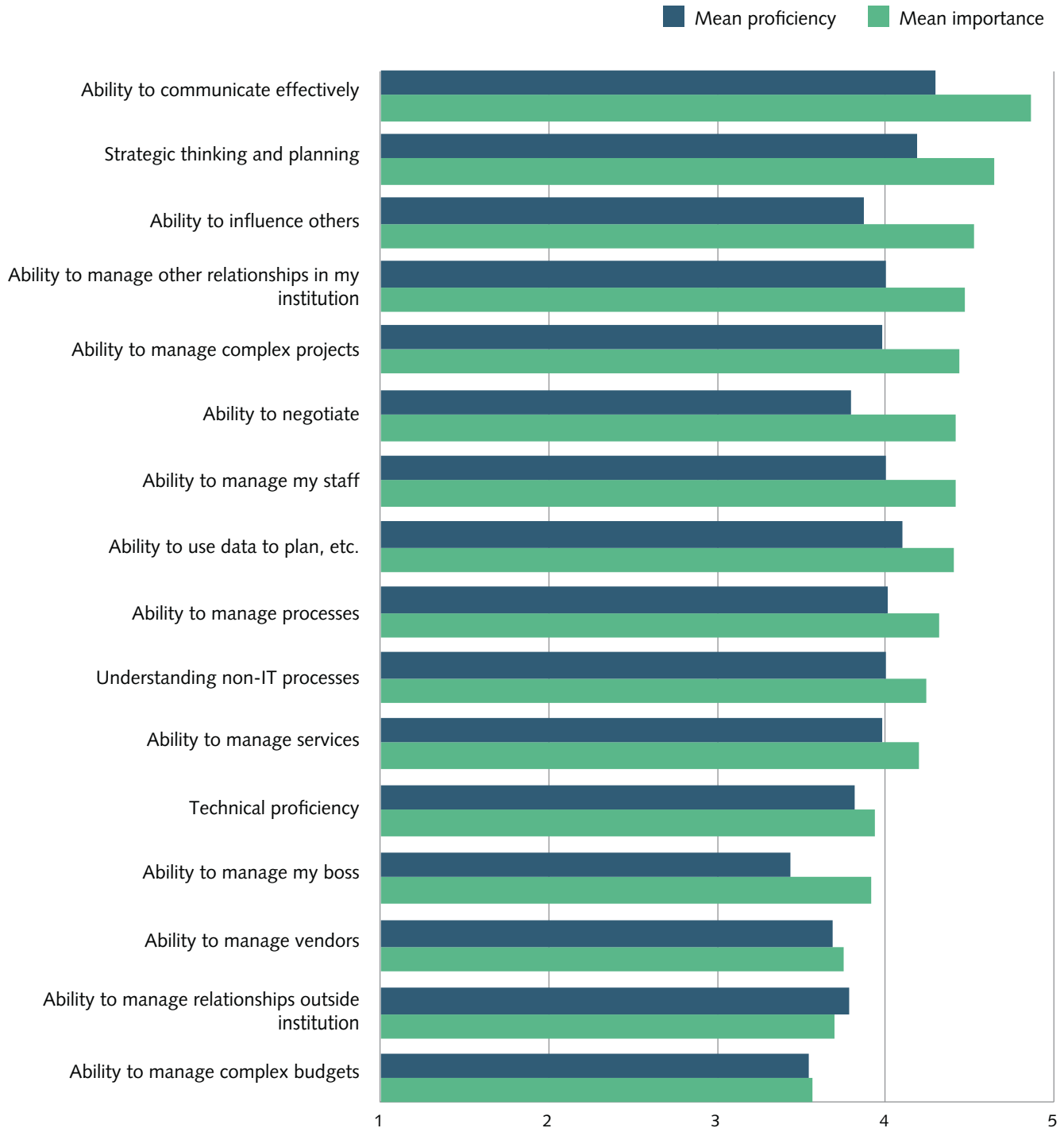


Figure 17. Mean Proficiency and Mean Importance of Various Skills for Success

Soft skills were the skills deemed most important for success, and respondents believe they are delivering on these for the most part, although their rated proficiency does not quite match their rated importance. That leaves room for improvement on these increasingly important skills and creates an opportunity for professional development endeavors to address soft-skill proficiency.

Retention

Two findings in this report have direct implications for the retention of higher education IT staff. First, compared with 2010, staff at all levels reported an increased likelihood of seeking opportunities outside their current institution. Second, CIOs reported higher levels of voluntary turnover now than they did three years ago. Therefore, it becomes important to understand what factors keep employees at their institution.

Important Factors in Maintaining an IT Workforce

CIOs and managers were asked to rate a number of factors according to their importance in maintaining an IT workforce adequate to meet institutional needs in the next five years (Figure 18).

