Information Technology Leadership in Higher Education: The Condition of the Community

Richard N. Katz, ECAR
Robert B. Kvavik, ECAR
James I. Penrod, ECAR
Judith A. Pirani, ECAR
Mark R. Nelson, ECAR
Gail Salaway, ECAR

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Information Technology Leadership in Higher Education:
The Condition of the Community
EDUCAUSE is a nonprofit association whose mission is to advance higher education by promoting the intelligent use of information technology.

The mission of the EDUCAUSE Center for Applied Research is to foster better decision making by conducting and disseminating research and analysis about the role and implications of information technology in higher education. ECAR will systematically address many of the challenges brought more sharply into focus by information technologies.

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Foreword

The EDUCAUSE Center for Applied Research (ECAR) was launched on January 1, 2002, to create a body of research and analysis on important issues at the intersection of higher education and information technology. ECAR is fulfilling its mission through a program of symposia and through the publication of

- biweekly research bulletins oriented to senior campus functional executives;
- detailed studies designed to identify trends, directions, and practices in an analytically robust fashion; and
- case studies designed to showcase campus activities and highlight effective practices, lessons learned, and other insights from the practical experience of campus leaders.

Since ECAR’s inception, four symposia have been held and more than 75 research publications have been issued.

ECAR remains a new and evolving venture. Its success as a research center and business enterprise depends in large measure on our reception with EDUCAUSE members and sponsors. Our members, as always, have shown great confidence in us and have shown their support by subscribing to ECAR despite a difficult economic climate for higher education in 2002 and 2003. These members understand that particularly in tough times, investments in good research and analysis can save money in the long run. ECAR has been especially fortunate to enjoy the support of an unparalleled group of sponsors. While Cap Gemini Ernst & Young, Datatel, HP, Microsoft, PeopleSoft, SCT, and WebCT provide significant financial support to ECAR, they are more than financial sponsors. These companies believe that impartial applied research on critical issues in higher education generates a more informed marketplace of both buyers and sellers. These firms are committed to understanding their customers and helping them make the most effective decisions related to their technologies and products. Most impressively, these sponsors understand deeply and respect the importance of intellectual independence in the marketplace of fast-moving ideas.

The IT Community in Higher Education

The traditional roles of the computer center and the library—and the professionals who have led these organizations—are no longer adequate to support a changed and changing higher education environment. A new kind of leadership with new skills and orientations is needed, and, throughout our institutions, various managers of digital resources and information technologies
will have to assume new roles. This is true whether these leaders are chief information officers (CIOs), chief technology officers (CTOs), IT directors, librarians, or other high-level administrators responsible for managing an institution’s digital resources and information technology.

Colleges and universities thus face not only a shortage of and competition for the specific technical skill sets needed to advance institutional IT strategies but also the need to ensure effective IT leadership at the highest levels.

Many people with functional responsibilities in higher education institutions see themselves solely as advocates for their areas of responsibility. Leaders, on the other hand, see themselves not in terms of the functional units they head but as part of the institution as a whole. Leaders of information resources and technology units on campus increasingly need to participate actively in the academic enterprise’s central administration, both to be personally effective and to make the institution effective. This new leadership approach requires these people to be partners in reconceptualizing the institutional mission, articulating a vision, and forging the political alliances necessary to achieve the kind of change required.

These new roles have little to do with the skills and mindsets such leaders might have found critical in earlier stages of their careers. Leaders today must know how to move beyond the comfortable realm of technical expertise to tackle the hard questions, especially “What must the college or university become to remain successful?”

Information resources and technology leaders today need to understand that their role is no longer that of specialist but rather that of generalist, acting and participating as critical partners in the institution’s central administration. To do this, these people need at least rudimentary knowledge of such things as grants and contract administration, endowment spending policies, intercollegiate athletics, financial aid and tuition discounting, and myriad other facets of the institution as a whole. Since all of these issues present problems and challenges, the senior administrative team in the institution must be able to look at all of the needs, weigh the trade-offs, and make informed decisions. This militates against the notion of advocating solely for the needs of the “stovepipe” organization that a given person may officially represent. The objective must be to find the optimal solution for the institution, not to maximize the advantage for a given unit or set of units. The latter approach creates a suboptimal solution, and the management literature is full of examples where such solutions have damaged overall organizational health.

This is a fine line to walk, because leaders are expected to advocate for the functional area they represent. Finding the balance between advocating for special needs and looking out for the larger interests of the institution ultimately determines the credibility and the respect accorded any senior administrator responsible for leading information resources and technology. Are these individuals seen as being at the top level of the IT or library organization or at the bottom level of the central administration? Truly effective leadership requires that leaders apply equal skill, time, and attention to both of these roles.

This ECAR study goes a long way toward documenting the state of a professional community and its leadership cadre. Its use of validated instruments to study issues of leadership style and innovation climate in higher education settings is nearly without precedent. The results of this study are simultaneously heartening and disquieting: heartening because many of our leaders today are indeed in the big game and are being entrusted with responsibilities that demand an institutional view and skill set, and disquieting because so many of our
communities’ top leaders and professionals are nearing retirement and plan to exit higher education in growing numbers in the near future. It is also worrisome to see significantly fewer of the highly qualified women (as compared with men) in our community express interest in attaining these top positions that will open in the next few years.

**Important Contributions**

*Information Technology Leadership in Higher Education: The Condition of the Community* is the first ECAR research study of 2004. It is the result of eight months of collaborative research and was conducted under the direction of Richard Katz and ECAR fellows Robert Kvavik, Mark Nelson, Jim Penrod, Judy Pirani, and Gail Salaway. This study also benefited from the efforts of ECAR fellows Phil Goldstein and Dewitt Latimer. ECAR fellow Toby Sitko’s thoughtful editorial and coordinative leadership added measurably to the study’s quality. Thanks also go to Madhavi Gujja, a doctoral student at the University of Memphis, for bibliographic research.

This is perhaps the most comprehensive study of our community to date. Thanks to EDUCAUSE members’ dedication, the research is based on input from nearly 2,000 college and university IT practitioners who participated in a major survey in March 2003. More than 100 people participated in focus sessions, telephone interviews, and campus visits. We recognize these contributors in the study and cannot thank them enough. In addition to this project’s advisors, a group of particularly gifted educational leaders gave significant time to reflect on higher education’s collective experience in IT leadership and on the future of our community in higher education. This group included Ron Bleed of Maricopa Community College; Polley McClure of Cornell University; Jack McCredie of the University of California, Berkeley; Martin Ringle of Reed College; Mike Roberts of The Darwin Group; and Dave Smallen of Hamilton College.

This study looks at senior-most leaders and their staff in central IT organizations; IT leaders and their staff in functional campus organizations; and IT leaders and staff in local campus units such as schools, colleges, and academic departments. The study compares the behaviors, attitudes, and preferences of leaders, aspirants, and others in our community and then compares these vectors by institutional mission, Carnegie classification, budget, and other variables. In addition, the study examines the behaviors, preferences, styles, and other qualities of that subset of IT leaders described in Synnott and Gruber’s original research in which the term CIO was coined.

Three case studies produced by ECAR on the topic of IT leadership in higher education supplement this study. Higher education is fortunate enough to enjoy a professional IT community possessed of a great generosity of spirit and commitment to the common good. In the course of its existence, ECAR has visited numerous campuses and benefited enormously from this generosity.

Finally, as the primary contributors toiled in this field, other ECAR fellows provided regular and ongoing counsel on our findings and steered other elements of the ECAR program. Robert Albrecht, Robert Bender, and Judy Caruso are remarkable colleagues, and our community is lucky to have them in our midst. This study also benefits from the advice of a wonderful group of colleagues, chosen for their own facility and leadership. We mention here Ron Bleed, Don Harris of Emory University, Polley McClure, Susan Perry of the Council on Library and Information Resources, and Robyn Render of the University of North Carolina Office of the President. And finally, ECAR stands on the shoulders of the great EDUCAUSE staff, which never fails to amaze. EDUCAUSE comprises individuals who truly take pride in excellence and strive.
for greatness in performance. It is an honor to work with them.
—Brian L. Hawkins, Boulder, Colorado

Acknowledgement

Endnote
Executive Summary

What well-appointed leader fronts us here?
—William Shakespeare, Henry IV

Those who have long been active in EDUCAUSE have understood the complex difference between a profession and a professional community. Professions are jobs organized around a corpus of knowledge that is typically transmitted through an undergraduate (for example, accounting) or a professional (such as librarianship, medicine, or law) education. Professions are often distinguished by credentials, and some (for example, attorneys, CPAs, and medical practitioners) require jurisdictional certifications and licenses.

The practice of information technology (IT) management is, for practical purposes, less than 50 years old. It’s intellectually diverse (in the extreme) and is characterized by rapid change and redefinition. The nature and scope of this practice are shaped and paced by information technologies themselves, making formalization and codification in the strictest sense of a profession difficult. Responsibility for educating this professional cadre is shared among certificate providers, computer science departments, schools of business, and schools of information.

A professional community, on the other hand, is more permissive. The word community first appears in English in the 14th century to mean a gathering of people who share a sense of common identity and characteristics. Of course, people sharing a common cause can and often do evolve formal bodies of knowledge and certifications, creating professions.

The Contours of a Community

As the number of early information technologists practicing their craft in higher education began to grow, so grew their need to exchange experiences, insights, and methods. In 1956, many of these leaders organized and assembled at the first College and University Machine Records Conference (CUMREC), forming a gathering of people sharing a common identity and characteristics. The organization continues to this day.

As the need for community grew, professional associations and consortia evolved to nurture these new practitioners. CAUSE grew out of a users’ group at an annual CUMREC meeting in 1962. In all, 22 college and university data-processing directors called themselves the College and University Systems Exchange, and their objective was to share information about the new administrative information systems they were beginning to develop. Around this time, a different
group of medical school deans and vice presidents from Duke, Harvard, SUNY, and the Universities of California, Illinois, Michigan, Pittsburgh, and Virginia met in Ann Arbor, Michigan, to found an organization dedicated to the idea that digital computers offered an incredible opportunity for sharing among institutions of higher education. The organization they founded, the Interuniversity Communications Council Inc., is better known by its trade name—Educom.

EDUCAUSE, the successor of Educom and CAUSE, continues to thrive today. Among other things, it works to provide educational opportunities, collaborative projects and spaces, events, and integrative relationships with other IT and higher education communities to foster this 50-year-old community and ensure its continued relevance and leadership within higher education.

Perhaps it’s fitting that as formal efforts at community building among information technologists and allied professionals approach the 50-year milestone, EDUCAUSE should undertake a study of this community. This ECAR study reflects the most comprehensive effort to date to chronicle, analyze, and evaluate the condition of this relatively young professional community. Using qualitative and quantitative techniques, this study reviews the

- general demographics of the IT community in higher education,
- workforce climate,
- workforce mobility,
- leadership styles of higher education’s IT leaders,
- climate for innovation in higher education central IT organizations,
- effectiveness frameworks and markers within this community, and
- the next generation of IT leaders and the possible shape of this professional community’s future.

This study surfaces hundreds of interesting and significant findings about the condition of the IT community in higher education. Among the most important findings:

- Higher education is, for many, a calling.
- Colleges and universities and the study respondents’ work environments are good places to work.
- Leadership style matters, and higher education’s IT leaders have effective leadership styles.
- Survey respondents describe IT environments that don’t strongly foster innovation, especially at research-intensive institutions.
- Perceptions along various studied dimensions vary widely, depending on how far the respondent is from the “executive suite.”
- IT leaders who are members of their president’s cabinet report a considerably broader role at and impact on their institutions.
- The community is not diverse.
- The community is graying, which might pose issues of leadership continuity.
- Community members share a unified culture, including many common attitudes and values.
- Mentoring makes a difference.

Methodology and Study Participants

ECAR used a multifaceted research methodology to collect both quantitative and qualitative data from nearly 2,000 IT professionals. This methodology included

- a literature review to identify and clarify issues and create a working set of hypotheses to be tested;
- a study of numerous leadership models, frameworks, and survey instruments to compare higher education IT leaders with those in the general population, incorporating the validated Multifac- tor Leadership Questionnaire (MLQ)\(^1\) to classify leadership styles, the Rusaw multifactor assessment of innovation
climate in central IT organizations, and the “Creating the CIO Executive Success Cycle” self-assessment questionnaire developed by Gartner and Korn/Ferry;

- a Web-based survey of more than 13,000 individuals in the EDUCAUSE database whose job titles are coded CIO, senior IT professional, or support IT professional;
- qualitative telephone interviews with 28 higher education IT executives, directors, and managers;
- a focus group and roundtable discussion among six nationally recognized community leaders; and
- three in-depth case studies.

**IT Leader Populations**

Although the study looks at respondents as a whole, we found it useful to segment the sample population into subgroups that help us to better understand the leadership community and the key leadership issues. Of the 1,850 respondents, 330 were senior-most IT leaders with overall responsibility for IT at their institutions, and 286 others said they aspire to such a position at some time in their career. We use these subgroups and the related terminology extensively throughout this report. (See Figure 1-1 and Key Definitions sidebar.)
Key Definitions

*Senior-most IT leader (18%)*—respondents who hold the senior-most IT position at their institution and say they have overall responsibility for IT

*Other IT professionals (82%)*—all respondents who are not senior-most IT leaders as defined above

*Other IT professionals: Aspirants (15%)*—respondents who say they aspire to the senior-most IT leadership position

Key Findings

We learned or confirmed much about higher education’s IT community. Several engaging themes emerged that are not only interesting in their own right but can also provide insight and guidance for the future. These themes cover a wide range of issues, from pure demographics to leadership styles to work environment characteristics to perceptions of IT effectiveness.

Higher Education Is a Calling

Respondents show a remarkable loyalty to higher education and often to specific institutions. Nearly half of respondents have worked at their current institutions for 10 years or more, and 21 percent have worked there for 20 years or more. Moreover, 76.7 percent of respondents’ previous positions were in higher education. Not only have respondents been loyal in the past, but they also say they plan to stay in higher education. Professionals under the age of 41 (61.2 percent) and aspirants to CIO positions (59 percent) plan to stay 15 years or more.

What’s the draw? Some respondents expressed their passion for students and higher education’s mission. Others mentioned their sense of increased job security compared with that in the private sector, found the academic lifestyle appealing, or acknowledged attachment to their alma mater. One succinct survey respondent said, “It’s taken so long to understand this institution, I’m loath to leave it.”

Within this loyalty to higher education in general, respondents expressed strong institutional preferences. Some are loyal to a specific institution and some prefer a specific type of institution (such as small private institutions where one can become part of the community, or large, complex research institutions). Also, higher education is often a family affair: 23 percent of respondents have a spouse or partner who currently holds a faculty or staff position in a higher education institution.

Another call to higher education is the academic environment. In fact, survey respondents are highly educated. Close to 14 percent (13.4 percent) of respondents have earned a doctorate degree, and 60.7 percent have a post-baccalaureate degree. The senior-most IT leadership subgroup is most likely to have earned a doctorate (22.4 percent). We also noted a generational difference in education: respondents under 55 years of age are less likely to have earned a doctoral or other terminal degree. Although we didn’t specifically ask how many respondents graduated from the institution where they now work, respondents often mentioned that they became enamored of the higher education environment as a student and decided to stay.

We also noted a strong influence from the academic side of the house: 5.7 percent of respondents are tenured faculty members, and slightly more than 25 percent hold some kind of faculty appointment. Of the senior-most IT leaders, 13.7 percent claim tenure and 34.9 percent hold an academic appointment. We found that IT professionals were inclined to participate in teaching and other academic pursuits, and we noted mobility from academic positions into IT administration. Some argue this trend will likely increase.
Work Environment Is Appealing

The salary question always comes first, and salaries seem, overall, to be holding ground for higher education’s IT professionals. Respondents’ median annual salaries of between $75,000 and $100,000 compare favorably with Gartner, Inc.’s 2003 figures, which put median base annual IT salaries at $68,800, median cash compensation including spot bonuses and other nonsalary cash items at $73,200, and median bonuses at $7,000. Nearly 60 percent (58.3 percent) of those with overall responsibility for IT earn more than $100,000 per year. Despite the senior-most IT leaders’ higher salaries, higher education’s top IT leaders likely earn less than their industry counterparts. In 2002, private-industry CIOs reportedly earned an average of $186,000 per year. Of course, those salaries vary widely by company size.

Survey respondents in central IT organizations rated their direct managers positively in key areas of managerial performance—much higher than do IT staff members in industry. These performance areas include dealing with conflict, keeping employees informed, providing feedback on job performance, and creating an open atmosphere. Particularly notable is that respondents largely agreed (77 percent) that their direct manager creates an atmosphere in which they feel free to speak openly, compared with only 47 percent in industry. Higher education’s open nature might contribute to its appeal as an employer.

Respondents also reported having opportunities to learn new skills and experience new occupational roles, even though more than 44 percent of senior-most IT leaders reported spending 1 percent or less of their central IT operating budget on staff training. Nearly all respondents (93.5 percent) attended at least one professional conference in the past two years, and 47.1 percent attend training sessions fairly often or frequently. Most important, nearly two-thirds (63.2 percent) reported that they fairly often or frequently have opportunities to develop new skills on the job. The technology environment’s dynamic nature—new technologies, and new job functions necessary to implement and manage them—apparently creates ongoing opportunities for respondents to learn and grow professionally. Indeed, 62 percent of survey respondents said they held three or more different jobs in the past 10 years.

Respondents also work long hours: 28 percent of all respondents and 45.8 percent of senior-most IT leaders report working more than 50 hours per week. Respondents from public institutions reported working as many hours as those at private institutions.

Leadership Style Matters

The subject of leadership has been of keen interest to academics and practitioners for decades and is a well-established area of research. One set of leadership behaviors—dubbed transformational leadership—has been associated in this research with organizational effectiveness. Transformational leaders are good role models: they inspire, empower, and motivate staff; encourage creativity; and effectively communicate a shared mission and vision. The ECAR survey used the MLQ survey instrument, which measures transformational leadership behaviors, to compare our IT community with other leadership communities.

The MLQ revealed that higher education IT leaders tend toward effective leadership profiles. Transformational scores were quite high for the respondent pool: 37.5 percent had high scores, and another 61.2 percent had moderate scores. This suggests that higher education has strong IT leaders who make good role models and can intellectually stimulate and motivate their followers.
The findings are robust across the spectrum of institutions, including Carnegie class, institution type (public versus private), and institution size (small versus large).

As one might expect, the senior-most IT leaders display significantly more effective leadership profiles than other IT professionals. Half (51 percent) of senior-most IT leaders had high transformational leadership scores, compared with roughly 35 percent of other IT professionals. Importantly, 49 percent of the respondents aspiring to the top IT leadership positions also showed high effective leadership profiles. These findings suggest that respondents with transformational leadership skills have moved to top-level positions, and a pool of aspirants has developed similar skills.

A Surprisingly Cool Climate for Innovation

Innovation is key to successful IT initiatives and depends greatly on IT leadership. ECAR used the Rusaw multifactor assessment instrument to look at this issue. Respondents reported that their central IT organizations, overall, are not environments that are very supportive of innovation. From a research perspective, we found this surprising. Prior research on innovation provides evidence that organizations with transformational leaders usually have organizations with stronger innovation climates. Here we have a higher education anomaly: although the IT leaders surveyed showed effective leadership profiles, they seem to be working in IT climates perceived as not conducive to innovation. Clearly we need more study in this area.

Those from doctoral institutions reported significantly lower support for innovation in their central IT units. This suggests that these IT leaders face additional barriers to creating environments that support IT innovation. Doctoral institutions are often larger and extremely complex, with highly challenging regulatory environments. These factors may influence the strength of the innovation climate that can be created in IT organizations in these institutions.

Does a positive innovation climate in the central IT units positively impact the institution? Our data say this is likely. Overall, those respondents who feel they work in institutions where central IT units have higher support for innovation see their IT environment very differently from respondents who feel their IT units have lower support for innovation. For example, they’re more likely to agree that their IT organization is increasingly influential, that IT figures prominently in institution-wide strategic plans, that the institution’s leadership understands IT’s value, that IT initiatives result in positive cultural change, and that the institution has a reputation for being forward-thinking in the use of IT. This provides strong evidence that developing IT leaders who can help foster environments supportive of innovation will likely have high payoffs for their institutions.