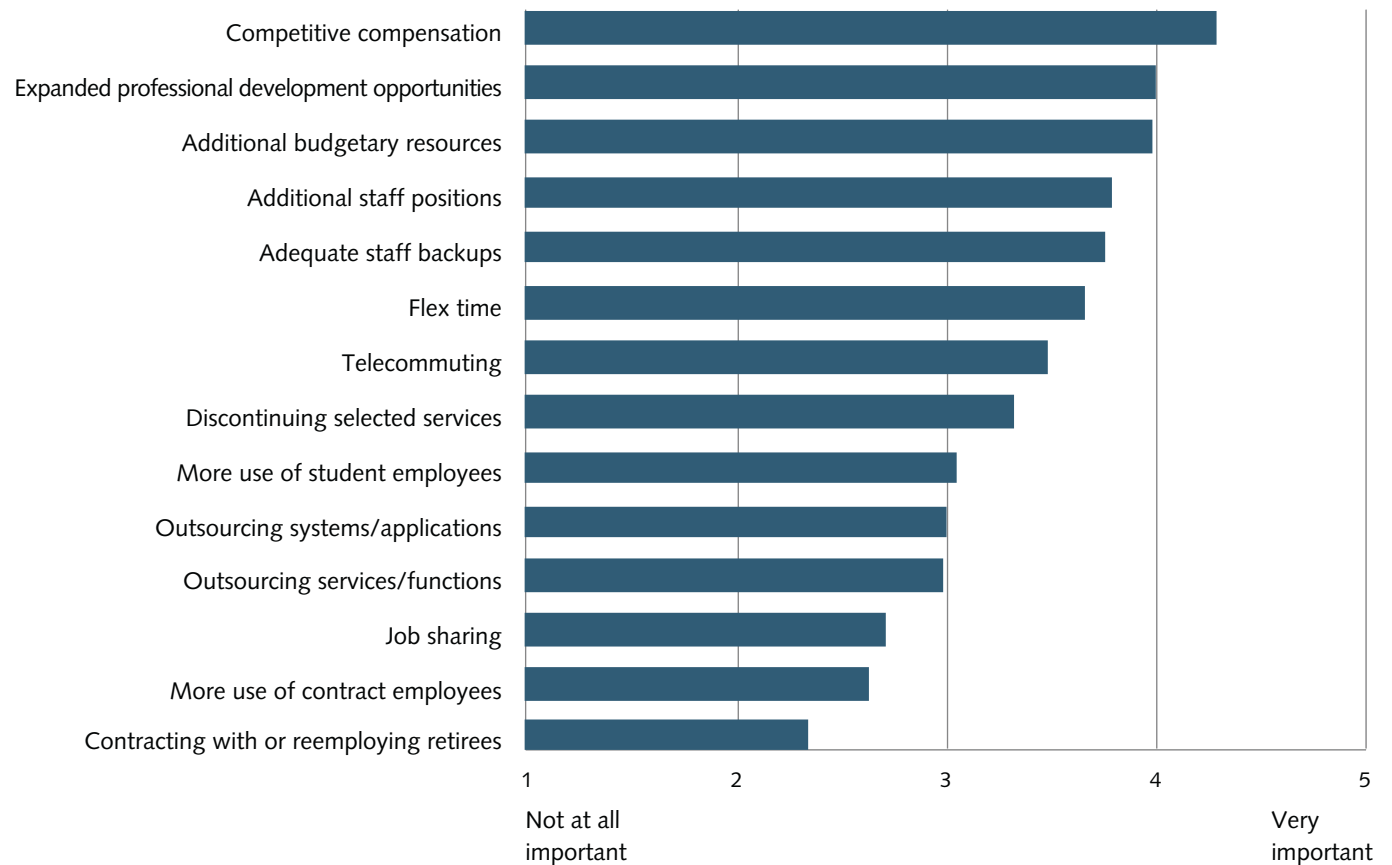


Figure 18. Mean Importance of Workforce Maintenance Factors

Competitive compensation was rated by CIOs and managers as the most important factor in maintaining their IT workforce. Also ranked highly were expanded professional development opportunities and additional budgetary and staff resources. Factors receiving a low rating included the use of contract employees, job sharing, and outsourcing.

These results contrast with the factors that IT professionals rate as being most important in keeping them at their institution (Table 4). Monetary compensation does not crack the top five for any level of IT professional; however, it is interesting to note that being “compensated fairly” was one of the more important factors in predicting “risk for leaving” for managers and staff (discussed later in this report). Rather, quality of life is a primary factor in the retention of all higher education IT professionals. Having quality colleagues is a strong retention factor for all three groups, and having quality staff is ranked highly by CIOs and managers. Benefits are the strongest factor in the retention of non-CIO staff. This highlights the importance of maintaining a quality benefits package in the retention of IT professionals. Unfortunately, evidence shows that benefits in higher education are eroding: Employees are being asked to contribute more of their salary to health care plans and to take on substantially higher deductibles.¹⁹ In addition, retirement benefits and pensions have been reduced for higher education employees, making it especially difficult to attract new talent.²⁰

CIOs and managers rated “expanded professional opportunities” as the second most important factor in maintaining their IT workforce (Figure 18), and this factor was also viewed as important for retention by all three groups (Table 4). The opportunity to build leadership skills was one of the top-three retention factors for CIOs and managers, and the opportunity to build technical skills was the sixth most important factor for staff. Long-term career paths both within and outside IT were low-ranked factors for all three groups, suggesting that few people are counting on building long-term careers at their institution.

Table 4. Importance of Various Factors in Retaining IT Professionals at Their Current Institution

Rank	CIOs	Managers	Staff
1	My staff (4.31)	Benefits (4.23)	Benefits (4.37)
2	Quality of life (4.25)	Quality of life (4.16)	Quality of life (4.14)
3	Opportunity to build my leadership skills (4.22)	Opportunity to build my leadership skills (4.07)	Work hours (4.02)
4	My colleagues (4.14)	My staff (4.05)	My colleagues (3.98)
5	My boss/leadership (4.06)	My colleagues (3.97)	Geographic location (3.95)
6	Reputation of the institution as a good place to work (3.87)	Geographic location (3.93)	Opportunity to build my technical skills (3.89)
7	Opportunity to build my management skills (3.86)	Opportunity to build my management skills (3.92)	Monetary compensation (3.87)
8	Geographic location (3.82)	(tie) Monetary compensation (3.88)	My boss/leadership (3.81)
9	Benefits (3.80)	(tie) My boss/leadership (3.88)	Reputation of the institution as a good place to work (3.64)
10	(tie) Monetary compensation (3.58)	Work hours (3.71)	Opportunity to build my leadership skills (3.61)
11	(tie) Reputation of the institution for academic excellence (3.58)	Reputation of the institution as a good place to work (3.69)	Opportunity to build my management skills (3.43)
12	Reputation of the institution for technological excellence (3.46)	Opportunity to build my technical skills (3.50)	Cost of living (3.42)
13	Long-term career path in IT (3.40)	Reputation of the institution for academic excellence (3.46)	Long-term career path in IT (3.40)
14	Work hours (3.36)	Long-term career path in IT (3.44)	Reputation of the institution for academic excellence (3.33)
15	Cost of living (3.26)	Cost of living (3.36)	My staff (3.26)
16	Opportunity to build my technical skills (3.14)	Reputation of the institution for technological excellence (3.32)	Reputation of the institution for technological excellence (3.16)
17	Long-term career path outside IT (2.69)	Long-term career path outside IT (2.59)	Long-term career path outside IT (2.60)

Note: Means listed after each item are derived from a 1 (not at all important in keeping me here) to 5 (very important in keeping me here) scale. Different shadings illustrate how the top-five retention factors for each job category track across categories.

Activities for Professional Growth and Development

Participants were asked to rate how greatly certain activities contribute to their professional growth and development (Table 5). Attending conferences focused on higher education IT ranked highly for all three groups. Reading about current IT news and developments and reading about current higher education news and developments were also highly ranked. Meeting annual performance goals and engaging in informal peer networking also ranked highly for all three groups.

Table 5. Professional Activities Contributing to Growth and Development

Rank	CIOs	Managers	Staff
1	Attending conferences focused on higher education IT (4.33)	Attending conferences focused on higher education IT (4.19)	Taking formal technical training classes (3.97)
2	Reading about current higher ed news (4.23)	Reading about current IT news (4.09)	Attending conferences focused on higher education IT (3.96)
3	(tie) Engaging in informal peer networking (4.15)	Engaging in informal peer networking (4.02)	Reading about current IT news (3.93)
4	(tie) Meeting my annual performance goals (4.15)	Meeting my annual performance goals (4.06)	Meeting my annual performance goals (3.85)
5	Reading about current IT news (4.13)	Reading about current higher ed news (3.99)	Engaging in informal peer networking (3.80)
6	Engaging in formal peer networking (4.07)	Participating in formal management development programs (3.91)	Reading about current higher ed news (3.73)
7	Delivering presentations (3.84)	Engaging in formal peer networking (3.88)	Engaging in formal peer networking (3.74)
8	Completing "stretch" assignments (3.78)	Completing "stretch" assignments (3.81)	Obtaining advice from a mentor (3.73)
9	Obtaining advice from a mentor (3.69)	Obtaining advice from a mentor (3.76)	Attending general IT conferences (no higher education focus) (3.63)
10	Attending general IT conferences (no higher education focus) (3.67)	Delivering presentations (3.74)	Delivering presentations (3.65)
11	Participating in formal management development programs (3.66)	Attending general IT conferences (no higher education focus) (3.67)	Completing "stretch" assignments (3.69)
12	Teaching IT seminars, classes, or courses (3.30)	Taking formal technical training classes (3.50)	Teaching IT seminars, classes, or courses (3.37)
13	Attending non-IT conferences (3.20)	Teaching IT seminars, classes, or courses (3.31)	Earning certifications (3.38)
14	Creating or contributing to blogs or online discussions (3.01)	Earning certifications (3.18)	Participating in formal management development programs (3.53)
15	Writing articles, books, or book chapters (2.99)	Attending non-IT conferences (3.16)	Attending non-IT conferences (3.01)
16	Taking formal technical training classes (2.94)	Creating or contributing to blogs or online discussions (3.00)	Creating or contributing to blogs or online discussions (3.10)
17	Earning certifications (2.78)	Writing articles, books, or book chapters (2.94)	Writing articles, books, or book chapters (2.97)

Note: Means listed after each item are derived from a 1 (does not at all contribute to my professional growth or development) to 5 (greatly contributes to my professional growth or development) scale. Different shadings illustrate how the top-five professional activities for each job category track across categories.

Respondents were asked if they had participated in a variety of professional activities at least once in the past two years. They were also asked if their supervisor encourages them to participate in these activities (Figure 19).