Distance from Executive Suite Makes a Difference

What impact does IT leadership have on the effectiveness of central IT organizations and the institution as a whole? We asked respondents how they perceived IT effectiveness, using 41 opinion questions covering a wide range of IT topics: governance, strategic planning and alignment, general management, organizational change, technology, and measurement. We found that perceptions varied little on the basis of Carnegie class, institution type, or institution size. Nor did they vary much with gender, age, or other demographics.

However, perceptions differed greatly when we looked at respondents’ placement in the institution. In fact, distance from the executive suite matters—a great deal. Where you stand on organizational issues reflects where you sit in the organization. One example illustrates this general finding.
We asked respondents to rate their level of agreement (from 1 = strongly disagree to 5 = strongly agree) with the statement, “The central IT organization delivers high-quality services.” Looking at the mean scores and standard deviations (see Figure 1-2), we saw a clear stair-step pattern. Senior-most IT leaders are most positive, followed by central IT staff, IT professionals working in central administrative units, and finally IT professionals out in the academic units—schools, colleges, divisions, and departments. Indeed, we saw this pattern consistently across all questions about perceptions of IT effectiveness.

Why do these perceptions of IT effectiveness erode as one moves down the organizational hierarchy and outward from the institution’s center? Do role differences explain these perceptual differences? Do they indicate significant misalignments of IT implementations on campus? Or is it intrinsic to the decentralized and loosely coupled nature of college and university governance? We can’t confidently answer these questions in this study but suggest the need for additional research. Whatever the case, in these times of growing pressures, these differences in perspective can become increasingly problematic, and understanding them and how to better align the institution if necessary deserves our attention.

A Seat at the Table Is a Plus

The lively and ongoing conversation about the nature of the CIO position has reiterated the importance of establishing high-level reporting relationships, and especially an official place on the executive team. Remarkably, nearly 40 percent (38.5 percent) of the senior-most IT leader respondents report to the CEO, and half (50.6 percent) are members of the president’s or chancellor’s cabinet. Comparing these IT leaders who have a seat at the table with top IT leaders who don’t revealed striking differences.

Cabinet-member IT executives report much more interaction with senior management—especially with the president/chancellor, the board, and academic leadership. They more often have responsibility for the library and voice communications. They more strongly advocate IT planning processes and the use of IT planning models. They report more involvement in IT governance, chairing the top IT steering committee more frequently. And they have slightly more formal education and earn higher salaries than their counterparts.

Perhaps most significant, IT leaders who sit on the cabinet see themselves as having a much greater impact on the institution than those who don’t. Those with a seat at the table report that they participate significantly
more in shaping the institution, influencing both academic and especially business directions. With respect to IT, they report more interaction with other executives about IT’s implications in institutional decisions, and they feel their institutions have a better understanding of the campus IT infrastructure’s value. This makes sense, as cabinet-member IT executives operate within the executive suite, where they have the opportunity to develop a broader, enterprise-level perspective as well as a forum for educating the executive team about IT.

The IT Professional Community in Higher Education Is Not Diverse

There is no question that the IT community, overall, is still predominantly white (92.9 percent) and male (62.7 percent). The senior-most IT leaders are also white (92.4 percent), and even more are male (78.6 percent), with only 21.4 percent of the senior-most IT positions held by women. While these numbers do represent an improvement over the past decade, the percentage of women aspiring to the top IT position (16.4 percent) is still low compared with 28.2 percent for men.

Nationally, as of February 2002, women IT professionals earned on average 12 percent less than male IT professionals. Our female survey respondents also generally earn less than male respondents: while only 40 percent (39.6 percent) of male respondents reported salary levels under $75,000 per year, nearly 60 percent (57.1 percent) of women reported such earnings. Gender disparities also exist at the high end of salary levels: 27.4 percent of male respondents reported salary levels over $100,000 per year, while only 17.8 percent of female respondents reported such income levels. Although some of this discrepancy results from the male survey respondents’ being generally older than women respondents, differences are primarily explained by the fact that males hold more of the top positions.

Women, not surprisingly, also reported differences in educational attainment and career goals. They were less likely to have earned a doctoral degree but more likely to have earned a master’s degree. They were more likely to have part-time jobs and work fewer than 40 hours a week, and more likely to agree that their spouse or partner’s career limits their own career mobility. Although their plans to take higher-level positions within their institution were similar to those of the men we surveyed, women were somewhat less likely to plan a career move to a different higher education institution.

These differences between men and women aren’t surprising. What’s much more revealing and interesting is where we didn’t find gender differences in our data. Almost across the board on leadership characteristics and perceptions, men and women showed similar profiles. They didn’t differ significantly in leadership behaviors; both displayed a tendency toward effective leadership styles. Both also perceived their central IT organizations’ innovation climates as generally low. When asked their opinions on a broad set of IT topics ranging from governance to planning to architecture and measurement, they again showed no significant disagreement.

Leadership Continuity May Become an Issue

We see a potential erosion of leadership stability in the community over the next five to 10 years. This suggests a significant shift in institutional memory and experience—a hard thing to replace. The higher education workforce, as elsewhere, is graying and actively planning for retirement or alternative career moves. As older leaders vacate their positions, there may not be enough people interested in moving into more senior lead-
ership positions—especially into the top IT leadership position.

More than one-quarter of all survey respondents, including senior-most IT leaders, expressed intentions to leave higher education in five years or less. And of the 40 percent of respondents over 50 years of age, 39 percent plan to leave in that time frame. With these leadership jobs opening, what does the pipeline of aspirants for these positions look like? Approximately one-third of respondents have no ultimate career goals or say they plan to stay in their current position. Another third, however, do intend to move to a higher-level position in higher education, and of these, more than half plan to stay at their current institution.

The senior-most IT leaders from our survey alone plan to vacate 175 of their current positions in the next five years. Although some do plan to move to a similar or higher position at another institution, most do not plan to continue in this role. Yet, of the 286 other IT professional respondents who aspire to a CIO position, only 157 said they would be ready to apply for these positions within this five-year time frame. Further, only 25 percent of the top IT leaders agreed that their successor would come from within their institution. Indeed, the overall aspirant pool is small relative to the number of positions likely to become available, and, as in any applicant pool, many fewer will actually be qualified and hired.

What did those respondents not inclined to pursue the CIO position say about their lack of interest? Most commonly cited were the long hours and personal commitment required to be an effective CIO, the job’s distasteful political requirements, the perceived need for a doctoral degree, and a personal preference for maintaining hands-on technical work or remaining close to the users.

We can reasonably conclude that a potential imbalance exists in the pipeline of future IT leaders. A recent American Association of Retired People (AARP) study suggests some mitigating factors, including the stock market’s decline and more retirees who wish to continue working during retirement. However, it would be judicious to start now to strengthen and expand this future leadership cadre. One strategy is to identify potential candidates early and establish stronger programs and mentorship for them. Another is to rely increasingly on the nontraditional leadership pipelines such as faculty, libraries, and institutional research—areas that have exposure to technology and work to fulfill the institution mission.

**Mentoring Makes a Difference**

One factor that bubbled up throughout our findings was the importance of having a mentor. Nearly half (47.2 percent) of survey respondents reported having (or having had) a mentor. Our data indicate that mentoring may benefit survey respondents by offering subtle but potentially important associations with salary, industry commitment, and other expressed behaviors and preferences. While 54.5 percent of women reported having had a mentor, only 42.4 percent of men said they’ve had a mentor. Only 45.2 percent of survey respondents earning less than $100,000 per year report they have or had mentors, while 54.8 percent of those who earn more than $100,000 per year report being mentored.

Nearly half (45.6 percent) of respondents who have a mentor plan to remain in a higher education career 15 years or more, while only 37 percent of those without mentors intend to do so. A mentor’s presence may help younger IT professionals remain in higher education. Just over 58 percent of respondents under 41 years old without
mentors plan to leave higher education in the next nine years, whereas only 41.7 percent of those with mentors plan to exit higher education in the same time frame.

Mentorship may also help IT professionals develop desirable transformational leadership behaviors. More respondents with high transformational leadership scores had mentors (55 percent) than those with low transformational leadership scores (only 26 percent). Respondents under 51 years of age in particular may be gaining transformational leadership skills in part due to a mentor’s presence. This indicates that mentoring could have a high payoff for developing future generations of leaders. Further research to identify the critical success factors of mentoring in higher education IT and make recommendations for effective mentoring programs would be invaluable.

**Conclusion**

Information Technology Leadership in Higher Education: The Condition of the Community concludes that, after 50 years, our professional community is strong. The frequently similar responses by gender, ethnicity, institution type or mission, geography, or other variable suggests a strong community culture that is rooted in and committed to higher education’s purposes. Despite the community’s aging, we continue to work hard (in fact, the eldermost respondents reported the longest work weeks) and adapt to the rapidly changing roles and responsibilities imposed by the technologies we steward. The data confirm what we already know: this is a community that cares about higher education and about making a path for our successors. We are mentoring people with an increased urgency and investing in our workforce’s development despite the lack of dollars dedicated to that purpose. We are, in the words of one colleague, “wired and tired.”

Our eyes do not deceive: the next decade will witness the exit of many who have shaped the destiny of their institution and of our community. Newcomers will assume positions of well-deserved responsibility. They’ve earned a place at the decision makers’ table, but the proof of their ongoing value will be their ability to configure IT infrastructure, architecture, services, and information resources to meet their institution’s ever-evolving needs.

Our community is strong and committed. Programs that fortify these strengths while focusing on enhancing adaptability and intimate knowledge of higher education will ensure the community’s continued prosperity.

**Endnotes**

1. The MLQ short form (MLQ-6S), developed by Bernard Bass and Bruce Avolio, is available through Binghamton University’s Center for Leadership Studies and several other sources.
4. Two hundred eighty-eight respondents share the senior-most IT position at their institution and don’t have overall responsibility for IT. We treated these respondents as senior-most IT leader respondents and therefore didn’t ask if they aspired to a CIO position. We believe many of these respondents may also aspire to CIO positions and that our percentage of aspirants would be higher had they been included.
5. Gartner compensation figures include salaries at the entry level. As EDUCAUSE is largely a management-oriented organization, the EDUCAUSE sample will likely have a disproportionate representation of managers. Hence, median salaries in the EDUCAUSE sample will likely be higher than median salaries for all higher education IT workers.
8. The MLQ short form (MLQ-6S), op. cit.
9. Rusaw, op. cit.

10. The differences in “stair steps” aren’t statistically significant for all 41 opinion questions, but the general stair-step pattern is consistent.


12. Speech delivered by Jeanette Cureton at the 2002 ECAR Symposium, San Diego, Calif. Cureton was referring to today’s college and university students, but her description accurately describes the higher education IT community.
Introduction

Growth and understanding follow an ascending spiral rather than a straight line.
—Joanna Field, *A Life of One’s Own*, 1934

The EDUCAUSE Center for Applied Research (ECAR) was created to foster a culture of evidence among information technology (IT) practitioners in higher education, thereby improving our understanding of our environment and helping us make better decisions. In its first two years, ECAR research has plumbed the depths of wide-ranging topics including faculty uses of course management systems, IT security, enterprise resource planning, wireless networking, and IT outsourcing. Clear and present opportunities or threats in the technical arena motivated these investigations. However, no topic is more dear to EDUCAUSE and ECAR than that of higher education’s IT community. EDUCAUSE exists largely to foster higher education through the professional cadre of information technologists, librarians, and others who constitute our community. So it was only natural that as ECAR fellows gathered input from EDUCAUSE members to build the 2003 research agenda, a study of this community would rise to the top. Such a study might help answer questions such as “Is it just me, or is everyone suddenly getting older?” or “Does all of this feel-good stuff about mentoring and staff development really make a difference?” Such questions swirl around our professional community but, until now, have been addressed only by anecdote or by a research literature focused on technologists in industry or government.

Our motivation for this study is somewhat grand. We asked whether we could
◆ describe higher education’s IT community;
◆ identify the characteristics and behaviors of leaders within this community;
◆ quantify the relationship between leadership style and effectiveness and describe the condition of the community along these vectors;
◆ describe our working conditions and compare aspects of those conditions with comparable ones in other industries;
◆ evaluate the state of this labor market so as to foster meaningful discussion about the supply of and demand for IT professionals and leaders;
◆ describe the next generation of higher education’s IT leaders and assess their capacities and willingness to lead;
◆ describe the climate for innovation in higher education’s central IT organizations; and
◆ use this information and these analyses to formulate robust ideas about the future and to recommend actions for the future.

Our objectives are somewhat less lofty and revolve around our core drive to acquire, develop, and present information that will
enable ECAR subscribers to make decisions—in this case, about how they manage their careers, skills, and organizations.

The ECAR report *Information Technology Leadership in Higher Education: The Condition of the Community* is especially exciting for a number of reasons. First, although it does not draw on a random sample of IT practitioners and thus will always suffer some respondent and sample bias, a study with nearly 2,000 respondents cannot be easily dismissed. Thanks to EDUCAUSE members’ generosity in responding to our online survey, this study permits unprecedented analysis of IT leaders and professionals across many dimensions. Second, this study incorporates numerous models and frameworks, which, having been previously developed and in some cases validated, let us discuss the higher education IT community’s condition within the broader context of others who have answered the same questions, using the same models and frameworks. This is powerful because it helps us answer the question, “as compared to what (or whom)?”

From the Basement to the Executive Suite

Today’s context for our research arises from our brief history. Higher education’s IT leadership community emerged and has evolved within the past 50 years, transforming itself many times in the process. And with the continuing pace of technology change and the uncertainties in the global economic, political, and social climate, reinventing ourselves in shorter and shorter time frames will likely become the norm.

The Early Years

The role of institution-wide IT leaders evolved rapidly in the latter half of the 20th century. Beginning in the 1950s, as computers began to replace tabulating equipment in some universities, managerial positions with titles such as automated data processing (ADP) manager or just data processing (DP) manager emerged. Such positions typically reported to the vice president for finance or the vice president for administration and focused almost entirely on administrative applications. The use of computers for instructional computing was almost nonexistent, although a few faculty members were beginning to use them for scientific calculations, and some leading universities had secured government grants for computer-based research.¹ The computing equipment’s substantial size and weight usually relegated it to buildings’ lower floors, sometimes the basement.

Institutions selected people from administrative application areas such as finance or the registrar’s office or from private industry to fill DP manager roles. The DP department typically designed, programmed, implemented, and provided ongoing operation for the administrative applications without full partnerships with the administrative department managers. As basic skills for these positions, the depth of technical knowledge about computers and programming was considered far more important than an understanding of the administrative processes being automated. Project prioritization typically came from the DP manager’s finance- or business-oriented supervisor. Few gave any thought to integrating administrative applications with each other; each application, in fact, helped to build the silos of higher education administration.²

The mid-1960s brought important changes that continued into the 1970s:

- Operational managers in the administrative areas became much more involved in systems design and development.
- The focus of new systems advanced from data processing to information management.
- The integration of separate systems came to be recognized as important.
- Large mainframe computers capable of
supporting database applications became the hardware standard.

- Courses in Fortran for scientific and engineering applications and in Cobol for business applications became commonplace.
- Time-sharing computers came into use for administrative, instructional, and research computing.3

In many higher education sectors, these developments led to the creation of directors of administrative, academic, and research computing. As networking became more important and expensive, and as overall duplication of effort became a significant problem, some institutions created executive director positions responsible for all computing and networking, and reporting to senior institution officials. Although broad-based technical expertise remained important, candidates for these new positions were also expected to manage people well, understand the institution, and work cooperatively with various people across the institution.

The advent of minicomputers, then microcomputers, in the late 1970s through the 1980s again radically changed the higher education computing and networking landscape. The focus rapidly shifted from the computer center’s “big iron” and technical gurus of the computer center(s) to the end user. The role of the central IT organization became every bit as much as a provider of services as of cycles, application development, and implementation. Such services included training, consultation, support, and the development of institutional standards. Some colleges and universities distributed computing units throughout the institution in attempts to better serve end users. As computing became more widespread and IT costs increased, the movement toward information resources management began, and the need for a seamless infrastructure became apparent. The increasing importance of alignment between institutional and departmental IT initiatives heightened the necessity for strategic IT planning.4 This evolution prompted a growing trend toward appointing a senior IT leader at the institution level.

The Path to Today

How has this generic CIO position evolved from the early days to today, and what responsibilities do current top-level IT leaders in higher education institutions have? Many people who began their careers as young professionals or students carrying decks of punched cards to the computer room late at night to get their “run” and then coming back the next morning to pick up the results on large pages of green-striped paper have made the journey from the basement to the executive suite. Over time, they’ve moved up the academic or administrative ladder to achieve positions as their college’s or university’s top IT leaders. They are, in many ways, higher education’s first-generation IT leaders. As vice presidents, vice chancellors, vice provosts, CIOs, deans, directors, or any combination of these or other titles, their specific responsibilities vary widely, as does their involvement in institutional decision making. They share the distinction of providing leadership, however it might be institutionally defined, for IT planning, deployment, and operation at the college or university they serve. If they do their jobs well, they are recognized by all and encouraged by most; if they do their jobs poorly, they are recognized by all and criticized by most.

Whatever their formal titles, they are usually referred to in the profession, on campus, and by themselves as CIOs. This description probably doesn’t fit the scenario William Synnott and William Gruber envisioned when they first coined the CIO title in 1981.5 Their concept of the CIO grew out of the information resources management movement that began in the 1970s. That concept called for a CIO to be a senior executive of the organiza-
tion responsible for IT policy, management, control, and standards, and it stated that the position would have responsibility for
◆ organizational IT planning,
◆ participating in institution-wide strategic planning,
◆ leading development of IT policy,
◆ management of information resources, and
◆ development of new information systems capabilities.

Synnott and Gruber stated that CIOs should have management and leadership skills, a visionary capacity, the ability to position IT as a strategic resource, and the ability to control the institution’s information technologies. Applied to colleges and universities, these characteristics imply a presidential cabinet-level position.

In early 1990, a study of higher education IT leadership found that about 200 people fit this formal definition of a CIO. In summer 1992, a survey found that half of respondents (50.3 percent) were involved in institutional decision making and most possessed only three of the nine CIO roles Synnott and Gruber defined, but in general the span of operational units supervised was similar to the earlier 1990 study.

This suggests the original CIO concept had quickly broadened in higher education to include operational IT officers with significant management responsibility as well as the strategic executive-level policy officers Synnott defined. More recent surveys indicate that the number of IT leaders who would qualify as a CIO under the initial definition has grown significantly. Other IT leaders who would be generally identified as a CIO continue to operate outside the loop of official executive team decision making and often have a title of director.

Endnotes
3. Ibid., pp. 21–24.
4. Ibid., pp. 24–27.
This ECAR study used a multifaceted research methodology to gather quantitative and qualitative data about 1,850 information technology (IT) professionals who work at 765 higher education institutions in the United States and Canada. We believe our study is the most comprehensive gathering ever of information on higher education’s IT community. The data provide a view of one segment of higher education’s collective experience as IT leaders and professionals. This study presents general findings as well as in-depth individual perspectives.

**Research Approach**

We undertook five data collection and analytical initiatives: a literature review, analyses of leadership models and survey instruments, a quantitative Web-based survey, qualitative telephone interviews, and three in-depth case studies.

The literature review helped us identify and clarify issues and create a working set of hypotheses. The literature covered important issues relating to CIOs and other IT leaders in both industry and higher education. Madhavi Gujja and James Penrod prepared an annotated bibliography of both literature and Web-based references for internal use.