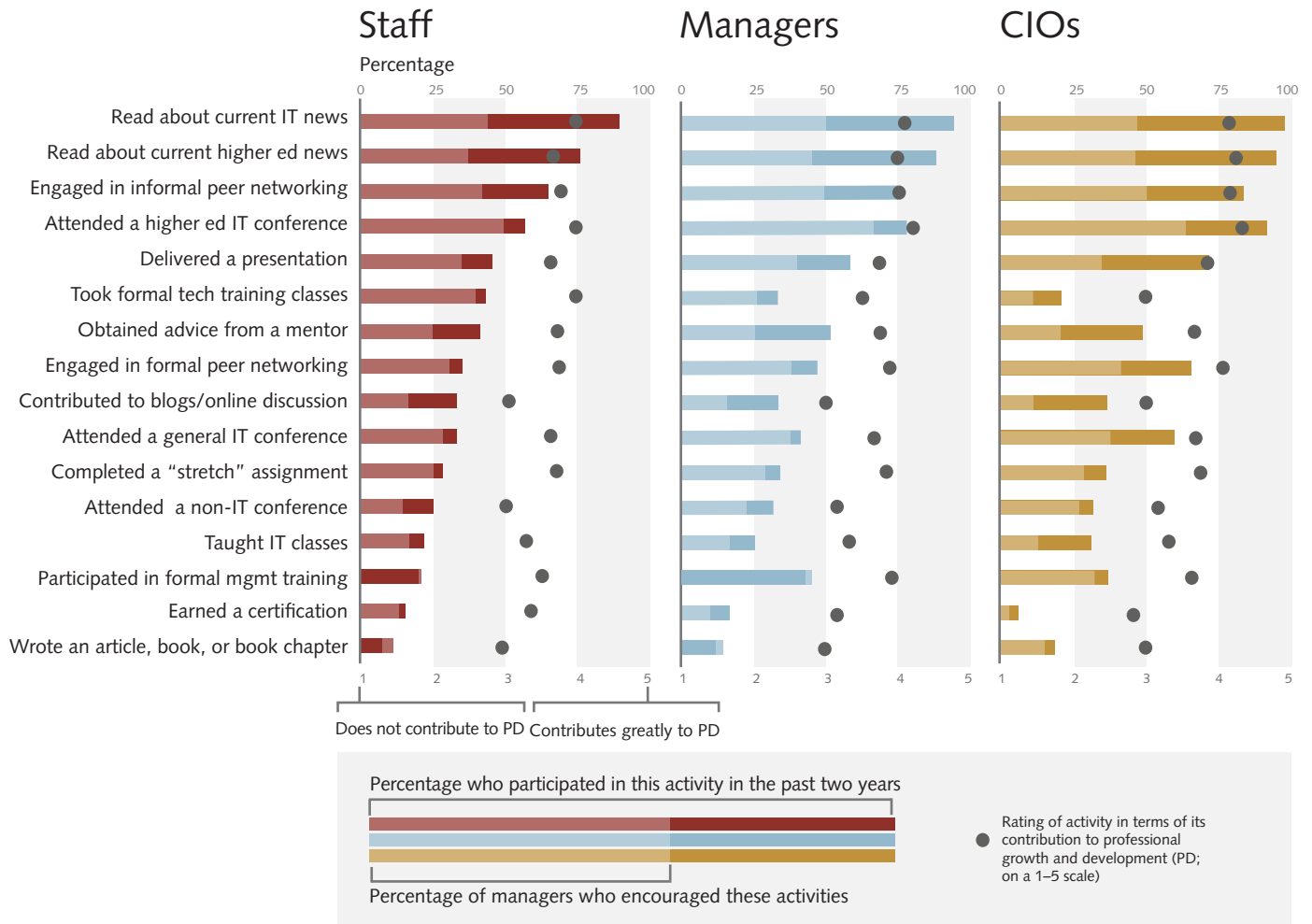


Figure 19. Participation in and Supervisor Encouragement of Professional Activities

Are IT professionals engaging in the activities they deem most important for professional growth and development? Table 6 lists the top-five activities from Table 5 that respondents rated as being most important for their growth and development, along with the percentage who reported engaging in these activities at least once in the past two years.

Table 6. Engagement in Important Activities for Growth and Development

Rank	CIOs	Managers	Staff
1	Attending conferences focused on higher education IT (93%)	Attending conferences focused on higher education IT (78%)	Taking formal technical training classes (43%)
2	Reading about current higher education news (95%)	Reading about current IT news (95%)	Attending conferences focused on higher education IT (57%)
3	Engaging in informal peer networking (85%)	Engaging in informal peer networking (75%)	Reading about current IT news (90%)
4	Meeting my annual performance goals (N/A)	Meeting my annual performance goals (N/A)	Meeting my annual performance goals (N/A)
5	Reading about current IT news (98%)	Reading about current higher education news (88%)	Engaging in informal peer networking (66%)

Note: Items in parentheses are the percentage of respondents who reported engaging in this activity at least once in the past two years. "Meeting my annual performance goals" was not an item included in this question.

For the most part, CIOs are engaging in all the activities they deem to be most important for their professional growth and development. Although attending higher education IT conferences was a highly ranked item for all groups, nearly a quarter of managers and about half of staff have not attended a higher education IT conference in the past two years. This may be why about the same percentage have not engaged in informal peer networking (also ranked in the top five for importance). In addition, although taking formal technical training classes was deemed an important professional development activity for staff, fewer than half have taken such a class in the past two years.

Are managers/supervisors encouraging the activities deemed most important for professional growth and development? Table 7 again lists the top-five activities from Table 5 that respondents rated as being most important for their growth and development, along with the percentage who reported that their supervisor encourages them to engage in these activities.

Only about half of staff reported that their supervisor encourages them to engage in the activities they believe are most important to their professional growth and development.

In our focus groups, staff stated they need more time and resources for training and professional development opportunities. Many focus group members stated that their institution's training structure is reactive rather than proactive. Results from the survey suggest that more resources need to be devoted to sending staff to higher education IT conferences, which would allow them the opportunity to engage in more informal peer networking. They also need more time to devote to taking formal technical training classes and staying up to date with the latest IT developments. IT staff embody a "self-starter" mentality and view that as a necessary mind-set for the job. However, they would like to see more-structured professional development activities and would like those activities to be part of their individual annual goals as well as a long-term vision for their organization.

"We just go out to learn things ourselves."

—IT staff member

"If I had time to take a training course on how to use these tools and could get the backing and the dollars to actually deploy them properly, I'm sure they would work much better and save a lot of time, not only for me but also for everyone across campus."

—IT staff member

Table 7. Supervisor Encouragement of Important Activities for Growth and Development

Rank	CIOs	Managers	Staff
1	Attending conferences focused on higher education IT (65%)	Attending conferences focused on higher education IT (67%)	Taking formal technical training classes (41%)
2	Reading about current higher education news (47%)	Reading about current IT news (50%)	Attending conferences focused on higher education IT (50%)
3	Engaging in informal peer networking (51%)	Engaging in informal peer networking (50%)	Reading about current IT news (44%)
4	Meeting my annual performance goals (N/A)	Meeting my annual performance goals (N/A)	Meeting my annual performance goals (N/A)
5	Reading about current IT news (48%)	Reading about current higher education news (45%)	Engaging in informal peer networking (42%)

Note: Items in parentheses are the percentage of respondents who reported that their manager/supervisor/person to whom they report encourages them to engage in these activities. "Meeting my annual performance goals" was not an item included in this question.

Strategic Activities of CIOs and Managers

CIOs and managers have the opportunity to engage in the strategic activities of planning and innovation, above and beyond their duties of managing IT operations and services. We asked them what percentage of their time they devote to various activities, detailed in Figure A. More than 40% of reported time is spent managing IT operations and services. Approximately one-third of CIOs' and managers' time is spent on planning and innovation.

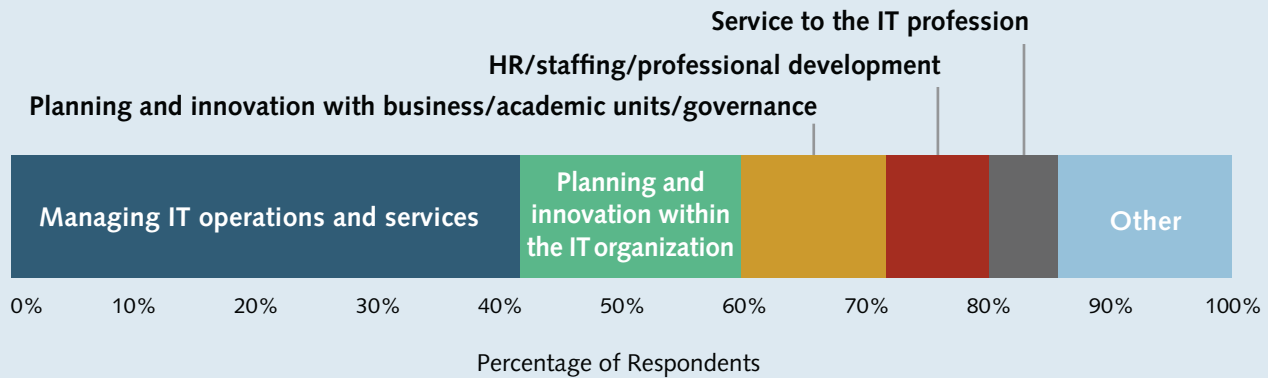


Figure A. Percentage of Time CIOs and Managers Spend on Various Activities

Nearly half (49%) of CIO respondents are members of the president's cabinet.* This percentage varies as a function of institution type. CIOs of two-year institutions are much more likely to be cabinet members. In addition, 53% of CIOs of public institutions are cabinet members, as opposed to 40% of those from private institutions (Figure B).

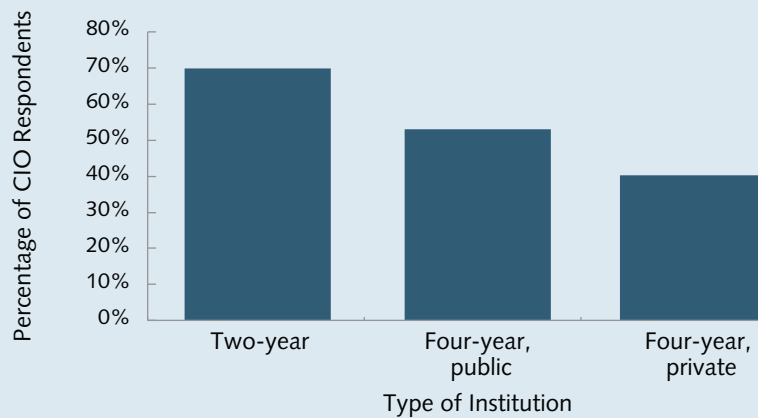


Figure B. Percentage of CIO Respondents Who Are Members of the President's Cabinet, by Institution Type

Why is cabinet membership important? CIO cabinet members are more likely to

- participate in shaping institutional academic directions (45% of cabinet members say often or almost always, versus 26% of non-cabinet members, $p < .0001$),
- participate in shaping institutional administrative directions (81% versus 46%, $p < .0001$), and
- engage in regular executive discussions about the IT implications of institutional decisions (83% versus 51%, $p < .0001$).

Cabinet member CIOs also spend less time managing IT operations and services and more time planning and innovating with business units, academic units, and governance bodies.

* This figure approaches the 54% reported by Consero for 41 CIOs at an invitation-only event: *2013 Higher Education Technology Survey*, Report (Bethesda, MD: Consero Group LLC, June 2013). It is also supported by CDS 2012 data, which shows that cabinet membership for CIOs has remained stable at 50% for the past three years.

Importance of Working in Higher Education

Respondents were asked how strongly they agreed with the statement “It is very important to me that I work in higher education rather than in another industry, business, or sector” (Figure 20). The percentages in agreement with this statement have not changed considerably since 2010 for any job category.