Researchers have studied leadership extensively for decades and have developed, tested, and used numerous models and survey instruments. Using existing surveys is extremely helpful for comparing our higher education IT leaders with those in the general population across several dimensions. We therefore looked at survey instruments for general leadership style, innovation, and evaluation of CIOs in higher education, as well as the CIO surveys used in industry. Of these, we selected several for inclusion in our ECAR survey:

- To study leadership in general, we used the validated Multifactor Leadership Questionnaire (MLQ), developed by Bernard Bass and Bruce Avolio.
- To study the IT organization innovation climate, we chose and adapted A. Carol Rusaw’s multifactor questionnaire.
- For CIO evaluation, we chose the “Creating the CIO Executive Success Cycle” self-assessment questionnaire, developed by Gartner and Korn/Ferry.
- For general comparison with industry CIOs, we used selected questions from CIO Magazine’s Web-based “2003 State of the CIO Survey” and their follow-on survey, “What Do You Think of Your CIO?”
We’ll discuss each of these in the following chapters. We also used questions from two previous surveys designed to gather demographic and professional data about higher education CIOs, one deployed by James Penrod and colleagues in 1990 and the other by Dewitt Latimer in 2000. We also learned much from leadership frameworks such as IBM’s 1994 working paper “The Role of the CIO in a Transforming World.”

Using these instruments and other literature in our review, the ECAR research team designed a quantitative Web-based survey to gather demographic, professional, attitudinal, and behavioral data on IT leaders in higher education. The EDUCAUSE staff sent an e-mail invitation with the survey’s Web address and access code information to 13,115 EDUCAUSE members, and 1,939 responded to the survey. Of these, 1,850 were from the United States or Canada and formed this report’s respondent base. The survey questions exist on the ECAR Web site at <http://www.educause.edu/ir/library/pdf/ECAR_ERS0306.pdf>, and the information collected is confidential. We present no quantitative survey data that would make it possible to identify a particular institution or respondent, and we’ve purged the data files we used for analysis of any data that would have similar consequences.

We also conducted qualitative telephone interviews with 28 IT executives, managers, and faculty members at 28 institutions (see the appendix for names of participating individuals). All individuals are from EDUCAUSE member institutions. To obtain a diverse array of perspectives, we chose people from institutions that varied in size and mission. We also chose people who represented different levels of leadership in the organization and different placements within the institution.

We conducted three in-depth case studies to complement the core study. The first looks at the University of Memphis’ exemplary positioning and role of the CIO, specifically, planning and management practices. The second explores the innovative approach to mentoring at the University of Kansas. The third highlights the experiences and insights on leadership of six experienced higher education CIOs from a roundtable discussion whose participants included Ron Bleed of Maricopa Community College; Polley McClure of Cornell University; Jack McCredie of the University of California, Berkeley; Martin Ringle of Reed College; Mike Roberts of The Darwin Group; and Dave Smollen of Hamilton College.

**Carnegie Class as a Distinguishing Factor**

The study grouped the sample by a modified Carnegie Classification of Institutions of Higher Education. The Carnegie taxonomy describes the institutional diversity in U.S. higher education. Most higher education projects rely on the classification to ensure a representative selection of participating individuals and institutions. The study collapsed the Carnegie categories as follows to obtain larger numbers for statistical and descriptive purposes:

- **Doctoral/research universities–extensive (Dr. Ext.)** typically offer a wide range of baccalaureate programs and graduate education through the doctorate. They award 50 or more doctoral degrees per year in at least 15 disciplines.
- **Doctoral/research universities–intensive (Dr. Int.)** typically offer a wide range of baccalaureate programs and graduate education through the doctorate. They award at least 10 doctoral degrees per year in three or more disciplines, or at least 20 doctoral degrees per year overall.
- **Master’s colleges and universities (MA)** typically offer a wide range of baccalaureate programs and graduate education through the master’s degree. The study grouped both Master’s Colleges and Universities I
and Colleges and Universities II together.

**Baccalaureate colleges (BA)** are primarily undergraduate colleges with major emphasis on baccalaureate programs. The study grouped the three baccalaureate college groups (Baccalaureate Colleges–Liberal Arts, Baccalaureate Colleges–General, and Baccalaureate/Associate's Colleges) into a single BA group.

**Associate’s colleges (AA)** offer associate's degree and certificate programs but, with few exceptions, award no baccalaureate degrees.

**Specialized institutions (Specialized)** offer degrees ranging from the baccalaureate to the doctorate and typically award most degrees in a single field. Specialized institutions include theological seminaries and other specialized faith-related institutions; medical schools; schools for medical and other separate health professions; schools of engineering and technology; schools of business and management; schools of art, music, and design; schools of law; and teacher's colleges. The data presented for these schools must be interpreted in light of the enormous diversity of institutions within this category.

Notably, we found that Carnegie class differences proved only modestly significant in this study. Salaries and titles, for example, vary by Carnegie class, but respondents' attitudes and behaviors most often reflect either an IT organizational or higher education culture that cuts across Carnegie class boundaries.

### Overview of Respondents

We sent the survey to all 13,115 individuals in the EDUCAUSE database whose job titles were coded as CIO, senior IT professional, or IT support professional, 11,876 of them at U.S. institutions. Of the 1,939 respondents, 1,745 (90 percent) were from U.S. institutions, 105 (5.4 percent) from Canadian institutions, and 89 (4.6 percent) from other countries worldwide. Because there were so few respondents from foreign countries, and because of significant cultural differences, for analysis purposes we limited the study to U.S. and Canadian respondents.

The response rate from members of all Carnegie-classified institutions was 14.7 percent. The highest percentage of responses came from those at BA institutions (18.4 percent), the lowest from doctoral-intensive institutions (13.6 percent).

Well over half of those surveyed, however, were at doctoral institutions (56 percent), and more than half of the respondents (52 percent) were from doctoral institutions, which accurately reflects the EDUCAUSE community. Figure 3-1 compares the respondents’ distribution by their institutions’ Carnegie class and EDUCAUSE participation.

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**Figure 3-1.**

**EDUCAUSE Participants and Survey Respondents, by Carnegie Class**
Also, the study relied on EDUCAUSE participant volunteers rather than a random sample to complete the survey, and this limits the possible statistical conclusions. A statistical analysis of the data’s representativeness proved inconclusive. The findings do not support the conclusion that the respondents surveyed represent the population as a whole. Nor, however, do they support the opposite conclusion, that the respondents fail to represent the EDUCAUSE participants. Neither conclusion is statistically significant.

In the following sections we present information about the people who responded to our survey. We look at key respondent groups, titles, organizational placement, and corresponding responsibilities of both the senior-most IT leaders and the other IT professional groups. These data are intended to serve as a backdrop for the demographic, professional, and leadership attributes analyses in subsequent chapters.

### Senior-most IT Leaders and Other IT Professionals

Although the study looks at respondents as a whole, we found it useful to segment the IT leadership survey population into subgroups that help us better understand the leadership community and the key leadership issues. Figure 3-2 and the list below show the critical groups we created for our study.

- **Senior-most IT leaders**—the 330 respondents (18 percent) who hold the senior-most IT position at their institution and say they have overall responsibility for IT.
- **Other IT professionals**—the 1,520 respondents (82 percent) who are not senior-most IT leaders as defined above.
- **Other IT professionals: Aspirants**—the 286 respondents (15 percent) who say they aspire to the senior-most IT leadership position.
Key Definitions

**Senior-most IT leader (18%)**—respondents who hold the senior-most IT position at their institution and say they have overall responsibility for IT

**Other IT professionals (82%)**—all respondents who are not senior-most IT leaders as defined above

**Other IT professionals: Aspirants (15%)**—respondents who say they aspire to the senior-most IT leadership position

The most important distinction is between the senior-most IT leaders who reported that they hold the single top IT leadership position in their institution and all other IT professionals in the survey. Most analysis in the following chapters looks at these two groups in relation to each other. Figure 3-3 shows the distribution of these senior-most IT leaders and other IT professionals by Carnegie class. While just over half (53 percent) of senior-most IT leader respondents are from MA and BA institutions, approximately half (47 percent) of other IT professionals are at doctoral-extensive institutions. At times, we will also look at the subset of the other IT professional respondents (the aspirants) who say they aspire to a CIO position at some time in their career. We use these groups and the related terminology extensively throughout this report.

**Job Title and Reporting Relationships**

Of the 1,850 survey respondents, 91.2 percent hold IT positions. The other respondents are, for the most part, managers and directors of non-IT units, and a few hold academic appointments such as professor. Table 3-1 shows survey respondents’ official titles. Because respondents sometimes have multiple titles, the title counts (465 for senior-most IT leaders and 1,677 for other IT professionals) exceed the number of respondents—330 and 1,520, respectively. Those with joint titles are most often vice president/chancellor and CIO, vice provost and CIO, or associate or assistant vice president/chancellor and CIO. For the senior-most position, the most common title is CIO (47.9 percent), director (26.4 percent), vice president or vice chancellor (21.2 percent), associate or assistant vice president orvice chancellor (13.9 percent), or a combination of these titles. For the other IT professionals, the most common titles are director (39.7 percent) and manager or supervisor (31.6 percent).

Figure 3-3. Respondents’ Carnegie Class, by Role
We also looked for title differences by Carnegie class and found that CIO, vice president or vice chancellor, and assistant or associate vice president or chancellor for the senior-most IT officer are most prevalent at doctoral-extensive institutions, system offices, medical schools, and (to a lesser degree) MA institutions. The director title is most prevalent at BA and AA institutions. We noted a movement toward creating the title of chief technology officer, yet our sample shows that only 43 (2.3 percent) of the 1,850 respondents hold this title, and 28 (8.5 percent) of these are the senior-most IT leaders. They are for the most part situated at BA institutions.

Table 3-1. Job Title, by Role

<table>
<thead>
<tr>
<th>Job Title</th>
<th>Senior-most IT Leaders (N = 330)</th>
<th>Other IT Professionals (N = 1,520)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percentage</td>
</tr>
<tr>
<td>President/chancellor</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Provost/academic vice president/chancellor</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Vice president/chancellor</td>
<td>70</td>
<td>21.2</td>
</tr>
<tr>
<td>Vice provost</td>
<td>14</td>
<td>4.2</td>
</tr>
<tr>
<td>Associate or assistant vice president/chancellor</td>
<td>46</td>
<td>13.9</td>
</tr>
<tr>
<td>Associate or assistant vice provost</td>
<td>9</td>
<td>2.7</td>
</tr>
<tr>
<td>Chief information officer</td>
<td>158</td>
<td>47.9</td>
</tr>
<tr>
<td>Chief operating officer</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Chief financial officer</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Chief technology officer</td>
<td>28</td>
<td>8.5</td>
</tr>
<tr>
<td>Chief security officer</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>Dean</td>
<td>8</td>
<td>2.4</td>
</tr>
<tr>
<td>Director</td>
<td>87</td>
<td>26.4</td>
</tr>
<tr>
<td>Manager/supervisor</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>College/university librarian</td>
<td>5</td>
<td>1.5</td>
</tr>
<tr>
<td>Professor</td>
<td>17</td>
<td>5.2</td>
</tr>
<tr>
<td>Lecturer</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Other</td>
<td>14</td>
<td>4.2</td>
</tr>
</tbody>
</table>
Excluding the senior-most IT leaders, the largest percentage (50 percent) of respondents report to the central IT organization, while the smallest percentage (9 percent) report to academic units, as Figure 3-4 shows. Combining those working in central administrative units other than IT and those in local academic units, nearly one-third of our respondents do not come from central IT. Thus the study reflects the experiences, observations, and opinions of IT leaders institution-wide.

**Management Responsibilities**

We asked respondents to identify all the areas of responsibility assigned to them (see Table 3-2). For the senior-most IT leaders, these included institution-wide policy and planning (96.7 percent), data communications (96.4 percent), administrative systems (96.1 percent), IT security (95.5 percent), and software licensing (95.5 percent). The other IT professionals had far more variation in their responsibilities. Top areas included user support and training (47.7 percent), followed by academic computing (46.7 percent) and Web support services (41.8 percent).

We asked respondents about the number of employees that report to them (see Figure 3-5). Nearly half (44.6 percent) of the senior-most IT leaders have between 11 and 50 individuals reporting to them. On the other end of the spectrum, 9.6 percent have more than 200 employees reporting to them. Of the other IT professionals, 15.5 percent of the respondents have no individuals reporting to them, and another 16 percent have fewer than five. However, most other IT professional respondents (55.5 percent) have between six and 50 full-time employees reporting to them.

We also asked the respondents about the total IT budget for which they were responsible (see Figure 3-6). Slightly less than half (46.7 percent) of senior-most IT leaders reported having a budget between $1 million and $5 million, and approximately 10 percent reported having a budget exceeding $20 million. For the other IT professional group, almost one-third (32.5 percent) have no budget responsibilities. Given that only 15.5 percent of this same group reported no responsibility for staff, it appears that supervisory responsibility often comes without budgetary responsibility.

Our data provide a snapshot of IT professionals in higher education. As a whole—in terms of institution type, position, areas of responsibility, and the staff and financial resources they command—respondents bring extensive and varied management and leadership experience to our study. This will become even more apparent as we explore the survey population in terms of demographics, professional experience, leadership style, and personal perspectives.
Table 3-2. Areas of Responsibility, by Role

<table>
<thead>
<tr>
<th>Responsibilities</th>
<th>Senior-most IT Leaders (N = 330)</th>
<th>Other IT Professionals (N = 1,520)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percentage</td>
</tr>
<tr>
<td>Institution-wide IT policy</td>
<td>319</td>
<td>96.7</td>
</tr>
<tr>
<td>Institution-wide IT planning</td>
<td>319</td>
<td>96.7</td>
</tr>
<tr>
<td>Data communications</td>
<td>318</td>
<td>96.4</td>
</tr>
<tr>
<td>Administrative systems</td>
<td>317</td>
<td>96.1</td>
</tr>
<tr>
<td>Institution-wide IT security</td>
<td>315</td>
<td>95.5</td>
</tr>
<tr>
<td>Software licensing</td>
<td>315</td>
<td>95.5</td>
</tr>
<tr>
<td>Academic computing</td>
<td>305</td>
<td>92.4</td>
</tr>
<tr>
<td>User support and training</td>
<td>296</td>
<td>89.7</td>
</tr>
<tr>
<td>Web support services</td>
<td>290</td>
<td>87.9</td>
</tr>
<tr>
<td>Voice communications</td>
<td>249</td>
<td>75.5</td>
</tr>
<tr>
<td>Media services</td>
<td>162</td>
<td>49.1</td>
</tr>
<tr>
<td>High-performance computing</td>
<td>147</td>
<td>44.5</td>
</tr>
<tr>
<td>Distance education</td>
<td>139</td>
<td>42.1</td>
</tr>
<tr>
<td>Television services</td>
<td>138</td>
<td>41.8</td>
</tr>
<tr>
<td>Instructional development</td>
<td>124</td>
<td>37.6</td>
</tr>
<tr>
<td>Printing</td>
<td>103</td>
<td>31.2</td>
</tr>
<tr>
<td>Records management</td>
<td>77</td>
<td>23.3</td>
</tr>
<tr>
<td>Mail services</td>
<td>59</td>
<td>17.9</td>
</tr>
<tr>
<td>Other</td>
<td>58</td>
<td>17.6</td>
</tr>
<tr>
<td>Computer store</td>
<td>57</td>
<td>17.3</td>
</tr>
<tr>
<td>Copying/reprographic services</td>
<td>56</td>
<td>17.0</td>
</tr>
<tr>
<td>Library</td>
<td>54</td>
<td>16.4</td>
</tr>
</tbody>
</table>
Endnotes

1. The MLQ short form (MLQ-6S) was developed by Bernard Bass and Bruce Avolio and is available through the Center for Leadership Studies at Binghamton University and several other sources.


9. All participants won EDUCAUSE awards or served on the EDUCAUSE Board of Directors, or both.

Substantial mythology exists about the nature of colleges and universities as workplaces. Regarding the work environment, many who work in higher education subscribe to the longstanding conviction that “higher education has a moral mission to fulfill.”1 Others remind us that academic politics are especially mean because the stakes are so low. This chapter reports on ECAR’s survey data about working conditions and key aspects of respondents’ immediate work environment, including

- the higher education culture,
- workforce diversity,
- managerial climate,
- salaries and hours worked, and
- staff training, professional development, and mentoring.

The Higher Education Environment

Higher education is a unique environment, often described as having

- loosely coupled or unaligned organizations, or both;
- unclear, uncertain, problematic, and rapidly shifting priorities and objectives;
- unclear technology;
- fluid participation; and

- a “garbage can” decision-making methodology.2

George Keller described colleges and universities as “amiable, anarchic, self-correcting collectives of scholars with a small contingent of dignified caretakers at the unavoidable business edge.”3 Of course, the modern higher education enterprise, particularly the modern research-intensive

Key Findings

- In general, staff respondents in central IT organizations in higher education rate their direct managers positively in key areas of managerial performance much higher than do IT staff members in industry.
- Overall, IT salaries in higher education compare favorably with those in other sectors. However, although 58 percent of responding senior-most IT leaders earn more than $100,000 per year, higher education CIO salaries lag those in the private sector.
- Twenty-eight percent of survey respondents work in excess of 50 hours per week. Senior-most IT leader respondents report longer work weeks than others.
- Forty-four percent of central IT organizations described spend 1 percent or less of their budget on staff training. However, 63 percent of respondents report that they have the opportunity to learn new skills on the job.

The earthly paradise is where I am.
—Voltaire, The Worldly One, 1736
university, is far more than a collective of scholars. It is in many cases an enormous enterprise supporting the full range of services typically associated with a city (transport systems, groundskeeping, waste-water management, food services) as well as one organized to foster research on the shifting frontiers of human knowledge and experience. Leadership instability often adds to the complexity of managing the modern university. Higher education presidencies rarely last more than five years, and in many cases presidential transition triggers a rethinking of institutional direction and leadership style, often resulting in calls for change punctuated by periods of waiting or posturing by those responsible for long-term initiatives or ongoing services.

Higher education’s unique and even compelling mission attracts educated and interesting people to its workforce. Although people are attracted for many reasons, it is fair to assume—and this study confirms—that many choose a higher education career because of the educational mission and the premiums attached to intellectual rigor, innovation, and discovery. “There is tremendous leeway to examine how the institution can adapt emerging technology in new and interesting ways,” said Edmond Cooley, director of information technology (IT) at Dartmouth College’s Thayer School of Engineering. “I’m in this living laboratory that is Dartmouth College finding out what these technologies can do for us. That is something my counterparts in large corporations do not have the opportunity to do.”

Although higher education’s intellectual climate attracts many, its ambiguity or multiplicity of purpose, political nature of leadership, and loose alignment of organizational subcomponents can cause others to leave. Georgia State University’s Interim Associate Provost and CIO Mary Jane Casto conveyed this environment’s dynamism: “There is something to be said for the vitality of a university and the constant change—not so much the university itself, but our main customers change every four years. It is a constant refresh of needs and requirements driven by the students who are coming in and are more and more technically savvy.”

This complex mission and governance also make unique opportunities available to people who can operate within the academy’s somewhat ambiguous modus operandi. For Lasell College CIO Deborah Gelch, “Higher education is more challenging in many ways than the corporate environment. There are so many things that we are responsible for and areas that we can pursue, such as grant writing for cutting-edge education and research or developing projects that help students foster a deeper understanding of their world and prepare for their careers. It is a much more interesting job.” Richard Reeder, CIO at Stony Brook University, agreed: “In industry you very quickly get specialized or pigeonholed to a relatively small segment of the overall company strategy and business. Higher education allows you to expand beyond that and be involved in many different aspects of the institution.”

**Respondent Demographics**

Our survey respondents are largely white (92.9 percent) and male (62.7 percent). More than 90 percent (92.4 percent) of the senior-most IT leader respondents are white, and more than three-quarters (78.6 percent) are male (see Figures 4-1 and 4-2). Although women make up 37.3 percent of total respondents, only 21.4 percent hold the senior-most positions.