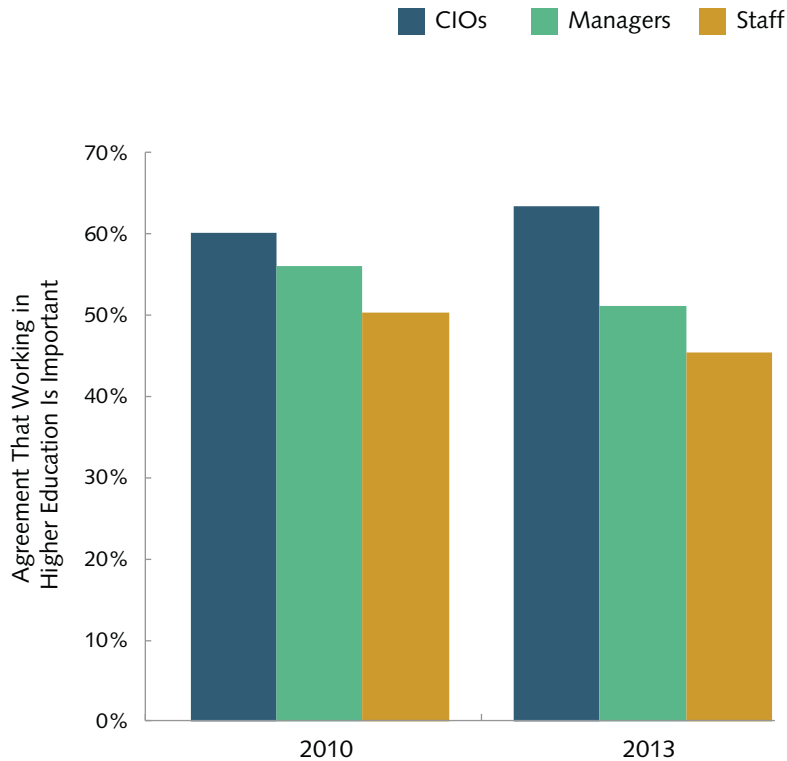


Figure 20. Percentage Agreeing That Working in Higher Education Is Important, by Job Category

Nearly two-thirds of CIOs agree that working in higher education is important. This finding is important in that most of our CIOs are ambassadors for higher education. This finding also means, though, that one-third of CIOs do not consider working in higher education to be important. This may have implications for staff retention. In other words, if managers and staff know that working in higher education is not important to the CIO, they may also question their reasons for remaining in higher education.

Risk for Leaving

Part of increasing retention is understanding which factors lead staff to leave the institution. From our survey responses, a variable was created combining the importance of working in higher education and the likelihood of pursuing opportunities outside the institution. Those who placed low importance on working in higher education and who indicated a high likelihood of pursuing other opportunities were deemed at high risk for leaving. Figure 21 depicts the percentage of high-risk respondents in each job category.

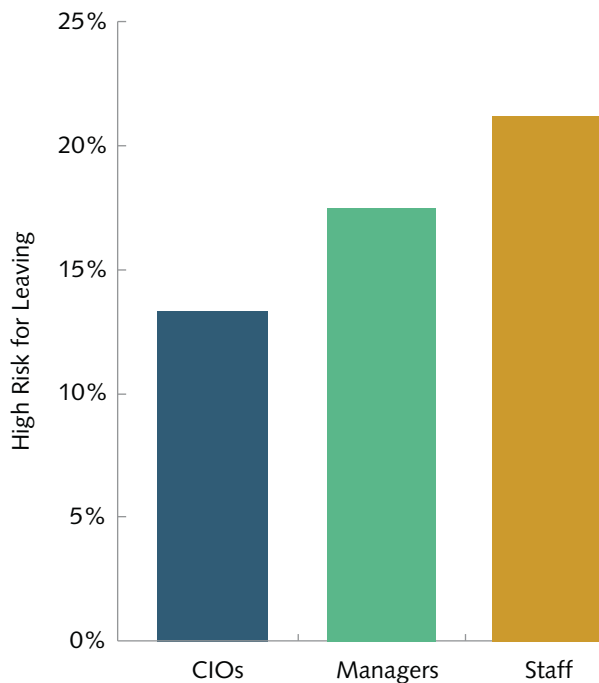


Figure 21. Percentage of Respondents at High Risk for Leaving, by Job Category

Table 8 details the strongest predictors of each job category’s risk for leaving. Those who stated they were experiencing these factors are at high risk for leaving the institution. For all three groups, not being recognized for one’s value and/or not feeling one’s job is important are strong risk factors for leaving the institution. In addition, for staff and managers, being “compensated fairly” is important. Note the contrast with the fact that “monetary compensation” was only a moderately ranked factor when IT professionals identified which factors kept them at their institution (Table 4). These are not necessarily contradictory findings. Respondents could simultaneously believe that what is thought to be a comparatively low salary is not what is keeping them at their institution and that the same low salary is what is leading them to consider other

opportunities. Another way to interpret these results is that there is a perceived difference between “monetary compensation” (in absolute terms) and being “compensated fairly” (relative to others). If one’s colleagues are equitably underpaid, then salary is not as much a reflection of one’s value as it is current economic circumstance.

Table 8. Factors Related to Risk for Leaving

Strongest Predictors of Risk for Leaving	Important to:
Not compensated fairly	Staff, managers
Personal career goals are unattainable	Staff, CIOs
Institutional mission does not make me feel my job is important	Staff, managers
Not recognized for value aside from compensation	Managers, CIOs
No opportunities to learn and grow in the past year	CIOs

We heard indications of disillusionment from several IT staff focus group participants, especially those who appeared to be less able to seek employment elsewhere. Their comments reflected the primary correlates of risk for leaving seen in the survey results. They complained of unfair compensation, insufficient resources, poor management, broad and ill-defined job responsibilities, and a lack of recognition for their work.

Some focus group staff also commented that they have a hard time communicating with management. For example, when they have ideas for how to improve efficiency, they have no one who will listen and no vehicle to implement their ideas. Staff are often the “boots-on-the-ground IT personnel” who are exposed to the array of IT services and technology needs that vary across the campus. Staff focus group members expressed the idea that silos cause problems, particularly at large institutions by, for example, discouraging the sharing of information across units that could lead to faster incident resolution. Staff who did not echo such communication problems appeared more satisfied with their current jobs.

Some staff focus group members also echoed the survey respondents in desiring more and better-qualified colleagues. They feel too much of their time is being devoted to tasks left by vacant positions or to helping staff without proper expertise handle certain problems. They feel they are spread so thin that there is little time left to devote to professional development and that those activities—if they are done at all—must be done in their free time. Staff who had good working relationships with colleagues were not as likely to complain about their jobs. This is reflected in our survey results: Table 4 shows colleagues as the fourth-highest retention factor for staff.

“Start as an IT foot soldier, and then you become an IT ninja.”

—IT staff member

Staff would also like to see more incentives for professional development, progress, and time spent at the university. Incentives do not necessarily have to be pay raises; they can take the form of more advanced job titles, showing progress along some continuum. Survey results bear out the idea that staff desire to be recognized for the value and skills they bring to the table, and a system of progressive job titles is one method of providing such recognition that does not require much in the way of resources. Managers indicated they are rewarding employees who have made significant contributions or have been with the institution for a long time. However, from the ranks, we learned that such rewards and incentives should probably be more frequent and more transparent. Those staff who have received rewards were more likely to speak positively about their jobs. It does not appear to matter what form the rewards take: Pay raises, more advanced job titles, or special public recognition (especially when such recognition is documentable) are all viewed as value recognition and are likely to increase job satisfaction.

“We always feel understaffed, no matter how many people we have.”

—*IT staff member*

HR Support

The demands of IT jobs are no less challenging in academe than elsewhere, yet academic IT faces problems and challenges different from those of its nonacademic (or “corporate”) counterparts. For example, according to our focus group managers and CIOs, academic IT departments are often hindered by HR operations that may not parallel the realities of the IT job market. The relatively slow pace at which academic institutions sometimes evolve works against the fast pace of technological change. IT professionals in academe might find themselves without an enticing career track, without raises and bonuses, without the benefits packages they once enjoyed, and seeking greener pastures fairly quickly. Getting and keeping IT talent is a challenge, just as it is for other academic areas, but our CIO and managerial focus group participants say the competition for IT staff from corporate sectors is a real threat to high-quality IT in academe.

Support from HR was viewed by both survey and focus group participants to be crucial in hiring and retaining IT staff, but most respondents did not agree that HR was supportive in a number of areas (Figure 22). However, when CIOs and managers were asked on the survey whether insufficient support from HR was an obstacle to their effectiveness, most CIOs and managers stated that it was not.

“[Soft skills are] this ability to read individuals, change their approach, and work with people as individuals and not as carbon copies of each other. That’s something that I’d love to see human resource organizations focus on because that skill set is independent of any other function that you do at the university, yet I would say that it’s critical to the success of any function.”

—IT manager

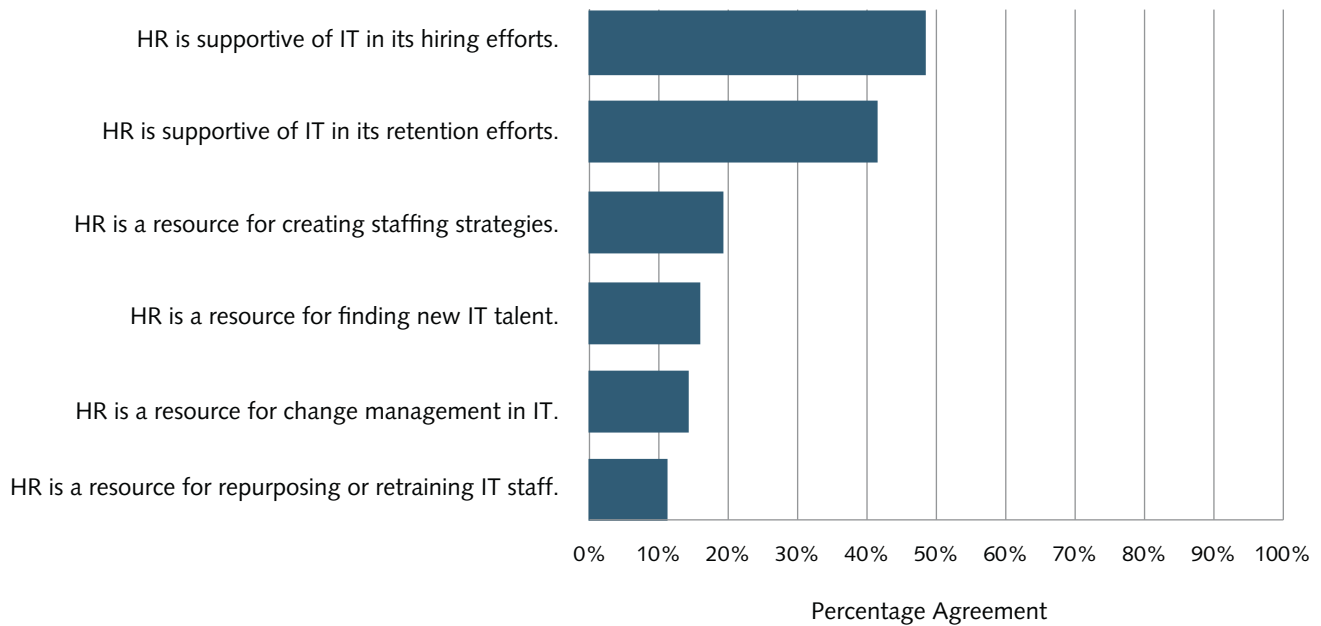


Figure 22. CIOs' and Managers' Perceptions of HR Support

Focus group members (CIOs and managers) stated that their relationship with HR is an important one. If the relationship is good, they are more successful in their hiring, retention, and professional development efforts. If the relationship is bad or nonexistent, these activities are made more difficult. One problematic area mentioned by several focus group members is that of having to strictly adhere to the job titles and descriptions provided by HR. The process of getting these job titles and descriptions changed does not match the pace of the rapidly changing IT workforce. Some survey participants offered that having a good relationship with HR led to collaboration in reconciling regulatory and staffing needs.