Although the number of women in higher education’s IT community is proportionally small, the past decade has seen a meaningful increase in their numbers. Many women, like Lasell College’s Deborah Gelch,
were pioneers: “When I started out, it was unusual for a woman to work in this field.” For many, the pioneering years were characterized by feelings of professional isolation. Mary Harrsch, network and systems information manager at the University of Oregon, said, “For years when I went to meetings and training, I was the only female there. The thing that I found most irritating was that they would not even call on me when I had a question. If they finally did, sometimes they would be a little shocked at the depth of my question.”

Like women in so many male-dominated fields, women in higher education’s IT community feel added pressure to prove themselves. “I think being extremely technical and knowledgeable and six steps ahead has been the only way I can combat this,” stated Gelch. Eva Swenson, director of student information systems at the University of Toronto, said, “It has given me a challenge
because I felt I had to prove myself and that I needed ‘more points’ before I got the same level of credibility.”

“The presence of females has improved over time,” stated Robyn Render, vice president for information resources at the University of North Carolina (UNC) System. “As you would expect, it narrows as you go up the ladder. But because I think the pool is so large, many of us have moved up that ladder and have found the way to be accepted by our peers.” Women now account for 40.8 percent of those IT professional survey respondents who do not hold senior-most positions, holding promise for a higher proportion of women in future IT leadership positions. Aspiring leaders like Vidya Ananthanarayanan, instructional support manager at Trinity University, see their career aspirations in positive terms: “I am an international female professional of Indian origin,” she explained. “Maybe I lead a charmed life, but these factors have not kept me down so far. I think in the next 10 years you will begin to see more women moving into these positions of leadership.”

Thirty percent of those who aspire to senior-most positions are women, and 9 percent of these aspirants are ethnic or racial minorities. Although an increase over the past decade, the numbers are still small. Fewer women (16.4 percent) aspire to a CIO position than do men (28.2 percent).

Creating a More Diverse IT Leadership

Numerous IT leaders recognize the value of a more diverse workforce and have taken steps to bring it about. As Rodney Harrigan, vice chancellor of information technology & telecommunications and CIO at North Carolina Agricultural and Technical State University, noted, “The world is changing slowly as technology and communications bring people closer together and magnify the diversity of the world. As a result, the way people lead is changing because there are so many different kinds of people who are speaking up. You can’t have a stereotyped leader anymore.” UNC’s Robyn Render added that workforce diversity will not occur overnight. “We need to empower minorities to pursue this career direction. There is this subset of about 120 historically black institutions and, in total, a few hundred historically minority institutions including tribal institutions. It is a world that you can live very happily in and never be concerned about this issue, but I don’t think that is the answer. We need to do more cross-pollination here.” Not surprisingly, the proportion of minority respondents varies by geographic location, with California, New York, and Texas showing higher response rates among self-reported minority group members.

Higher education organizations, colleges, and universities can create opportunities and venues to foster leaders, but individual performance plays the key role. “Make sure you do things well,” advised Harrigan, who is African-American. “Make clear your accomplishments. The two things people respect are performance and expertise. Once someone demonstrates that his contribution can make a significant difference in where the wealth is, all of a sudden he is accepted.”

Ages of Respondents

Figure 4-3 shows that our survey respondents tend to be older. Fewer than 5 percent are under the age of 31, and 25.1 percent are under 41. Almost 40 percent are over 50, and the median age of all respondents is between 46 and 50. Private institutions have significantly more people under 41 (30.2 percent) and fewer over 50 (34.9 percent) than do public institutions (22.1 percent and 42.4 percent, respectively). We noted slight differences across Carnegie class, although, interestingly, only 19.3 percent of community college respondents were under the age of 41.5
Noteworthy, too, are the ages of the senior-most IT leaders: more than half (57.9 percent) are over 50. In addition, more than one-third (35.7 percent) of respondents not in senior-most roles are 51 or older. We discuss the relationship of aging and mobility at greater length in Chapter 5.

**Managerial Climate**

We asked respondents about their interactions with their direct managers, using a Likert scale (1 = strongly disagree to 5 = strongly agree). These questions also recently appeared in a 2003 CIO Magazine survey under the title “What Do You Think of Your CIO?” Overall, our higher education IT respondents in central IT organizations rated their direct managers positively in key areas of managerial performance—much higher than did IT staff members in industry.

**Managers Support Open Communications**

We asked survey respondents to agree or disagree with the statement “My direct manager creates an atmosphere in which I feel free to speak openly.”

As Table 4-1 shows, they generally agree that communications with their direct manager occur in an atmosphere that fosters openness, and they agree with the statement more often than their industry counterparts do. Men and women responding to the survey agreed or disagreed with this observation with equal frequency. Several IT leaders we interviewed mentioned the need

<table>
<thead>
<tr>
<th></th>
<th>Senior-most IT Leaders, Percentage (N = 327)</th>
<th>Other IT Professionals, Percentage (N = 921)</th>
<th>Private-Sector IT Professionals, Percentage (N = 400)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>2</td>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>Disagree</td>
<td>8</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Neutral</td>
<td>10</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Agree</td>
<td>34</td>
<td>37</td>
<td>22</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>46</td>
<td>39</td>
<td>25</td>
</tr>
</tbody>
</table>
Managers Are Generally Well Regarded

Table 4-2 shows other elements of survey respondents’ direct managerial environment. Most respondents agreed or strongly agreed that their managers actively deal with workplace conflicts that arise (64.3 percent), although one-fifth (20.4 percent) of respondents do not believe their managers respond to such conflicts. Respondents also, in general, believe their managers communicate about things that affect employees’ jobs. Note that the senior-most IT leaders rate their own managers somewhat higher in these three areas.

Survey respondents generally did not, however, view their direct managers as actively involved in fostering their professional growth and development. Female respondents agree or strongly agree more often (42.8 percent) that their manager is actively involved in their growth and development of skills than do their male counterparts (34.9 percent). Respondents aspiring to CIO positions did not differ from nonaspirants in their perception about this issue. Younger survey respondents perceive their managers as being more involved in their growth and in developing their skills than do older respondents, as Figure 4-4 shows.

On the other side of the coin, we asked respondents whether they believe they personally help others to develop themselves professionally. Ironically, respondents across all levels of responsibility and aspiration overwhelmingly (73.5 percent) believe that they do so “frequently” or “fairly often.” Senior-most IT leaders seem most prone to this belief (83.5 percent).

IT leaders offer various approaches for developing staff members and often get...
more involved one-on-one with employees who have leadership potential. Susan Metros, deputy CIO of The Ohio State University, makes it a point to work closely with her staff on development issues. “I asked my staff how they wanted to grow professionally. It might not relate exactly to what we are doing, but I try to provide them with the professional development avenues that they need. I have one person who would like to program, so I find a way to support her. Another of my staff members plans to study for a Ph.D. in instructional technology, so I include her in meetings and projects that are directed at her interests.” Joyce Williams-Green, associate provost for information resources and CIO, Winston-Salem State University, and Lasell College’s Gelch feel it is important to identify staff members with potential and ambition and offer additional training, conferences, or other appropriate professional opportunities.

Interestingly, respondents in the central IT units, other central campus units, and schools, departments, and academic units responded similarly to one another. And we found little variation across Carnegie class or institution type (public versus private). This suggests either a common level of managerial competency or a common level of employee expectations of managerial performance, or both.

Perhaps most interestingly, Table 4-3 shows again that higher education IT staff members rate their managers significantly more positively than do their industry counterparts, along nearly every managerial activity queried.7 We must note, however, that both higher education and private industry respondents show wide variation in responses.8

**Salaries**

While behavioral theorists and empiricists since Abraham Maslow have de-emphasized the importance of salary as “the” defining element of a work environment, it is easy both to measure accurately and to compare across economic sectors. And although salary may not be the most influential factor defining the work environment, it is unarguably important.9

![Figure 4-4. Percentage of Respondents Who Agree or Strongly Agree That “My Direct Manager Is Actively Involved in My Growth and Development Skills,” by Age](image-url)
Figure 4-5 shows that three-quarters (75.8 percent) of survey respondents reported an annual salary of less than $100,000, and nearly one-half (46.3 percent) earn less than $75,000 per year. The median annual salary of respondents falls between $75,000 and $100,000. This compares favorably with the 2003 figures reported by Gartner Inc., which estimates median base annual IT salaries of $68,800, median cash compensation including spot bonuses and other nonsalary cash items at $73,200, and median bonuses of $7,000.¹⁰

Higher education IT salaries ran up significantly during the dot-com heyday of the late 1990s. Several people interviewed mentioned that the dot.com bust brought higher education salaries more in line with industry salaries. Lev Gonick, vice president for information resources, Case Western University, benchmarks staff salaries. “I think that there is an assumption that there are greater monetary rewards elsewhere. That was certainly a true statement three or four years ago, but I think it is less so now. I acknowledge our salaries will be, at some point, below the market. The combination of reasonable remuneration and better job security adds up to a pretty solid package. Security is an important factor. We also show that in our benchmarking.”

Salary naturally depends on an individual’s leadership role in the institution: nearly 60 percent (58.3 percent) of those with overall responsibility for IT earn more than $100,000 per year. Despite the senior-most IT leaders’ higher salaries, higher education’s top IT leaders are probably paid less than their industry counterparts. In 2002, CIOs in private industry reportedly commanded an average total compensation of $186,000 per year. Of course, company size strongly influences these salaries (see Table 4-4).

<table>
<thead>
<tr>
<th>Table 4-3. Perceptions of Direct Manager Attributes by Higher Education Central IT Staff and Private-Sector IT Professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher Education Central IT Professionals (N = 921)*</td>
</tr>
<tr>
<td>My direct manager creates an atmosphere in which I feel free to speak openly</td>
</tr>
<tr>
<td>My direct manager provides me with a formal written review on a regular basis</td>
</tr>
<tr>
<td>My direct manager deals with conflict when it arises</td>
</tr>
<tr>
<td>My direct manager keeps me informed about things that affect my job</td>
</tr>
<tr>
<td>My direct manager provides feedback on a regular basis regarding my job performance</td>
</tr>
<tr>
<td>My direct manager is actively involved in my growth and development skills</td>
</tr>
<tr>
<td>My direct manager meets with me at least once a year to discuss my compensation</td>
</tr>
</tbody>
</table>

*Scale = 1 (Strongly Disagree) to 5 (Strongly Agree)
As might be expected, higher education aspirants to top IT positions report salaries somewhat higher than those of others without such aspirations. Placement within the institution (for example, central administration versus academic department, school, or college) and occupational role also matter. More than 46 percent (46.5 percent) of survey respondents working within central IT units earn more than $75,000 per year, while fewer than one-third (30.5 percent) of those in local academic units report such salaries. Fewer than 10 percent (9.3 percent) of IT professional respondents in local academic units reported earnings above $100,000 per year.

Nationally, as of February 2002, female IT professionals earned on average 12 percent less than male professionals: while only 40 percent (39.6 percent) of male respondents reported salary levels under $75,000 per year, nearly 60 percent (57.1 percent) of women reported such earnings. Gender disparities also exist at the high end of salary levels: 27.4 percent of male respondents reported salaries above $100,000 per year, compared with only 17.8 percent of female respondents. We can attribute some of this discrepancy to reported age differences, but not too differences in experience: 43.2 percent of men versus 34.0 percent of women responding to the survey were age 51 or older (see Figure 4-6), whereas male and female respondents reported similar years of experience in higher education central IT roles.

Role explains the larger portion of the gender-based salary discrepancies. Higher

<table>
<thead>
<tr>
<th>Firm's Annual Revenues</th>
<th>Mean Private-Sector CIO Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $100 million</td>
<td>$141,500</td>
</tr>
<tr>
<td>$500 million–$1 billion</td>
<td>$226,600</td>
</tr>
<tr>
<td>More than $5 billion</td>
<td>$303,000</td>
</tr>
</tbody>
</table>

Figure 4-5. Respondents’ Salary Ranges

Table 4-4. Private-Sector CIO Salaries, by Firm Revenue
education’s IT profession, as reflected in this sample, is led largely by men, who hold nearly 80 percent (78.6 percent) of the senior-most IT positions reported in the ECAR survey. Not surprisingly, the IT professional labor markets also show some regional effects. Respondent salaries are distributed similarly across regional boundaries, with some notable exceptions: as expected, we found higher reported salary levels in states noted for high living costs, such as California, Connecticut, Maryland, and the District of Columbia. Reported salaries vary little by institutional mission, as Figure 4-7 shows, but there are two exceptions: Fewer respondents at AA institutions (9.4 percent) earn salaries above $100,000 per year. Reported IT salaries at doctoral-extensive institutions vary from those in other Carnegie segments at both the high and low ends. Figure 4-7:

Figure 4.6. Age of Respondents, by Gender

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 30</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>31-35</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>36-40</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>41-45</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>46-50</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>51-55</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>56-60</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Over 60</td>
<td>45</td>
<td>45</td>
</tr>
</tbody>
</table>

Figure 4.7. Salary Ranges, by Carnegie Classification

<table>
<thead>
<tr>
<th>Carnegie Classification</th>
<th>Less than $50,000</th>
<th>$50,000–$74,999</th>
<th>$75,000–$99,999</th>
<th>More than $100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>9.0</td>
<td>31.0</td>
<td>29.2</td>
<td>30.8</td>
</tr>
<tr>
<td>BA</td>
<td>11.1</td>
<td>30.7</td>
<td>27.6</td>
<td>18.6</td>
</tr>
<tr>
<td>MA</td>
<td>15.6</td>
<td>26.3</td>
<td>15.6</td>
<td>15.8</td>
</tr>
<tr>
<td>Dr. Int.</td>
<td>13.4</td>
<td>16.0</td>
<td>19.6</td>
<td>17.1</td>
</tr>
<tr>
<td>Dr. Ext.</td>
<td>9.0</td>
<td>31.0</td>
<td>29.2</td>
<td>30.8</td>
</tr>
</tbody>
</table>

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ends of the scale. Fewer respondents at these institutions earn less than $50,000 per year (9 percent) and more earn above $125,000 per year (15.6 percent).

**The Academic Lifestyle**

Our respondent population is highly educated (see Figure 4-8), with 13.4 percent having a doctorate degree and 60.7 percent a post-baccalaureate degree. We saw little difference among institutions by Carnegie class (with the minor exception of AA school respondents’ having a somewhat lower percentage of doctoral degrees and a higher percentage of master’s degrees) or at public versus private institutions. We did note a small gender difference: 15.3 percent of male respondents had a doctorate, versus 10.7 percent of female respondents; and 40.8 percent of men held an MA degree, versus 45.5 percent of women.

The senior IT leadership is the subgroup most likely to have an earned doctorate, at nearly one-quarter (22.4 percent) of respondents, and is also most likely to have a post-baccalaureate degree (78.2 percent). Noteworthy, too, is an apparent generation difference in the earning of the doctorate and other terminal degrees: respondents over 55 are significantly more likely to have earned a doctoral degree. For many, educational attainment is a cohesive aspect of higher education’s IT community. As John Isenhour, director of information technology, Kennesaw State University, said, “I feel more at home in academics. I like the teaching and I have my Ph.D. Academics offers a certain type of lifestyle and flavor that I like and enjoy.”

The high level of respondents’ educational attainment also reflects the academic environment’s strong influence. As Figure 4-9 shows, slightly more than 25 percent of respondents hold some faculty appointment, and 5.7 percent are tenured. Of the senior-most IT leaders, 34.9 percent hold an academic appointment, and 13.7 percent have tenure. Academic experience can be a real asset for a technologist in higher education. John Bruno, vice provost at the University of California, Davis, stated, “I have taught for many years at the University of California, and I have used technology in the classroom. That makes a big difference when I talk to faculty—I’m a faculty member

![Figure 4-8. Respondents’ Highest Degree Earned, by Role](image-url)
talking to a colleague, and I share many of their experiences.”

The University of Kansas’s vice provost for information services, Marilu Goodyear, elaborated further: “As I talk to someone about an issue, I can empathize: ‘When I log on to Blackboard for my course or when I conduct research, this happened and wasn’t it frustrating?’ It is nice to be in charge of a service and talk to your customers as a customer. Also, tenure enables you to take risks that you might not otherwise take.”

**Working Hours**

Higher education information technologists responding to our survey are overwhelmingly full-time workers and work long hours (see Figure 4-10). The vast majority work more than 40 hours per week (82 percent), and nearly 30 percent (28 percent) work more than 50 hours per week. This work habit does not appear to be associated strongly with age, although a far higher proportion (41.6 percent) of respondents over 60 report working 50 or more hours per week, compared with 21.8 percent of respondents age 35 or under. This may be due to the relatively smaller number of respondents in the older age band (N = 96). Nearly one-third (31.3 percent) of male survey respondents work more than 50 hours per week, compared

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**Figure 4-9. Respondents’ Academic Appointments, by Role**

**Figure 4-10. Respondents’ Hours Worked Weekly**
with one-quarter (24.1 percent) of female respondents. This is largely explained by the additional finding that women respondents report having more part-time jobs requiring less than 40 hours. IT organizations’ work pace in general might cause some concern: a recent survey shows that IT employee burnout is a serious issue for 71 percent of companies.12

In this workforce sector, leadership has its costs: survey respondents holding senior-most IT positions work significantly more hours than other respondents. Almost half of senior-most IT leaders (45.8 percent) report working 51 or more hours per week, whereas approximately one-quarter of other IT professionals (24.8 percent) work 51 hours per week or more. Although they work long hours, many report that work life in the academy is, on balance, an attractive feature. According to Lasell College’s Deborah Gelch, “In the corporate world, my stress level was 10, maybe 11 (on a scale of 1 to 10). At an institution [of higher learning], you have bad days, but usually the stress level is about a 4. There is a lot of responsibility. I have a large workload, and the stress is there, but it is a different kind of stress, rewarding and engaging, because the pressures directly relate to supporting the institution’s mission of connected learning, beyond simply meeting the bottom line. When I worked at the law firm, there were times when the system would go down, and my boss would tell me how many dollars per minute the firm lost because the attorneys could not bill their clients.”

Respondents aspiring to the senior-most IT position straddle the bar on this dimension of work behavior (see Figure 4-11). Nearly one-third of these respondents (34 percent) report working 51 hours per week or more, compared with 23 percent of respondents not aspiring to the CIO position.

**Professional Development Environment**

We first looked at the current spending level for staff training as reported by the senior-most IT leaders (see Figure 4-12). More than 40 percent (44.4 percent) of senior-most IT leaders spend 1 percent or less of central IT operating budgets on staff training. Not surprisingly, this is considerably less than respondents would ideally spend in this area: while most senior-most IT leaders believe between 2 percent and 5 percent is appropriate for staff training, nearly 17 percent believe 10 percent or more should be spent.
Despite limited training resources, nearly all respondents (93.5 percent) attended at least one professional conference or meeting in the past two years. Interestingly, a somewhat greater percentage of those who aspire to a CIO position (97.9 percent) attended at least one professional conference or meeting than other respondents (90 percent). And a higher proportion (17.1 percent) of aspirants authored professional articles in the past two years than did nonaspirants (11.1 percent).

The IT leaders we consulted employ various training and development strategies. Dennis Trinkle, coordinator of information services and technology, DePauw University, makes training a mandatory activity. “I encourage staff to take advantage of all the conferences. Every IT employee has $1,500 a year to spend on training or professional conferences. To spend the minimum, I push them out the door, even if they do not want to go. We do find more money for people to go to multiple conferences if needed.”

Respondents see technical training as important—not only in quantity, but also in quality. Stony Brook University’s Richard Reeder said, “The technology tools are getting very sophisticated today. This can be especially challenging, since there has been a shift from relatively stable tools with longer useful lives to a situation where neither the hardware nor the underlying software remains constant for very long. Training must be elevated in priority to meet the demands of this environment.”

Management training is especially important to help technically oriented people as they gain managerial responsibilities. As Normandale Community College’s Niels Jensen stated, “I think there are a lot of people who have great technical skills, but unfortunately they have never received any real training in project management.” As a result, IT staff members may never fully develop as managers. “I never had any management training or supervisory training until I was pretty high up in the organization,” Georgia State University’s Mary Jane Casto stated. “I was expected to figure it out, and fortunately I learned from my manager. Others aren’t so lucky. They become managers and they do not know how to manage, so they remain technically oriented. In the last five years, Georgia State University has focused on training people in supervisory, managerial, and leadership skills.”

Norman Imamshah, associate vice president for information services, University of Puget Sound, concurred. “I believe that the universities themselves should be training people for IT upper management. Unlike doctors or lawyers, we don’t have a two-year program covering the major characteristics and requirements to be a CIO.” So he not only sends staff members to technical training sessions but also emphasizes stress...
management and planning skills sessions. Trinkle, of DePauw University, also nominates potential leaders to the Frye Institute.

IT leaders and professionals also develop new skills in ways not always factored into assumptions about formal training costs (see Table 4-5). When queried about their methods of acquiring new skills, using a Likert scale (1 = not at all to 5 = frequently, if not always), many survey respondents reported having good opportunities to develop new skills, visit other sites to learn effective practices, or attend training sessions. Of all respondents, more than 60 percent (63.2 percent) reported that they fairly often or frequently have opportunities to develop new skills on the job, nearly half (47.1 percent) attend training sessions fairly often or frequently, and more than one-quarter (27.7 percent) have regular opportunities to visit other sites to learn effective practices.

Mentoring

Higher education’s IT community now appears to offer many people an opportunity to mentor and be mentored. Nearly half (47.2 percent) of survey respondents reported having (or having had) a mentor. Mentoring appears to have subtle but potentially important associations with gender, salary, industry commitment, and other expressed behaviors and preferences. While 54.5 percent of women reported having a mentor, only 42.4 percent of men said they have had or have a mentor. Survey respondents making less than $100,000 per year less frequently report that they have or have had mentors (45.2 percent) than respondents making more than $100,000 per year (54.8 percent). Nearly half (45.6 percent) of respondents who have a mentor plan to remain in a higher education career 15 years or more, while only 37 percent of those without mentors intend to do so.

A mentor’s presence could help younger IT professionals remain in higher education. Of respondents under 41 years of age, 58.3 percent of those without mentors plan to leave higher education in the next nine years, while only 41.7 percent of those

Table 4-5. Methods for Acquiring New Skills, by Role

<table>
<thead>
<tr>
<th></th>
<th>Senior-most IT Leaders</th>
<th>Other IT Professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT staff members have</td>
<td>Mean*</td>
<td>Standard</td>
</tr>
<tr>
<td>opportunities to develop</td>
<td></td>
<td>Deviation</td>
</tr>
<tr>
<td>new skills on the job</td>
<td>3.99</td>
<td>0.755</td>
</tr>
<tr>
<td>IT staff members visit other</td>
<td>3.23</td>
<td>0.937</td>
</tr>
<tr>
<td>institutions/organizations to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>identify possible practices to adapt</td>
<td>3.56</td>
<td>0.841</td>
</tr>
<tr>
<td>IT staff attend training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sessions to learn new skills</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Scale = 1 (Not at All) to 5 (Frequently, if Not Always)
with mentors plan to exit higher education in the same time frame. A mentor’s presence doesn’t seem to be associated with respondents’ aspirations for a CIO position, nor does it seem closely associated with respondents’ plans for their next career steps. Interestingly, 61 percent of respondents at college or university systems reported having mentors, while fewer than 43 percent of those at either master’s or doctoral-intensive institutions claim a mentor.

**Recruiting Future IT Leaders**

Finally, despite the expressed desire for more training and development resources and a growing awareness and practice of mentoring, respondents generally do not believe that their institutions’ future senior-most IT leaders will come from within their own institution. Fewer than one-quarter (24.9 percent) of senior-most leaders responding to this survey agreed or strongly agreed with the proposition that their successor will likely be recruited from within their institution. We need more research to understand why. Are the IT community’s leaders generally failing to groom their successors, or is this a reflection of higher education’s culture of securing its leaders from without—or both?

**Endnotes**


4. We advise readers to exercise caution in interpreting the findings regarding ethnicity. There is a risk of both sample bias and respondent bias resulting in lower-than-actual response rates among potential minority respondents. Also, the low overall number of minority respondents ($N = 114$) suggests caution in any attempts to generalize about higher education or EDUCAUSE member institutions.

5. This may reflect an inherent bias in the EDUCAUSE database: younger professionals are more likely to seek technical training than to consume services typical of EDUCAUSE.


7. The higher education cohort excludes senior-most IT leaders to enable an apples-to-apples comparison.

8. While it appears clear that, in general, higher education managers are well regarded in these areas of managerial impact, many respondents do not agree. Among private-sector respondents to the *CIO Magazine* survey, many respondents disagreed or strongly disagreed with the statements, despite mean scores that suggest mild agreement.


10. Gartner compensation figures include entry-level salaries. As EDUCAUSE is largely a management-oriented organization, the EDUCAUSE sample likely has a disproportionate representation of managers. Hence, median salaries in the EDUCAUSE sample are likely to be higher than median salaries for all IT workers in higher education.


Information technology (IT) management professions have, until recently, been defined by perennial labor shortages and enjoyed both high pay and prestige. At the height of the dot-com boom, EDUCAUSE primary representatives rated the recruitment and retention of IT professionals among the 10 most pressing issues facing them. The evolution of national job-posting services such as monster.com has made the IT labor market a national and—more recently, with widespread IT outsourcing—even a global market. Large swings in the national economy, particularly in the technology sector, have raised considerable speculation about the nature of the IT labor market in general and about professional mobility for higher education IT practitioners in particular.1 This chapter looks at workforce mobility and explores our survey data to address respondents’
◆ commitment to their institutions and higher education,
◆ professional experience and career aspirations, and
◆ plans to leave both their positions and higher education, and the effects this might have on IT leadership continuity.

Key Findings
◆ A career in higher education is a calling—respondents are loyal to their institutions and to higher education.
◆ A career within a college or university offers surprising mobility in occupational roles.
◆ The workforce is graying, and a challenge in IT leadership continuity is likely.
◆ Fewer female respondents than male respondents aspire to the top leadership position.

Higher Education Careers as a Calling
Higher education is an appealing employer, and most members of its IT community think of higher education in career terms. Nearly half (47 percent) of all respondents have worked 10 years or more at their current institution, and 21 percent have worked there for 20 years or more (Figure 5-1). Looking at respondents’ ultimate career goals (Figure 5-2), we see that 68.1 percent intend to remain in higher education and 43 percent intend to remain at their current institution. Many of our interviewees cited their passion for and belief in higher education as a major factor in their career.
decisions. As Mary Harrsch, network and information systems manager at the University of Oregon’s College of Education, said, “I am not only doing what I enjoy, and making money doing it, but I feel I am contributing to our society as a whole by providing ways to improve education with technology. Sometimes there are things that are worth more than money.”

What roles do respondents planning to stay at their current institutions envision for themselves? Nearly half (47.5 percent) intend to finish out their careers in their current position, slightly more (48.5 percent)
hope to finish their careers in a higher-level IT position, and 4 percent hope to finish their careers in a lateral position at the same institution. In addition, nearly 4 percent (3.8 percent) of all respondents ultimately aspire to a faculty appointment, perhaps at their current institution. Such loyalty to an institution and to an industry is remarkable, and respondents offered many reasons for their allegiance. Eva Swenson, director of student information systems, University of Toronto, said, “The University of Toronto is the largest institution in the country, with the broadest range and scope. It is a premier research universit. I have everything here. Why should I leave?”

For some, the commitment to a single institution is a two-edged sword for ultimate career plans and goals. One respondent explained, “I’d like to have the [senior-most] position at my current institution, but it is unlikely that my supervisor will leave the institution in the next few years, leaving me with the need to move on [to advance].” Respondents’ intentions to remain within higher education don’t appear to be associated with Carnegie class, gender, or placement in the organization (see Table 5-1).

Table 5-1. Percentage of Respondents Planning to Remain in Higher Education 15 Years or More

<table>
<thead>
<tr>
<th>By Carnegie Class</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>37.4</td>
</tr>
<tr>
<td>BA</td>
<td>44.8</td>
</tr>
<tr>
<td>MA</td>
<td>44.1</td>
</tr>
<tr>
<td>Dr. Int.</td>
<td>43.9</td>
</tr>
<tr>
<td>Dr. Ext.</td>
<td>41.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>By Gender</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>40.6</td>
</tr>
<tr>
<td>Female</td>
<td>42.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>By Organizational Placement</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Central IT</td>
<td>42.5</td>
</tr>
<tr>
<td>Administrative Unit</td>
<td>42.4</td>
</tr>
<tr>
<td>Academic Unit</td>
<td>46.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>By Leadership Aspiration</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior-most IT Leaders</td>
<td>32.9</td>
</tr>
<tr>
<td>IT Professionals: Aspirants</td>
<td>58.9</td>
</tr>
<tr>
<td>IT Professionals: Other</td>
<td>37.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>By Institution Type</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Private</td>
<td>47.1</td>
</tr>
<tr>
<td>Public</td>
<td>37.6</td>
</tr>
</tbody>
</table>
Younger IT professionals responding to the survey also seem committed to higher education. Of respondents under age 40, 61.2 percent plan to remain in higher education at least 15 more years. And those who aspire to CIO positions as an ultimate career goal—independent of age—are particularly committed to higher education: 58.9 percent of CIO aspirants plan to remain in higher education for at least 15 more years, compared with just 37.1 percent of nonaspirants.

More private college or university respondents (47.1 percent) intend to remain 15 years or more in higher education than their counterparts in public institutions (37.6 percent). This result could be partly due to a higher percentage of younger people responding from private institutions. Of private institution respondents, 65 percent are under 51 years old, compared with 58 percent of their public institution counterparts. Further, 30.2 percent of private college and university respondents are under 40 years of age, compared with fewer than one-quarter (22.1 percent) of public institution respondents.

The story of respondents’ professional roots and provenance also supports the idea that a higher education career is appealing. Figure 5-3 shows respondents’ recent professional experience and suggests strongly that the past is prologue. More than half (55.6 percent) of respondents held previous positions at their current institution, and 76.6 percent of respondents’ previous positions were in higher education. Even those in the senior-most roles are deeply rooted: 40 percent of responding senior-most IT leaders held their last job at their current institution, and another 44 percent moved to their current position from another educational institution.

Compensation alone doesn’t likely account for respondents’ extraordinary commitment to higher education and to their institutions. Numerous environmental factors might also contribute to employment retention. The survey data can shed some light on these factors, although further research is needed.
Belief in the Mission

Researchers such as Charles Garfield suggest that belief in an organization’s mission can outweigh other working conditions, including salary, physical environment, and perquisites. More than 70 percent (71.1 percent) of survey respondents agreed or strongly agreed that their institution has a clearly articulated vision, mission, and strategy. Not only do members of the higher education IT community generally believe in the mission of higher education, many are also employed at institutions they attended. These respondents are the products of the industry they serve. Richard Reeder, CIO, Stony Brook University, is an example. “I have been an employee of Stony Brook for 34 years, including attending school here. I was asked to fill in as interim head of IT in November of 1993. Eventually, Stony Brook’s president created the CIO position and appointed me to the position.” Or as Joseph Sawasky, interim associate vice president for educational and information technology, University of Toledo, said, “This is my alma mater: I have some personal interest in this institution.” As evidence of their commitment to higher education, 61 percent of respondents have earned a master’s degree or higher.

Two-Worker Households

Nearly one in five respondents (18 percent) agree or strongly agree that a spouse’s or partner’s career limits the respondent’s current career mobility. And 23 percent have a spouse or partner currently holding either a faculty or staff position in a higher education institution. Indeed, higher education is often a family affair. As Jean Lacovara, coordinator of information services for the sciences, Bryn Mawr College, plans her career path to an IT leadership position, she is cognizant of her husband’s requirements as a faculty member. If she changed positions, she would require a “sweetheart deal that considers his career as well as mine.”

Employee Programs and Perquisites

On the basis of a 2003 survey of IT workers, Gartner Inc. identified the five employee programs most preferred by employees: education and certification cost reimbursement, casual attire, flexible work options, access to professional conferences and associations, and matching employer contributions to tax-deferred retirement savings plans. Colleges and universities have long been considered leaders in offering these programs and perquisites.

Respondents’ Risk Tolerance and Risk Aversion

Some have described colleges and universities as adhocracies, organizations that seek neither to optimize nor satisfy in economic terms, but rather to satisfice. Adhocracies and communities of skeptics are typically slow to embrace institution-wide change, instead favoring decisions designed to foster sustainability. Higher education administrators often describe their roles as stewards of perpetual resources. Quite possibly, attitudes and behaviors related to risk tolerance or aversion bind higher education practitioners to the academy. The University of Kansas’s Marilu Goodyear, vice provost for information services, said, “I have been tempted to work in industry, but I never have. I don’t think it offered the right match with what I wanted to do. I am also a fiscally conservative person in my private life. The risk profile of the corporate world has never been very appealing to me.”

While commitment to higher education runs high, community members do not move equally across the segments that constitute higher education. Few IT professionals,
for example, move to community colleges from other types of institutions. However, approximately one-quarter of respondents have moved among BA, MA, and doctoral institutions. In general, however, respondents tend to have specific interests that keep them connected to one type of institution.

Rodney Harrigan, vice chancellor of information technology and telecommunications/CIO, North Carolina Agricultural and Technical State University, said, “I have worked with a variety of institutions, but I have many reasons to be committed to HBCUs [historically black colleges and universities]. I grew up in Harlem in the streets of New York. I went to an HBCU in Georgia where it was a nurturing environment, and role models enabled me to succeed in school.” Susan Metros, deputy CIO, executive director for e-learning, and professor of design technology at The Ohio State University, said, “I have always been in a public institution and at a land-grant institution, and I really like the philosophy.” Deborah Gelch, CIO, Lasell University, on the other hand, likes private institutions. “I think the politics are less than at a public institution. The way public institutions get funding is a little different. And I like a smaller size school, not these big mammoth organizations.”

**Careers Offer Surprising Mobility**

Although many survey respondents have remained within higher education or their current college or university for numerous years, they report having spent relatively little time in their current positions. Figure 5-4 shows that 62 percent of survey respondents have served in their current roles for four years or less. Not surprisingly, younger respondents have been in their positions for less time, with 50.9 percent of those age 40 and under having been in their positions two years or less, compared with 30.8 percent of those over 40 years of age. These results are consistent across gender and institution type. Even institution size or organizational area within the institution seemed to play little if any role. This most likely reflects IT management’s dynamic nature, with roles such as keypunch operator, database administrator, Web designer, content manager, and others coming and going rapidly.

![Figure 5-4. Respondents’ Years in Current Position](image-url)
Respondents reported changing roles often in their institutions. Swenson moved into different positions over the years before assuming her current position as director of student information systems at the University of Toronto. “I have always moved throughout the university sideways or in a spiral, not straight up.” In fact, Swenson was a student services user and always asked for the best possible service from the information systems group. “For many years I was on the opposite end, a user asking for services. When the university offered me the director position, I felt it was an opportunity to put my money where my mouth was.”

Others mentioned that changes occurring in universities created opportunities. Mary Jane Casto has worked at Georgia State for 25 years and feels it was like working at different institutions. “When I came to Georgia State initially, it had about 20,000 students and it was almost 100 percent commuter, with a large part-time student population. Now we have about 28,000 students. Nearly 80 percent of the undergraduates and more than half of the graduate students are full-time. This change has exposed me to new experiences.”

This dynamic environment lets survey respondents enjoy the benefits of occupational stability within an industry and an institution while frequently assuming new responsibilities and roles (see Figure 5-5). More than half of survey respondents (53 percent) reported holding three or more different jobs in the past 10 years. Again, this varies significantly with age, with older respondents generally having held fewer jobs than younger respondents over this 10-year period. And again this pattern was consistent across institution types and gender.

**A Leadership Continuity Challenge (or Opportunity)**

Much attention is focused on the graying of the workforce and its impact on organizations. Indeed, as baby boomers age and move toward retirement, many predict that the professional cadres that make up higher education’s workforce—notably faculty—will suffer shortages in fields where there is labor scarcity. Higher education’s current generation of IT leaders and professionals will also likely retire within this decade, creating challenges and expense for institutions that wish to preserve corporate memory and experience.

Figure 5-6 shows that 39.7 percent of survey respondents are 51 years or older. Forty-three percent of male respondents are 51 or older. Especially noteworthy, 58 percent of respondents who have overall responsibility for institution-wide IT are 51 years or older, and 25 percent of these senior-most IT leaders are 56 years old or more. Presumably, at this age and greater, retirement planning plays a major role. Our survey data
suggest a large number of vacancies in the near future among all levels of leadership in higher education’s IT community because of the number of employees age 51 and older. In fact, retirement was at the forefront of many of our respondents’ thoughts. Typical comments were, “I am close to retirement age and wish to cut back rather than gear up,” or “I have worked in IT for 35 years and love technology, challenge, change, and people who get excited about working in IT. At this point in my career, it is enjoyment I’m after—not the headaches that come with being at the top.”

By itself, data about the graying of higher education’s IT workforce are interesting. Even more interesting is an analysis of the leadership community’s expressed intentions to remain (or not) in their current leadership positions and how this relates to the traditional supply lines of future leaders. This analysis reveals a potential erosion of leadership stability in the community over the next five to 10 years. To explore this question, we first look at the “exit” side of the equation: when do older respondents plan to leave their current positions and higher education?

Figure 5-7 details older respondents’ plans to exit from higher education and suggests a significant shift in institutional memory and experience—a hard thing to replace. Richard Reeder of Stony Brook University said, “It is hard to develop institutional knowledge. Technology tools come fairly easily to most IT workers, but what does not come as easily or quickly are the relationships with your colleagues in the functional areas, knowing the business of the university. Once you have someone with both technical ability and a good functional understanding of the area they support, you want to do everything you can to retain or promote them.”

Of the 40 percent of respondents over 50 years of age, 39 percent will be leaving higher education in the next five years. Further, more than one-quarter of all survey respondents expressed intentions to leave higher education in five years or less. These people, including nearly one-quarter of our senior-most leaders (24.7 percent), will exit the industry. Although most of the respondents leaving indicated retirement plans as the predominant reason, some pointed to
  ◆ a preference for the private sector (“academia is too mired in interdepartmental conflicts to produce an overall cost-effective use of technology within the institution”);
  ◆ burnout with IT in general (“I have reached a point of burnout and am leaving the IT field to pursue other interests”);
  ◆ financial compensation (“the compensation for my position is much higher in industry”); or
the belief that higher degrees are required for promotion to the top job ("I have no desire to acquire a Ph.D., which is often required for a senior executive position at an academic or large research institution").

Now consider the other side of the equation: what are the career goals of those not leaving higher education in the short term? Figure 5-2 shows all respondents’ ultimate career goals, including those of people who consider themselves in the professional pipeline for future leadership positions. This analysis reveals a relatively small cadre of aspirants for positions of greater responsibility at their current or some other institution. Overall, approximately one-third of respondents stated that they have no ultimate career plans or that they intend to stay in their current position. Many respondents’ comments on this issue were creative, spontaneous, and to the point. They noted the increased time and responsibility demands, the political nature of these jobs, and the undesirability of promotion because “I have a life” or “you have to sell your soul” or “I don’t fancy swimming in the shark tank.” Refreshingly, many folks just admitted that they did not have the aptitude, skills, or experience required for higher-level positions, as in, “the Peter Principle would apply to me.”

Slightly more than a third of respondents do intend to move to a higher-level position in higher education or, if they already occupy senior-most positions, to seek out higher-level senior-most positions at other institutions. Those choosing to continue their upward mobility took a more serious tone with their responses, giving reasons such as, “I believe I could make a significant contribution,” “I look forward to the chance to influence the growth of IT in higher education,” “I think I have the skills and desire to lead an organization strategically,” or, on a lighter note, “Even though I hate to admit it, I am good at the political game and building relationships.”

Of special concern is that only 15.4 percent of survey respondents plan to move to another higher education institution, and more of these are male (17.1 percent) than female (13.1 percent). Given the number of upcoming leadership position openings and the increasing need to recruit outside the institution, these findings sound an alarm. Some respondents spoke to this issue personally. Richard Reeder noted that “it depends on the dynamics of the institution.”
As long as you feel that things are continuing to change for the better and you are continuing to be stimulated in your environment, a move may not be advantageous.”