“The most important thing isn’t the process—the process is there to support the mission, and if the process is hindering the mission, we either need to scrap the process or reengineer it.”

—*IT manager*

Conclusions

Today's IT workforce is adapting to an era of decreased budgets; increases in the consumerization of technology, cloud computing, and analytics; greater emphasis on service, process, and project management; and strategic involvement in business objectives. The skills most important and most desired in all IT professionals are soft skills: the ability to communicate, think strategically, and manage relationships. To retain their talent, IT leaders need to understand those aspects that draw and keep IT professionals at their institution: benefits, quality of life, collegiality, and professional development opportunities. Many staff wish their managers would do more to support their direct reports and encourage them to engage in those activities they deem most important to their success. Opportunities exist to better understand the needs of IT professionals, to emphasize strengths, and to prioritize retention strategies as budgets continue to recover.

Recommendations

- **Institutional leadership should make the CIO a member of the cabinet.** CIOs' broadening roles as consultants, strategists, and process architects make them potentially valuable contributors in shaping the strategic initiatives of the institution at a time when IT has never been more important to administration, teaching and learning, and research.
- **Managers should focus professional development endeavors on soft-skill proficiency.** However, it should be noted that many nonmanagerial staff are also not getting the technical skill development they require.
- **Managers should ensure that there is an adequate vehicle for staff to share their ideas about improving efficiency.** Listening to and acting on ideas that can be implemented will improve the sense of value staff have in their jobs, as well as provide recognition for their efforts.
- **CIOs and managers should develop and nurture relationships with HR.** HR support is a primary factor in IT workforce recruitment, support, and retention.
- **CIOs, managers, and HR should work together to improve and update IT position titles and descriptions.** If these are mandated or inflexible (as is the case for many public or state-run institutions), HR can help strategize in providing workarounds.
- **CIOs, managers, and HR should enhance and promote the quality of life for IT employees at their institution.** Quality of life is a primary retention factor for all IT staff.
- **HR should work to help IT with organizational development and change.** HR can help repurpose staff during IT reorganizations, help develop staff for new roles, and help CIOs design and implement the IT organization of the future.
- **HR should advocate for the implementation or retention of good benefits packages at the institution, for both current and new employees.** Benefits are the primary factor in the retention of IT staff and managers.

Methodology

Survey Data. Survey invitations were sent to 30,840 IT professionals in the EDUCAUSE database. A total of 2,293 respondents provided complete data that could be used in the analysis, resulting in a response rate of 7%. International (non-U.S.) respondents made up 12% of the sample. Data collection took place in the summer of 2013.

Focus Groups. In addition to survey data collection, four focus groups were conducted, two with nonmanagerial IT staff (seven participants total) and two with CIOs and IT managers (five participants total). A stratified random sample of survey participants was invited to participate in the focus groups. An honorarium was provided for each participant. Participants were provided with the focus group questions beforehand (Table A).

Table A. Focus Group Questions

Questions for CIOs/ Managers	How are IT roles changing? Are there new IT roles you have seen develop within the past few years? Which roles are in scarce supply and are needed at your institution? Are there any roles that have become obsolete?
	How has the economic climate of the past few years affected the IT workforce at your institution in terms of hiring, outsourcing, and employee morale?
	What are some of the lessons you have learned as an IT manager or CIO? What are some ideas you can share regarding the best practices in IT workforce management?
	What role has HR played in your organization and/or your department? How has your HR department supported you in your hiring, promotion, retention, or firing decisions? In your change management or strategic planning initiatives? What role do you think they should play?
Questions for Nonmanagerial Staff	How have the hard (e.g., technical or systematic) skills or soft (e.g., communication, negotiation, or management) skills needed for IT positions changed in the past few years? Which new skills have you been expected or asked to develop? What is one thing your institution or manager could provide to enhance your skills?
	What are some of the challenges associated with working in higher education IT? At what level (your level, your manager's level, or more senior levels) do you think these challenges should be addressed?
	Has morale or satisfaction among you and your colleagues at your institution changed (for better or worse) in the past few years? If so, to what do you attribute these changes?
	What is one thing your institution or manager could do differently to increase IT staff morale, satisfaction, or engagement?

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Notes

1. Eden Dahlstrom and Stephen diFilipo, with a foreword by Mark Askren, *The Consumerization of Technology and the Bring-Your-Own-Everything (BYOE) Era of Higher Education*, research report (Louisville, CO: EDUCAUSE Center for Applied Research, March 25, 2013), available from <http://www.educause.edu/library/resources/byod-and-consumerization-it-higher-education-research-2013>; Jacqueline Bichsel, *Progress in Meeting Demand for Mobile IT*, research report (Louisville, CO: EDUCAUSE Center for Analysis and Research, September 23, 2013), available from http://net.educause.edu/ir/library/pdf/ECAR_SO/ERS/ERS1309/ERS1309.pdf.
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5. Although the resulting report was published in 2011, the data were collected over a year earlier in 2010. Thus, this report will refer to these as 2010 results, given the significance of the time reference in many of the statistical comparisons.
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