We saw minor differences in this pattern across institution types. Intuitively, the biggest factor is again age (see Figure 5-8). The older population makes up a large portion of the IT leadership community, and they appear to be slowing down in terms of upward mobility.

We also looked at the senior-most IT leaders and those who aspire to fill the vacancies that will open in the coming years. Even though nearly 40 percent of responding senior-most IT leaders were drawn from within their current institution, only 25 percent of this group agreed or strongly agreed that their successor would be drawn from within. This suggests that

- most survey respondents are unduly pessimistic about the prospects that internal candidates will fill their positions;
- external recruitment is becoming a more widespread and entrenched practice; or
- the cadre of prospects at the next level of management is unable or unwilling to assume those top roles.

Likely, all three of these factors are at work.

We asked aspirants when they thought they would be ready for the senior-most IT position. Figure 5-9 compares their answers with when the senior-most IT leaders will be leaving their current positions. In our sample population, more than half (53 percent) of our senior-most IT leader respondents plan to vacate their current positions in the next five years. Although some do plan a move to another institution’s senior-most IT position, most don’t plan to stay in this role. Yet only 286 of our sample respondents say they aspire to those positions. And as in any applicant pool, many fewer will actually be qualified and hired. Indeed, the aspirant pool is small relative to the number of positions likely to become available. Georgia State University’s Mary Jane Casto sees this as cause for concern: “The industry as a whole should worry about the pipeline. We don’t have a next tier coming up that has had broad exposure, understands IT issues in higher education, possesses relationship skills, and understands higher education’s decision-making processes.”

Figure 5-8.
Respondents’ Ultimate Career Goal, by Age
Notice also the conundrum that presents itself for those IT professionals who consider themselves in the pipeline for senior-most IT leadership positions. Figure 5-10 shows that as they begin to fill the positions created by vacating senior-most IT leaders, they will have to replace many of their central IT staff members who will be leaving even sooner than the senior-most IT leaders the aspirants are replacing!

We can reasonably conclude that a potential imbalance in the future IT leader pipeline exists. Although nearly a quarter (24.7 percent) of those currently occupying senior-most IT positions plan to leave higher education within the next five years, and incumbents doubt their jobs will be filled from within, relatively few senior-level incumbents or junior-level aspirants plan ultimately to assume positions of senior responsibility. While the recruitment base is larger at more junior levels, making equilibrium possible, the data suggest that strategies to identify and develop this future leadership cadre are appropriate.

Of course, we could also conclude that nontraditional leadership pipelines such as college and university faculty and libraries may prove increasingly important over time. Higher education will also likely turn to even more radical continuity strategies such as IT outsourcing, shared services, and recruitment of leaders from industry and government. Finally, it's quite possible that this generation of IT leaders will pass the baton to a much younger generation.
Endnotes


4. H. A. Simon, Models of Man (Continuity in Administrative Science. Ancestral Books in the Management of Organizations) (Garland Publications, January 1987). Simon pioneered the idea that instead of maximizing their economic utility, people and organizations “satisfice,” or seek out outcomes that are “good enough.”

5. The question asked was “What is your ultimate career goal?” For those planning to assume higher levels of responsibility within IT, such aspirations might or might not include the position with senior-most responsibility.
This chapter looks at current thinking about leadership style and behavior in general and how it applies specifically to IT leadership in higher education. We address the following questions:

- What are the leadership style profiles of higher education’s IT leaders?
- How do the top IT leaders differ from other IT professionals?
- How does mentoring relate to leadership style?

The Nature of Leadership Style

Researchers have studied leadership style extensively over the past three decades, focusing heavily on what behaviors effective leaders exhibit. Their findings indicate that leadership style is something people can learn. In fact, the leadership style used within an organization has been shown to relate profoundly to its performance and, especially, its ability to adapt to changes in the environment. Evidence continues to grow that developing effective leadership behaviors is important and that leadership style does indeed matter.

An important leadership model developed over the past 20 years encompasses two different leadership styles: transformational and transactional. Transformational leadership inspires followers to accomplish things beyond what might be expected, typically by:

- raising followers’ consciousness of the value of specified goals;
- helping followers transcend their own self-interest for the sake of the team, the unit, and the organization; and
- motivating followers to address higher-level personal needs.

Transformational leadership is frequently associated with increased organizational effectiveness. Such an approach stresses that leaders must understand and adapt to their followers’ motives and needs. These leaders are good role models who empower staff members to achieve higher standards and engender trust in others. They are change agents who articulate a clear, shared vision of the organization and establish meaning.

Key Findings

- Higher education IT leaders have leadership profiles consistent with effective leadership.
- These effective leadership profiles are generally consistent across institution types and demographics.
- Senior-most IT leaders or aspirants to the senior-most IT positions display significantly more effective leadership profiles than other IT professionals.
- Mentoring may help develop effective leadership behaviors.
in organizational life. This encompassing approach can describe a wide range of leadership behaviors, from specific attempts to influence followers on a one-to-one basis to broad attempts to influence whole organizations.

In contrast, transactional leadership refers to the most common approach, which focuses on the exchanges that occur between leaders and their followers. Transactional leaders exchange things of value with subordinates to advance their own, as well as their subordinates’, agendas. Traditional examples include a manager offering employees a promotion in exchange for performance, or instructors giving students a grade for work completed. Transactional leaders achieve results through positive or negative reinforcements of behaviors and can be very influential because subordinates realize it’s in their best interest to do what their leaders ask.

The model also acknowledges nontransactional behaviors, sometimes referred to as nonleadership or laissez-faire behaviors, typically associated with a hands-off leadership style. Such a leader tends to abdicate responsibilities, delay decisions, and make little effort to help followers satisfy their needs. An example might be the head of a small unit who calls no meetings with employees, has no long-range plan, and makes little contact with others in the organization.

We associate transformational leadership style behaviors with more effective achievement of outcomes, higher performance levels among followers, and the ability to successfully initiate and execute change. An effective leader must also, however, be facile with transactional leadership processes in a typical organization’s ongoing activities.

We employed elements from the Multifactor Leadership Questionnaire (MLQ) short-form version to assess ECAR survey respondents’ leadership behaviors. This tool determines leadership style by assessing seven different behaviors, including four transformational (Idealized Influence, Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration), two transactional (Contingent Reward and Management-by-Exception), and one nontransactional behavior (Laissez-Faire). Table 6-1 details these seven characteristics.4

**Overall Leadership Profile**

Using this leadership model as a guide, we defined the most effective leadership profiles as those that meet each of these three criteria:

- high transformational scores,
- moderate transactional scores, and
- low laissez-faire scores.

It is good news that, as a whole, higher education IT leaders surveyed showed a tendency toward this effective leadership profile (Figure 6-1). Transformational scores were quite high for the pool of respondents: 37.5 percent had high scores, and another 61.2 percent had moderate scores.5 This suggests that higher education has strong IT leaders who are good role models and able to intellectually stimulate and motivate their followers. Transactional behaviors were also moderately high for the population, with 14.2 percent of respondents having high scores and another 75.3 percent having moderate scores. Laissez-faire style was very low across the population as a whole. As a group, then, respondents lean toward what we know from the literature to be more effective leadership styles.

We interviewed several transformational IT leaders about their leadership styles and what they considered important in working with staff. Not surprising, several themes emerged that are consistent with transformational leadership style. One finding is that these leaders thrive on challenges. Vince Sheehan, CIO and associate dean for information technology at the Indiana University School of Medicine, said, “In my
Table 6-1. Leadership Style Behaviors in the Multifactor Leadership Questionnaire (MLQ) Short Form

<table>
<thead>
<tr>
<th>Leadership Style</th>
<th>Behavior</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformational</td>
<td>Idealized Influence</td>
<td>The leader acts as and is perceived as a strong role model for followers. The leader is respected and trusted by followers and provides a sense of both mission and vision that others want to follow.</td>
</tr>
<tr>
<td></td>
<td>Inspirational Motivation</td>
<td>The leader communicates high expectations for performance. Through images and emotional appeals, the leader inspires followers to pursue a shared vision over individual self-interests.</td>
</tr>
<tr>
<td></td>
<td>Intellectual Stimulation</td>
<td>The leader stimulates and encourages both creativity and innovation. The leader provides an environment fostering experimentation, empowerment, and new approaches to problem solving.</td>
</tr>
<tr>
<td></td>
<td>Individualized Consideration</td>
<td>The leader actively listens to and cares about the individual needs of followers. The leader acts as a mentor or coach and provides attention and direction to followers individually.</td>
</tr>
<tr>
<td>Transactional</td>
<td>Contingent Reward</td>
<td>The leader achieves agreement and performance from followers through negotiated exchange. The leader uses positive reinforcement to encourage followers to achieve outcomes.</td>
</tr>
<tr>
<td></td>
<td>Management-by-Exception</td>
<td>The leader uses corrective criticism, negative feedback, and negative reinforcement to encourage followers to achieve outcomes.</td>
</tr>
<tr>
<td>Nontransactional</td>
<td>Laissez-Faire Leadership</td>
<td>The leader minimizes exchange with followers and allows followers to “do their own thing” with minimal intervention, feedback, or support.</td>
</tr>
</tbody>
</table>
last job, I cleaned up many messes and there was not much challenge left. Frankly, like many people in leadership positions, I need a little juice.”

Likewise, these leaders like to be surrounded by employees who enjoy challenges and want to grow professionally. Many willingly put much time and energy into staff development, identifying and supporting employee-specific goals, and creating high-performing teams. Niels Jensen of Norman-dale Community College stated, “We give people responsibilities and treat them like professionals. We have overlapping duties to discourage them from working in a silo. We watch people for burnout and stress. We try to challenge people and to move them on to better things.” North Carolina A&T State University’s Rodney Harrigan said, “I like people to have goals. They may change them along the way, but I think it is important to encourage people to find their way and set directions, and then help them understand what it takes to move ahead and what to look for.”

Many interviewees also take seriously their function as a role model. The Ohio State University’s Susan Metros said, “It takes a lot of time and energy, but it is really worthwhile to build a strong staff. I am honest about budgets and I try not to keep secrets from them. I think it makes them more confident in what they are doing.” Lasell College’s Deborah Gelch echoed this theme of openness: “I cultivate a ‘we are all in this together’ attitude. We sit around the table every week to review our projects—even mine. I am quite honest with them about which projects I am having trouble with. I think that example is important.”

Why does higher education have transformational leaders? Competing hypotheses attempt to explain this. The most straightforward explanation is that academic institutions have a mechanism for either recruiting or developing more transformational leaders. Perhaps individuals with more transformational leadership styles are drawn to and prefer the unique higher education environment. See, for example,
the respondent scores for transformational leadership behaviors in Figure 6-2. Note that the Idealized Influence leadership behavior scores are highest. Idealized Influence refers to providing followers with a vision and a sense of mission. Many IT professionals choose to work in an organization whose mission they can believe in, and they take pride in services they help provide. They perceive higher education’s role as more contributory to society than the corporate world’s financial “bottom line.” As expressed by University of Kansas’s Marilu Goodyear, “For me it really is a passion; this is where I want to contribute. I want to educate the students well and make the University of Kansas the best university it can be. I truly believe in public education.” Leaders drawn to this environment may also be more inclined or able to translate this sense of mission to their followers and relate it meaningfully to their IT initiatives.

We also noted high Intellectual Stimulation behavior scores for at least 50 percent of the respondents. Academic institutions by their nature are engaged in intellectual stimulation, and, as we found earlier, more than one-third (34.9 percent) of senior-most IT leaders and 25 percent of other IT professionals surveyed held some type of academic appointment (from tenure to adjunct appointments). Leadership often comes from the academic side of the institution, and leadership candidates come to colleges and universities because they resonate with the academic environment. Again, these leaders may translate the values of creativity, experimentation, and learning into their leadership styles.

Another possible or contributing hypothesis is that the respondents identify so strongly with the higher education mission and educational processes that they overly attribute these characteristics to themselves. IT leaders might actually exhibit these transformational leadership behaviors at lower levels, but the scores are inflated by this environmental “halo” effect.

Do these general behavioral trends play out universally among subgroups of our sample population? Actually, the findings are surprisingly robust across institution types: leadership style didn’t vary significantly across Carnegie class (with the exception of medical school respondents, who scored even higher on Idealized Influence),

![Figure 6-2. Respondents' Scores for Leadership Behaviors](image-url)

<table>
<thead>
<tr>
<th>Leadership Type</th>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformational Leadership</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Idealized Influence</td>
<td>1.3</td>
<td>35.0</td>
<td>63.7</td>
</tr>
<tr>
<td>Intellectual Stimulation</td>
<td>4.5</td>
<td>46.5</td>
<td>50.0</td>
</tr>
<tr>
<td>Individualized Consideration</td>
<td>4.0</td>
<td>50.1</td>
<td>45.9</td>
</tr>
<tr>
<td>Inspirational Motivation</td>
<td>2.6</td>
<td>53.5</td>
<td>43.9</td>
</tr>
<tr>
<td>Transactional Leadership</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contingent Reward</td>
<td>18.0</td>
<td>58.9</td>
<td>23.1</td>
</tr>
<tr>
<td>Management-by-Exception</td>
<td>5.7</td>
<td>71.8</td>
<td>22.5</td>
</tr>
<tr>
<td>Nontransactional Leadership</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laissez-Faire</td>
<td>66.3</td>
<td>32.8</td>
<td>0.9</td>
</tr>
</tbody>
</table>

**Figure 6-2. Respondents’ Scores for Leadership Behaviors**

Low [square] Moderate [square] High [square]
between public and private institutions, or when moving from smaller to larger institutions. The leadership profiles also remained consistent across gender and ethnicity, and scores were similar for IT leaders in central IT units as well as those in administrative and academic units.

Despite this overwhelming similarity of leadership behaviors across institutions, we found significant differences in two areas. The first emerged between the senior-most IT leaders and other IT professionals. A second pattern of differences became apparent when we looked at the role of mentoring.

**Leadership Profile of Senior-most IT Leaders**

The data show strong leadership profile differences among the senior-most IT leaders and other IT professionals. Further, it confirms distinctions between IT professionals who aspire to the senior-most IT role and those who do not. Figure 6-3 illustrates the findings. More than half (51 percent) of senior-most IT leaders had high transformational leadership scores, compared with roughly 35 percent of all other IT professionals. The finding that people in the top leadership positions have the best leadership skills is not unexpected, and it reinforces our hypothesis that IT leadership in higher education has the potential for high effectiveness.

**Leadership Style of Aspirants to the Senior-most IT Position**

Another interesting pattern emerges among the other IT professionals when we look at the aspirants to the top IT position. As Figure 6-3 shows, these aspirants show significantly higher transformational leadership behaviors than IT professionals who don’t aspire to the top IT job. Among the aspirants, 49 percent have high scores for transformational behaviors, compared with 31 percent of other IT professionals. Indeed, aspirants’ transformational leadership scores don’t vary significantly from those of senior-most IT leaders, 51 percent of whom scored in the high range.

At a more detailed level, we can look at how these populations differ in the four behaviors constituting transformational leadership style. Table 6-2 compares the percentages of respondent subgroups receiving high scores for these behaviors and shows that aspirants scored significantly higher than other IT professionals in all four areas and mildly lower than the senior-most IT leaders in two of the four areas.
Do Mentors Influence Leadership Style?

One of the most interesting findings to emerge from the data is the importance of mentoring, as shown in Figures 6-4 and 6-5. Respondents with high transformational leadership scores (Figure 6-4) had mentors more often (55 percent) than those with low transformational leadership scores (26 percent). This pattern also holds for transactional leadership scores (Figure 6-5): of the respondents with high transactional leadership scores, 61 percent had mentors, compared with 35 percent of those with low scores. Thus, for those with high transformational and transactional scores, there is a small difference between those with mentors and those without. However, for those respondents having low scores, there is a large difference between those with mentors and those without. This relationship between mentoring and leadership behavioral scores was highly statistically significant.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Senior-most IT Leaders</th>
<th>IT Professionals: Aspirants</th>
<th>IT Professionals: Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idealized Influence</td>
<td>71</td>
<td>72</td>
<td>60</td>
</tr>
<tr>
<td>Inspirational Motivation</td>
<td>54</td>
<td>57</td>
<td>38</td>
</tr>
<tr>
<td>Individualized Consideration</td>
<td>56</td>
<td>52</td>
<td>42</td>
</tr>
<tr>
<td>Intellectual Stimulation</td>
<td>63</td>
<td>59</td>
<td>45</td>
</tr>
</tbody>
</table>

Figure 6-4. Have Transformational Leaders Had a Mentor?
and suggests that although individuals can develop good leadership behaviors without a mentor, they’re less likely to do so than those with mentors.

**Mentoring and Aspirants to Top IT Position**

The relationship of mentoring to leadership style is further reinforced by looking at the components that constitute transformational leadership and comparing the senior-most IT leaders, aspirants, and other IT professionals. For each group, Table 6-3 shows the percentage of high transformational scores for each of the four transformational behaviors, for those with and without mentors. For example, 59 percent of senior-most IT leaders who had a mentor had a high Inspirational Motivation score, compared with only 49 percent of those who did.

**Table 6-3. Percentage of Respondents with High Transformational Leadership Behavior Scores, by Role and by Mentorship**

<table>
<thead>
<tr>
<th>Transformational Leadership Behavior</th>
<th>Had a Mentor?</th>
<th>Senior-most IT Leaders</th>
<th>IT Professionals: Aspirants</th>
<th>IT Professionals: Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idealized Influence</td>
<td>Yes</td>
<td>74</td>
<td>74</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>68</td>
<td>70</td>
<td>53</td>
</tr>
<tr>
<td>Inspirational Motivation</td>
<td>Yes</td>
<td>59</td>
<td>63</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>49</td>
<td>51</td>
<td>33</td>
</tr>
<tr>
<td>Intellectual Stimulation</td>
<td>Yes</td>
<td>66</td>
<td>63</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>58</td>
<td>56</td>
<td>42</td>
</tr>
<tr>
<td>Individualized Consideration</td>
<td>Yes</td>
<td>63</td>
<td>57</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>51</td>
<td>47</td>
<td>38</td>
</tr>
<tr>
<td>Overall Transformational Leadership Style</td>
<td>Yes</td>
<td>57</td>
<td>55</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>46</td>
<td>42</td>
<td>26</td>
</tr>
</tbody>
</table>
not have a mentor. For all three populations, respondents with a mentor had significantly more transformational leadership scores in the high range. Overall, mentoring appears to most strongly influence the aspirants.

These observations on mentoring are particularly important and promising for the development of future higher education IT leaders because they strongly suggest that leadership behaviors can, to an extent, be taught. In other words, we can develop better leaders by establishing and nurturing mentoring relationships with other good leaders. This research strengthens the already strong body of literature supporting the importance of mentoring and contradicts the popular belief that leadership style is a personality trait that cannot be learned.

We asked our interviewees about their own mentoring experiences and found wide variation in how IT leaders think about mentoring—from very informal to carefully planned and structured arrangements. Some pointed to influential bosses who demonstrated strong leadership skills that could be observed and adopted. The University of Toronto’s Eva Swenson said, “I do not think anyone was consciously mentoring me. Whenever I had a boss whom I respected and [who] was effective, I tried to learn from him or her.” Vijay Kumar, director of academic computing at the Massachusetts Institute of Technology, added, “I was mentored through ideas, exchanges, and interactions. By witnessing conversations, the level of your thinking, the bandwidth of considerations, and your perspectives on IT expand.”

Others reported more traditional mentoring. Marilu Goodyear found her mentor early. “At my first job, my boss was a very smart, articulate, and assertive woman with superior skills. She gave me lots of experience, independence, and opportunity to learn but kept me from doing anything drastically wrong! She is a lifelong mentor and friend. She always gives me career advice, and she is the person I go to when I am stuck on a problem.” Robyn Render of the University of North Carolina System noted, “I will clearly say there is nothing better than to have direct mentoring. I watched my bosses get challenged and saw how they worked their way through it. They were very encouraging and supportive of me. My district boss at AT&T was a female. She clearly saw no barriers or obstacles to where I could go.”

Those who have personally benefited from mentoring often make strong mentorship commitments to their own staffs. Marilu Goodyear now has a mentoring group of middle-manager employees who meet once a month for drinks to discuss problems and issues. She also meets with her middle managers and their supervisors at least twice a year in a mentoring session to talk about their career paths and the skills they need.

**Mentoring and Age**

We saw other interesting patterns in the data related to mentoring, including a relationship between mentoring and age. As Figure 6-6 shows, respondents under age 51 were more likely to have (or have had) a mentor than respondents over age 50. Looking more closely at this subgroup of individuals under age 51, we discovered that those who have (or have had) a mentor also had significantly higher transformational leadership scores. This suggests a very important finding: that those under age 51 may be gaining transformational leadership skills in part from their mentors.

Turning our attention to individuals over 50, we found that those with higher transformational leadership scores are the senior-most IT leaders rather than those who have had a mentor. Given the short history of IT itself, it is quite possible that those over 50 had no available role models or senior mentors in IT. Those with strong leadership
behaviors moved into the senior positions and probably learned those behaviors on the job or elsewhere. This may explain why prior studies show that the most effective senior IT leaders have come from outside IT. As Martin Ringle, chief technology officer at Reed College, put it, “You fall into the profession, bringing your wooliness and inventiveness.”

We find it promising that individuals 50 years and under do have more mentors and role models than those over 50 years of age, and that, further, this future generation of IT leaders has, and will likely continue to develop, strong transformational behaviors. In the population of respondents under 51 years of age, mentoring appears to make a difference in developing transformational leadership behaviors.

### Endnotes

3. The MLQ short form (MLQ-6S) was developed by Bernard Bass and Bruce Avolio and is available through the Center for Leadership Studies at Binghamton University as well as several other sources.
5. We chose the most conservative approach to creating an overall transformational leadership score; respondents were scored high on their overall transformational leadership score if they scored high on all four behaviors constituting transformational leadership (Idealized Influence, Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration).
Innovation Climate

Innovation is a defining characteristic of successful organizations and successful leaders, and is therefore important to our study of IT leadership. This chapter focuses on campus central IT organizations and investigates how those survey respondents working in central IT organizations (1,253 senior-most IT leaders and other IT professionals) view their organizational support for innovation. We address the following questions:

◆ How do respondents working in central IT units perceive their support for innovation?
◆ How do institution types differ in their central IT organizations’ innovation climate?
◆ How does leadership style relate to innovation climate in central IT units?
◆ What is the impact of central IT unit innovation climate on perceived IT effectiveness?

**Innovation Climate in Higher Education IT**

What is innovation? We might define it as the source for new or improved services or products. However, W. Arthur Porter better captured the process of innovation when he said that “the innovate point is the pivotal moment when talented and motivated people seek the opportunity to act on their ideas and dreams.” Information technology is a natural locus for innovation in academic institutions because IT initiatives are in and of themselves vehicles for innovation. For example, installing an enterprise resource planning system can potentially generate institution-wide innovations in processes as well as product. A climate open to innovation depends strongly on leadership, for it is the leadership that coordinates and implements innovation. This relationship between leadership and innovation motivated our desire to understand more about the innovation climate in higher education IT organizations and to allocate a portion of our survey to this question.

To measure innovation climate, we used a multifactor survey instrument that asks respondents 25 questions about activities...
related to innovation in their institution’s central IT organization. These questions use a Likert scale (1 = not at all, 2 = once in a while, 3 = sometimes, 4 = fairly often, and 5 = frequently, if not always). We then mapped the statements into the nine innovation characteristics associated with promoting or supporting innovation in organizations (described in Table 7-1). On the basis of these ratings, we created a score for each of the nine characteristics for each respondent, then combined these nine scores to produce an aggregate central IT organization “support for innovation” score for each survey respondent.

Table 7-1. Support for Innovation Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk-Taking</td>
<td>Employees are challenged and rewarded for coming up with novel ways of doing things and are encouraged to learn from mistakes. Standard operating procedures are guides, not rules, for making decisions.</td>
</tr>
<tr>
<td>Rewards</td>
<td>People receive tangible and intangible rewards for trying out new ideas. Employees receive top-level recognition for their contributions so that they feel a sense of pride and achievement in their work.</td>
</tr>
<tr>
<td>Empowering</td>
<td>Employees are trusted. They are encouraged to use professional judgment in making nonroutine decisions. They are encouraged to learn and take part regularly in educational events on and off the job.</td>
</tr>
<tr>
<td>Objective Measurements</td>
<td>Employees have valid and objectively defined standards that measure their work. These standards derive from the organization’s mission and assessments of the organization’s main programs, products, and services.</td>
</tr>
<tr>
<td>Feedback</td>
<td>The organization has well-established communication with people inside and outside the organization. It uses information to monitor the quality of service and make corrections before problems escalate. Employees know their clients directly.</td>
</tr>
<tr>
<td>Turbulence</td>
<td>Organizations are flexible enough to respond to problems. They communicate with employees and clients to enlist support in solving problems.</td>
</tr>
<tr>
<td>Interdependence</td>
<td>Although the organization has checks and balances to control waste, fraud, or abuse, these controls do not interfere with a seamless flow of work. Managers defer their own interests to the overall mission of the organization.</td>
</tr>
<tr>
<td>Decentralization</td>
<td>There is little difference in social status between managers and employees. The organization absorbs a variety of ideas from all personnel to find creative solutions and to boost commitment to reaching goals.</td>
</tr>
<tr>
<td>Cosmopolitan</td>
<td>In making decisions, managers focus on the big picture of client needs. They encourage the influx of new ideas by analyzing feedback and soliciting the skills of outsiders. They enjoy learning about organizations that use best practices.</td>
</tr>
</tbody>
</table>
**Overall IT Innovation Climate Profile**

The first major finding from the data is that respondents don’t perceive higher education central IT organizations, on the whole, as very supportive of innovation. Indeed, as Figure 7-1 shows, nearly two-thirds (63.6 percent) of respondents had “support for innovation” scores on the low-average or low end of the innovation climate scale.

What is surprising about this finding is that prior research indicates that environments with higher transformational leadership behaviors display higher support for innovation. This leads to a higher education anomaly: while the IT leaders surveyed showed effective leadership profiles, and, while they think of higher education as having a mission of innovation, they seem to be working in IT climates they perceive as not very conducive to innovation. This suggests that areas exist where higher education IT leadership can and should take action to improve the climate for innovation. It also suggests that other factors, whether institutional or individual, might be inhibiting the innovation climate in these central IT organizations. In fact, some respondents talked about difficulties in bringing about innovation. One respondent summarized the problem: “The biggest barriers to innovation include personal and professional risks associated with promoting change, the amount of effort required to implement and sustain change or innovation, organizational silos and fiefdoms, and ambivalence about the importance of and commitment to administrative excellence.”

We now turn to the actual data to understand this low level of support for innovation in central IT organizations and examine the nine characteristics of innovation support more closely. Figure 7-2 illustrates the mean values for each characteristic and the range of responses within one standard deviation of the mean. The figure shows that the characteristics of Turbulence, Feedback, and Rewards are the key areas contributing to the lower overall innovation climate scores.

The common element in the Turbulence and Feedback characteristics is communication. Turbulence refers to communication for solving problems, and Feedback refers to the well-established communication links with people inside and outside the organization. This suggests that gaps in communication

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**Figure 7-1. Central IT Units’ Innovation Climate Scores**

- Low Innovation: 32.9%
- Low-Average Innovation: 46.6%
- High-Average Innovation: 17.0%
- High Innovation: 3.5%
processes within the IT organization, between the IT organization and the institution, or with constituents outside the institution might inhibit an innovative climate. This may be due partly to higher education’s inherent nature as insular and silo based, with less than effective cross-organizational communications.

The University of California at Davis’s John Bruno acknowledged the importance of communication when he said, “I had some management experience previously, but not dealing with a 300-person staff. One of the biggest lessons I had to learn was how to communicate. By this I mean the sequence of communication steps to ensure that people are informed in an orderly and consistent manner, and that you have buy-in at all levels. This makes all the difference in the world.”

Low Rewards scores imply that individuals don’t receive sufficient rewards (tangible or intangible) or recognition for trying out new ideas—another familiar characteristic of higher education. The extent to which the most tangible reward—pay—can be manipulated is often limited, especially in tight budgetary times. Our interviewees recognize this and have developed numerous creative ways to compensate for this reality. For example, they pointed to public recognition for exceptional performance.

Joyce Williams-Green, associate provost for information resources/CIO at Winston-Salem State University, likes to present outstanding employee accomplishments as “success stories” to other employees. On the flip side, she said it’s also “important to teach your staff that it is okay to make a mistake. If they don’t make a mistake, they are not doing their jobs. Make a mistake, acknowledge the mistake, resolve it, and go on.”

Higher education IT leaders seek to improve communication and rewards, both important to the innovation climate. Our findings suggest, however, that much more can be done with respect to rethinking, monitoring, and adjusting our communication and reward models.

It is also instructive to look at what we are doing well. The Empowerment innovation climate characteristic scored high, and this topic bubbled up frequently in interviews with IT leaders. Case Western’s Lev Gonick said, “I characterize it as a balance between challenge and support. All of my direct reports are significantly challenged, and we then put resources behind those challenges in the form of support. I also make sure that they understand my willingness to engage, and to try to remove some of the hurdles inhibiting success.”

**Institution Type and Carnegie Class**

Although we found little difference between public and private institutions,
differences did emerge between Carnegie classifications, as shown in Figure 7-3. Respondents from doctoral institutions’ central IT units reported significantly lower innovation climates than respondents from other institution types, suggesting that leaders in research institutions may face additional challenges and barriers to creating environments that support IT innovation. Research universities face increased complexity, a more challenging regulatory environment, and a more elitist culture, and these universities are generally large. In fact, we also found that respondents from larger institutions reported lower innovation climates in their IT organizations than did respondents from smaller institutions.

Among the nine innovation climate characteristics, research institution respondents indicated having more support in terms of creating Rewards but significantly less support in all other categories. One explanation is that respondents perceive rewards for pursuing innovation as higher in research institutions, which generally offer more room for advancement and varied work experience than smaller institutions do. Respondents from institutions with larger IT units also rated their IT environments as having higher support for rewards than did respondents from smaller units.

**Innovation Climate and Respondent Characteristics**

Do respondents’ particular characteristics influence how they rate their IT innovation climate? In fact, the findings show differences related to CIO aspirations, academic background, and mentorship. Twenty-nine percent of those who aspire to a CIO position rated their central IT unit’s support for innovation as high or high average, compared with 21 percent of those without such aspirations. Individuals with an academic background were also more likely to perceive higher innovation support: nearly 66 percent of respondents with an academic appointment rated their IT organization as having a strong innovation climate, compared with 34 percent of those without an academic appointment. Those with academic appointments were more likely to perceive an environment specifically supportive of taking risks and rewarding innovation.

Finally, the importance of mentoring surfaces again in the data: 43 percent of respondents who had a mentor perceived high or high-average innovation climates,
compared with only 31 percent of those without mentors. Perhaps a mentor’s personal attention provides IT personnel with more opportunities to learn how to navigate and take advantage of the IT environment, and therefore they perceive a stronger innovation climate. Lasell College’s Deborah Gelch, a firm believer in mentoring, said, “I benefited so much from mentoring, and so I spend a lot of time mentoring those who report directly to me and other professionals in my unit. I’m thrilled. People have done it for me, and I am happy to help other people as well.”

**Leadership Matters—Again**

It is leadership that coordinates and implements innovation, and the literature on innovation reports a distinct relationship between leadership style and innovation. Specifically, leaders foster innovation by creating a climate open to creativity and supportive of differences, and also supportive of risk-taking. We look first at how respondents’ perceptions of innovation climate relate to leadership style. Prior research found that a transformational leadership style plays a positive role in generating a positive innovation climate. The ECAR study data strongly support this literature. Figure 7-4 shows that IT leaders with higher transformational leadership behaviors perceive stronger support for innovation in their IT organizations. In fact, no respondents with a low transformational leadership style score perceived their IT organizations as having a high innovation score.

We also found that a respondent’s role in IT leadership at the institution is key (Figure 7-5). Once again, whether or not a respondent was the senior-most IT leader proved a strong indicator of how he or she perceived the institution’s innovation climate. Of senior-most IT leaders, 37 percent rated their central IT units as having high-average to high innovation climate scores, compared with only 27 percent of other IT professionals. Since most of our senior-most IT leader respondents are directly responsible for, and control, one or more of the central IT organizations on their campuses, they likely have greater freedom themselves to innovate and to create an IT working environment supporting innovation. In fact, we see this pattern of the senior-most IT leader having a more positive view of IT (both in the central IT organization and at the institution in general) again in a later chapter when we look at respondents’ perceptions about IT effectiveness.

What can we learn from these findings about how leadership style and role relate
to the central IT unit innovation climate? We once again see the Turbulence, Feedback, and Rewards innovation characteristics as areas for improvement. Role—senior-most IT leader versus other IT professional—most influences Turbulence (flexibility and communication for effective problem solving) and Feedback (established communication structures) scores. Again, these characteristics’ common element is communication, suggesting that closer examination of communication processes designed by senior-most IT leaders and practiced by the leaders themselves might lead to new or improved communications and, subsequently, better innovation climates. The Rewards characteristic is most influenced by the transactional rather than transformational leadership style, which indicates that the lower Reward scores relate more closely to tangible than intangible aspects of recognition for employees.

This analysis provides some insight into how we might target improvements in reward and communication structures to improve innovation support. Given most institutions’ budgetary constraints, it may be more financially feasible (although difficult culturally) to address communication issues. Nevertheless, even under such conditions, finding creative solutions to increasing tangible rewards could have high payoffs.

The Value of Support for Innovation

Our discussion so far has emphasized that overall perceived support for innovation in higher education central IT units is relatively low, with only one-third (36.4 percent) of respondents reporting innovation climate scores in the high-average to high range. But should we care? What is the value of high innovation support in IT organizations? To begin answering this question, we look more closely at respondents who reported that they work in the more innovative climates. Specifically, do they see their IT organizations and institutions as more effective in deploying IT? We asked respondents to rate their level of agreement or disagreement with 41 statements about IT environment effectiveness using a Likert scale (1 = strongly disagree to 5 = strongly agree). We analyzed respondent ratings in the context of how they viewed the central IT unit innovation climate (Tables 7-2 and 7-3).

The results are striking. Indeed, respondents who agree that central IT has a climate conducive to innovation also perceive higher levels of IT effectiveness in both the central IT unit and the institution as a whole. By contrast, the percentage of respondents agreeing with these IT effectiveness statements drops sharply for those who rate their
Table 7-2. Relationship Between Perceptions of Central IT Effectiveness and Innovation Climate Scores

<table>
<thead>
<tr>
<th>Central IT Organization Effectiveness Component</th>
<th>IT Unit Innovation Climate Score (Percentage of Respondents Who Agree or Strongly Agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>IT organization fosters responsible experimentation and innovation</td>
<td>100.0</td>
</tr>
<tr>
<td>IT organization has staff members who are well trained in technologies required to do their jobs</td>
<td>100.0</td>
</tr>
<tr>
<td>IT unit maintains excellent relationships with other units across campus</td>
<td>97.7</td>
</tr>
<tr>
<td>IT organization is increasingly influential</td>
<td>97.7</td>
</tr>
<tr>
<td>IT organization has strong project management and process management skills</td>
<td>95.4</td>
</tr>
<tr>
<td>IT organization makes organizational and personnel changes to accommodate deployment of new technologies</td>
<td>95.3</td>
</tr>
<tr>
<td>IT organization actively communicates IT architecture to campus</td>
<td>93.1</td>
</tr>
<tr>
<td>IT organization is final authority on campus-wide IT infrastructure decisions</td>
<td>93.0</td>
</tr>
<tr>
<td>IT organization sets IT architecture and standards</td>
<td>93.0</td>
</tr>
</tbody>
</table>
Table 7-3. Relationship Between Perceptions of Institutional IT Effectiveness and Innovation Climate Scores

<table>
<thead>
<tr>
<th>Institutional IT Effectiveness Component</th>
<th>High</th>
<th>High-Average</th>
<th>Low-Average</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution’s IT infrastructure is recognized as an important institution-wide asset</td>
<td>100.0</td>
<td>89.3</td>
<td>76.4</td>
<td>49.7</td>
</tr>
<tr>
<td>Institution’s IT infrastructure easily accommodates new and emerging technologies</td>
<td>97.7</td>
<td>81.4</td>
<td>56.7</td>
<td>31.0</td>
</tr>
<tr>
<td>There is an effective management structure for overseeing IT activities</td>
<td>95.4</td>
<td>86.2</td>
<td>60.6</td>
<td>15.4</td>
</tr>
<tr>
<td>Leadership of the institution understands the value of IT</td>
<td>93.0</td>
<td>83.0</td>
<td>67.9</td>
<td>47.0</td>
</tr>
<tr>
<td>IT initiatives often result in sustainable and positive cultural change</td>
<td>93.0</td>
<td>77.9</td>
<td>52.0</td>
<td>25.0</td>
</tr>
<tr>
<td>IT is a prominent element in institution-wide strategic plans</td>
<td>93.0</td>
<td>73.7</td>
<td>65.3</td>
<td>45.8</td>
</tr>
<tr>
<td>Institution has a reputation for being forward-thinking in the use of IT</td>
<td>90.7</td>
<td>75.2</td>
<td>54.1</td>
<td>29.9</td>
</tr>
<tr>
<td>IT initiatives challenge long-standing procedures and processes</td>
<td>88.4</td>
<td>85.6</td>
<td>65.7</td>
<td>47.5</td>
</tr>
</tbody>
</table>

Central IT organization’s innovation climate as low. From these data, we can make some general observations.

**IT General Management**

Respondents reporting high or high-average IT innovation climates in their central IT units view some dimensions of IT general management more positively than do other IT professionals. They agree more often that the overall IT management structure is effective, and they more often view the central IT organization as having strong project and process management skills and excellent relationships with other campus units. In addition, they overwhelmingly agree that the central IT organization has staff members well trained in technology and makes personnel changes necessary to embrace new technologies.

**Organizational Change**

Respondents who report that they work in institutions where the central IT unit has a high or high-average IT innovation climate perceive more organizational change than do other respondents. They agree more often that their IT initiatives challenge long-standing procedures and processes, and that IT initiatives often result in sustainable and positive cultural change.
Institutional Effect of IT

Respondents who score their central IT organization’s innovation climate as high or high average perceive their institution as having a reputation for being forward-thinking in IT use more often than other respondents. They also overwhelmingly agree that the IT unit fosters innovation and experimentation. Further, these respondents agree that the institution’s leadership understands IT’s value, that IT is a prominent element in their institution’s strategic plans, and that the IT organization is increasingly influential.

Technology Architecture and IT Infrastructure

Respondents who report that they have a higher IT innovation climate agree more often than other respondents that their campus leadership views the campus IT infrastructure as an important institution-wide asset. At a more detailed level, these respondents also agree more often that the central IT organization is actively involved in the institution-wide IT architecture—setting and communicating standards and assuming final authority for infrastructure decisions—and has an institution-wide technology infrastructure that accommodates emerging technologies.

Conclusion

These findings provide strong evidence that developing IT leaders who can foster environments that support innovation has high payoffs for higher education. This discovery is especially significant when viewed in contrast with the relatively low central IT organization innovation climate scores reported across the respondent population.

Endnotes
2. Ibid., pp. 214–216.
4. These observations are largely consistent with the findings of Howell and Avolio.
Some 330 individuals who occupy the senior-most information technology (IT) position and have overall responsibility for IT at their institution responded to the survey. This chapter focuses on these IT leaders in two areas. First, we integrate previous findings about the differences between senior-most IT leaders and other IT professionals and discuss additional leadership characteristics. Second, we consider Synnott and Gruber’s original definition of a CIO and its key components: title, reporting relationship, responsibilities, and, especially, membership on the president’s/chancellor’s cabinet.

How Are Senior-most IT Leaders Different?

Table 8-1 highlights senior-most IT leaders’ overall profile compared with that of the other IT professional respondents, as discussed in previous chapters. We see that the senior-most IT leadership is still primarily white male, highly educated, hard working, older, and slowing down with respect to seeking higher positions (only 15.2 percent aspire to a higher-level position). They also have stronger transformational leadership behaviors and report that their central IT organizations have more support for innovation.

What about other leadership aspects? We asked survey respondents which skills they thought were most pivotal to their success in their current position. Table 8-2 shows that senior-most IT leaders and other IT professionals agreed on the top two skills—communication and strategic planning. However, senior-most IT leaders reported “understanding business processes and operations” as the third most important skill, whereas those at lower leadership levels saw technology as more important, ranking third the “thorough knowledge of technology options.” Further, respondents with higher transformational leadership skills were more likely to rate strategic thinking and planning as critical. Respondents to the CIO Magazine industry-wide survey agreed with our senior-most IT leaders in their rankings of the top three pivotal skills.

Key Findings

◆ The most important factor in the original Synnott/Gruber CIO definition is membership on the president’s/chancellor’s cabinet.
◆ Half of senior-most IT leader respondents have a seat on the president’s/chancellor’s cabinet.
◆ Senior-most IT leader respondents who are members of the president’s/chancellor’s cabinet have significantly more interactions with higher-level executives and the governing board, make greater use of planning processes and models, and participate more in non-IT institutional decisions.
We also asked respondents about the top three barriers to success in their current position (Table 8-3) and found these to be the same for senior-most IT leaders as for other IT professionals. However, while industry CIOs agreed with our respondents on the most important skills, they ranked the top barriers to success differently. Industry CIOs don’t seem as concerned about the pace of technology change and do seem more concerned about aligning IT initiatives with overall organizational goals.

Our survey also asked respondents about experiences in their roles at their institutions. These questions used a Likert scale (from 1 = strongly disagree to 5 = strongly agree). Table 8-4 shows that senior-most IT leaders agreed more often than other IT professionals that they are responsible for fostering change and that they maintain knowledge of both technology and higher education issues. Notably, senior-most IT leaders agreed that they were “knowledgeable about current and emerging technologies” somewhat more often than other IT professionals. Yet Table 8-2 shows that these same “other IT professionals” rated “knowledge of technology options” as more critical to success than did the senior-most IT leaders.
### Table 8-2. Skills Rated as Pivotal to Success, by Role

<table>
<thead>
<tr>
<th>Skill</th>
<th>Senior-most IT Leaders (Percentage)</th>
<th>Other IT Professionals (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to communicate effectively</td>
<td>89.4</td>
<td>87.6</td>
</tr>
<tr>
<td>Strategic thinking and planning</td>
<td>84.5</td>
<td>66.7</td>
</tr>
<tr>
<td>Understanding business processes and operations</td>
<td>40.0</td>
<td>35.7</td>
</tr>
<tr>
<td>Thorough knowledge of technology options</td>
<td>34.2</td>
<td>42.9</td>
</tr>
<tr>
<td>Ability to influence/salesmanship</td>
<td>25.5</td>
<td>17.0</td>
</tr>
<tr>
<td>Negotiation skills</td>
<td>11.8</td>
<td>13.4</td>
</tr>
<tr>
<td>Technical proficiency</td>
<td>10.6</td>
<td>30.1</td>
</tr>
</tbody>
</table>

### Table 8-3. Barriers Rated as Impeding Effectiveness, by Role

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Senior-most IT Leaders (Percentage)</th>
<th>Other IT Professionals (Percentage)</th>
<th>Industry CIO Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of adequate financial resources</td>
<td>50.6</td>
<td>44.7</td>
<td>1</td>
</tr>
<tr>
<td>Conflicting priorities among organizational units</td>
<td>31.5</td>
<td>41.6</td>
<td>2</td>
</tr>
<tr>
<td>Shortage of time for strategic thinking and planning</td>
<td>29.1</td>
<td>30.4</td>
<td>4</td>
</tr>
<tr>
<td>Lack of key staff/skill sets</td>
<td>28.8</td>
<td>24.6</td>
<td>6</td>
</tr>
<tr>
<td>Overwhelming pace of technology change</td>
<td>24.8</td>
<td>19.7</td>
<td>12</td>
</tr>
<tr>
<td>Aligning IT efforts with institutional goals</td>
<td>22.1</td>
<td>26.8</td>
<td>3</td>
</tr>
<tr>
<td>Unrealistic user expectations and ineffective user communications</td>
<td>18.5</td>
<td>22.3</td>
<td>9</td>
</tr>
<tr>
<td>Risk and uncertainty due to volatile economic and environmental conditions</td>
<td>17.0</td>
<td>11.4</td>
<td>5</td>
</tr>
<tr>
<td>Difficulty in assessing and proving the value of IT</td>
<td>16.4</td>
<td>13.7</td>
<td>7</td>
</tr>
<tr>
<td>Managing and building staff</td>
<td>16.4</td>
<td>12.5</td>
<td>14</td>
</tr>
<tr>
<td>Leadership/institution knowledge within IT department</td>
<td>9.1</td>
<td>15.1</td>
<td>11</td>
</tr>
<tr>
<td>Weak institutional financial performance</td>
<td>8.8</td>
<td>5.2</td>
<td>8</td>
</tr>
<tr>
<td>Poor vendor support and service levels</td>
<td>5.2</td>
<td>4.1</td>
<td>13</td>
</tr>
<tr>
<td>Conflicts with peers</td>
<td>3.6</td>
<td>8.0</td>
<td>10</td>
</tr>
<tr>
<td>Inability to effectively influence technology vendors</td>
<td>1.5</td>
<td>1.6</td>
<td>15</td>
</tr>
</tbody>
</table>
Senior-most IT leaders typically meet with senior administration, faculty, and deans more frequently than do other IT professional respondents (Table 8-5), who in turn meet with managers, supervisors, and technical peers more often than senior-most IT leaders do. Meetings with institutional constituents seem to be reasonably close to what we might expect, given the respective positions each group occupies within the institution.

**Synnott and Gruber (Classic) CIOs**

When Synnott and Gruber first coined the term CIO, they defined the role as a senior executive responsible for IT policy, management, control, and standards. This concept grew out of the information resource management movement as difficult issues of IT organization, standards, and infrastructure were emerging. The CIO construct addressed these issues by integrating and consolidating the control of IT functions under a single high-level IT position. The intent was to position IT as a strategic resource and facilitate alignment between technology and overall organizational strategies. This implied a high-level reporting relationship and a place on the president’s cabinet.

Using this definition, we reviewed the survey data to find the senior-most IT leader respondents who conformed to this profile. In fact, 120 of our 330 senior-most IT leader respondents, approximately one-third (36.4 percent), met Synnott and Gruber’s criteria. As illustrated in Figure 8-1, we term these leaders the “classic” CIOs in that they

| Table 8-4. Percentage of Respondents Who Agree/Strongly Agree with the Following Statements |
|-----------------------------------------------|-----------------------------------------------|
| Statement                                      | Senior-most IT Leaders | Other IT Professionals |
| I consider it my responsibility to foster change at my institution | 94.2 | 78.5 |
| I am knowledgeable about current and emerging technologies | 91.7 | 80.9 |
| I maintain a broad-based understanding of higher education trends and issues | 90.5 | 74.4 |
| I receive frequent requests from peers for information, ideas, and opinions about IT | 85.0 | 84.1 |
| My interactions with executives and managers frequently result in ideas about how to use IT in new ways | 79.6 | 64.2 |
| I am frequently solicited to participate in resolving issues that are highly sensitive | 73.7 | 66.9 |
| I am frequently invited to speak or be a panel member at national conferences on technology issues | 20.8 | 13.4 |
| I am frequently invited to speak or be a panel member at national conferences on higher education issues in general | 7.4 | 7.6 |
Table 8-5. Percentage of Respondents Meeting Frequently/Often with Constituent Groups

<table>
<thead>
<tr>
<th>Constituent Group</th>
<th>Senior-most IT Leaders</th>
<th>Other IT Professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Others in own unit</td>
<td>85.3</td>
<td>89.5</td>
</tr>
<tr>
<td>Immediate management</td>
<td>82.1</td>
<td>81.5</td>
</tr>
<tr>
<td>Provost/academic VP/VC</td>
<td>79.1</td>
<td>17.1</td>
</tr>
<tr>
<td>Administrative executives</td>
<td>76.4</td>
<td>57.3</td>
</tr>
<tr>
<td>Deans</td>
<td>66.6</td>
<td>27.9</td>
</tr>
<tr>
<td>Faculty</td>
<td>60.2</td>
<td>54.9</td>
</tr>
<tr>
<td>Managers/supervisors</td>
<td>57.7</td>
<td>73.1</td>
</tr>
<tr>
<td>Department/unit heads</td>
<td>54.9</td>
<td>65.1</td>
</tr>
<tr>
<td>President/chancellor</td>
<td>54.2</td>
<td>3.7</td>
</tr>
<tr>
<td>Functional peers</td>
<td>47.2</td>
<td>51.7</td>
</tr>
<tr>
<td>Technical peers</td>
<td>41.5</td>
<td>56.0</td>
</tr>
<tr>
<td>IT vendors</td>
<td>35.2</td>
<td>27.8</td>
</tr>
<tr>
<td>Governing board</td>
<td>25.8</td>
<td>2.3</td>
</tr>
<tr>
<td>Students</td>
<td>25.6</td>
<td>32.4</td>
</tr>
</tbody>
</table>

- report to at least the vice president/chancellor or vice provost level;
- have a title of CIO or at least assistant/associate vice president/chancellor or assistant/associate vice provost;
- have management responsibility for at least academic computing/instructional technology, administrative systems, data communications, institution-wide IT policy, institution-wide IT planning, and user support and training; and
- are members of the president’s/chancellor’s cabinet.

We next looked at how these classic CIOs differed from senior-most IT leaders who didn’t meet the above criteria. Although these two respondent groups are similar in most respects, they do differ in ways we’d expect on the basis of the definition. Specifically, classic CIOs have more interactions with the president/chancellor and governing boards, generally higher salaries, and slightly more formal education. They also make more use of planning processes and participate significantly more in non-IT-related institutional decisions.

Much has changed, of course, since Synnott and Gruber’s 1981 proposal. Universities and colleges are more complex, IT is more mature, and institutions have had years of experience in dealing with organizational structures, IT standards, and infrastructure. This led us to ask if any key factors in the classic CIO definition accounted for the differences between the classic CIOs and other senior-most IT leaders. Indeed, analysis of our survey population and the classic CIO definitional factors—title, reporting relationship, responsibilities, and cabinet membership—revealed that driving the difference in responses is membership on the president’s/chancellor’s cabinet. These data suggest to us that cabinet membership is an important consideration in constructing a top-level IT position at an institution.
A Seat at the Table

A 1999 Gartner study projected that by 2003 nearly half of CIOs would be operating as full or equal cabinet members at their respective institutions. Of our 330 senior-most IT leaders who have overall responsibility for IT at their campuses, about half are right on schedule: 167 (50.6 percent) have a seat on the president’s/chancellor’s cabinet.

Many respondents believe having a seat at the table is critical to performing their jobs because it provides entrée to institutional discourse and decision making. North Carolina Agricultural and Technical State University’s Rodney Harrigan expressed this view when he said, “Technology needs a voice around the decision makers because technology affects every aspect of the organization. The voice needs to be at the table so the CIO can give the technological implications of the decisions they are making. On the other hand, the CIO needs to hear what the cabinet is planning to do, to help formulate IT strategies. You lose it in the translation when you are not sitting at the table; there is really no one else around the table that has that expertise. If you don’t get there, you will not be able to do your job right.” Or as Bobby Schnabel, associate vice chancellor, University of Colorado at Boulder, said, “It is not just an IT job anymore. It is part of the highest level of university management.”

Since the classic CIO job definition includes access to the organization’s highest level, we looked at respondents’ meetings with institutional constituents (Table 8-6). Cabinet members do appear to run in higher management circles; they reported having more access to the president/chancellor (with whom 79.6 percent meet frequently or often), compared with noncabinet senior-most IT leaders (28 percent). Cabinet members also have more contact with the governing board: 38.8 percent meet with the board.
Table 8-6. Relationship between Cabinet Membership and Meetings with Constituent Groups

<table>
<thead>
<tr>
<th>Constituent Group</th>
<th>Percentage of Senior-most IT Leaders Who Meet Frequently or Often with Each Constituent Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cabinet Members</td>
</tr>
<tr>
<td>Provost/academic VP/VC</td>
<td>86.1</td>
</tr>
<tr>
<td>Others in own unit</td>
<td>85.4</td>
</tr>
<tr>
<td>Immediate management</td>
<td>83.1</td>
</tr>
<tr>
<td>President/chancellor</td>
<td>79.6</td>
</tr>
<tr>
<td>Administrative executives</td>
<td>78.9</td>
</tr>
<tr>
<td>Deans</td>
<td>71.8</td>
</tr>
<tr>
<td>Faculty</td>
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</tr>
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<td>Governing board</td>
<td>38.8</td>
</tr>
<tr>
<td>Managers/supervisors</td>
<td>48.4</td>
</tr>
<tr>
<td>Department/unit heads</td>
<td>47.8</td>
</tr>
<tr>
<td>Functional peers</td>
<td>46.3</td>
</tr>
<tr>
<td>IT vendors</td>
<td>34.1</td>
</tr>
<tr>
<td>Technical peers</td>
<td>39.3</td>
</tr>
<tr>
<td>Students</td>
<td>22.8</td>
</tr>
</tbody>
</table>

frequently or often, compared with 12.4 percent of non-cabinet members. Cabinet members also seem to meet somewhat more frequently with academic executives, including the provost and academic vice chancellor. John Bruno, vice provost, University of California at Davis, said, “It is the only reason I was interested in the job. The position is now a vice provost, so my colleagues are the other vice provost and vice chancellors. Although the job has a big management component with a complete staff organization, it also has a lot of features of senior leadership and collaboration with senior leadership.”

Dennis Trinkle, coordinator of information services and technology, DePauw University, has a cabinet-level position and reported, “I go door to door, sit down with other cabinet members, and offer to work on problems and issues with them, even when they do not involve IT. I give them the one gift I know I can always give, which is my time.”

Table 8-7 shows the overall portfolio of responsibilities on the basis of whether a senior-most IT leader has a seat at the cabinet table. Responsibilities do not vary significantly, with two exceptions. First, 83.8 percent of cabinet-member IT leaders have responsibility for voice communications, whereas non-cabinet IT leaders include this function in their portfolio only 66.9 percent of the time. Second, and more interesting, respondents with library responsibility also reported cabinet membership more frequently: 23.4 percent of respondents with cabinet seats have library responsibility, compared with 9.2 percent of respondents without cabinet seats. This may reflect the fact that higher education institutions already highly value libraries as a strategic resource.
Table 8-8 shows respondents’ involvement in planning activities at their institutions. Cabinet-member IT leaders appear to be somewhat stronger proponents of IT planning processes; 66.3 percent use an institutional planning process for IT, compared with 55.6 percent of non-cabinet IT leaders, and they are also more likely to use a planning model. We also asked survey respondents to tell us what their IT plan did best. A higher proportion of cabinet-member IT leaders said their IT strategic plan was best at “communicating IT strategies and priorities” (63.5 percent versus 52.8 percent of non-cabinet leaders) and at “aligning IT investments with institutional strategic priorities” (56.9 percent versus 41.7 percent). IT leaders tend to have similar perspectives on other outcomes of the IT strategic plan. Cabinet-member IT leaders are also more likely to chair IT steering committees that are less likely to have budgetary authority (11.2 percent) than IT steering committees at institutions where the top IT position is not cabinet level (20.8 percent have budgetary authority). These data suggest that individuals with cabinet-level responsibility have a larger role in IT governance and are less subject to IT committee budgetary processes.

The survey data confirm that senior-most IT leaders who participate in their president’s/chancellor’s cabinet have greater exposure to the board and the top senior administration, and that they make more use of IT planning processes and methodologies. They would therefore seem to have better opportunities to positively impact the institution. It is not a stretch to suggest that sitting on the cabinet
Table 8-8. Cabinet Membership and Institutional Planning Activities

<table>
<thead>
<tr>
<th>Institutional Planning Activity</th>
<th>Percentage of Senior-most IT Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution publishes an institution-wide plan</td>
<td>76.6 (Cabinet Members) 73.0 (Non-Cabinet Members)</td>
</tr>
<tr>
<td>IT uses a planning process</td>
<td>66.3 (Cabinet Members) 55.6 (Non-Cabinet Members)</td>
</tr>
<tr>
<td>IT uses a planning model</td>
<td>52.1 (Cabinet Members) 39.8 (Non-Cabinet Members)</td>
</tr>
<tr>
<td>IT publishes an institution-wide IT plan</td>
<td>62.0 (Cabinet Members) 60.9 (Non-Cabinet Members)</td>
</tr>
<tr>
<td>CIO chairs top IT steering committee</td>
<td>51.8 (Cabinet Members) 32.1 (Non-Cabinet Members)</td>
</tr>
</tbody>
</table>

by definition enlarges one’s view to the enterprise level and that this enlarged view (and associated relationships) results in enhanced ability to shape both academic and business decisions. In fact, 60.8 percent of cabinet-member IT leaders said they “almost always” participate in non-IT institutional decisions, compared with only 15.1 percent of non-cabinet-member IT leaders. As Bobby Schnabel of the University of Colorado at Boulder put it, “If you simply live inside the IT organization, IT can easily become an end in itself. If you are exposed to the full range of strategic choices, you carry forward that thinking.”

The CIO Executive Success Cycle
A Gartner Executive Programs team that included 30 leading IT executives from around the world evaluated leadership practices and created a “CIO executive success cycle.” This model consists of the following four “habits” they agreed were found in the most successful CIOs:

- **Shape demand.** Effective CIOs position themselves so they can have real input. This means maximizing exposure to top executives to build their trust, garner their support, and wield influence. Success in achieving these goals involves both knowing the business and engaging the key decision makers.

- **Set expectations.** Successful CIOs develop the habit of negotiation without compromising important relationships. They need to know how to analyze, then communicate their findings to executive colleagues so that everyone knows what is possible and can make informed trade-offs.

- **Deliver.** CIOs interviewed said that CIOs are expected to “deliver, deliver, deliver.” CIOs must address shifting business needs through partnerships and use architectures and demanding time frames to change the way IT performs and how executives think about delivery.

- **Lead.** CIOs have a unique perspective across the enterprise, enabling them to spot opportunities and to solve business problems. Positional power makes a CIO head of the IT group, but it does not bestow the right to be seen as a true leader. CIOs must earn that right by demonstrating leadership qualities.

The team went a step further and developed a self-assessment instrument and scoring system to determine whether a CIO has these habits. Each question used a Likert scale of 10 = almost always, 6 = sometimes, 3 = rarely, and 0 = almost never. Meeting the requirements for a successful CIO means a perfect score of “almost always” on each question. For our use, we modified the questions slightly to reflect the higher education environment. Table 8-9 presents the results for the 330 senior-most IT leaders in our sample.

The CIO executive success cycle scores for cabinet-member IT leaders compared with those for other senior-most IT leaders are
### Table 8-9. Relationship Between Cabinet Membership and “CIO Executive Success Cycle” Assessment Scores

<table>
<thead>
<tr>
<th>Self-Assessment Statement</th>
<th>Percentage of Senior-most IT Leaders Scoring “Almost Always”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Habit #1: Shape Demand</strong></td>
<td>Cabinet Members</td>
</tr>
<tr>
<td>I can sustain a conversation with my president or chancellor about the financial issues and pressures facing our institution</td>
<td>80.8</td>
</tr>
<tr>
<td>I know what keeps my president/chancellor and executives awake at night and how IT could help</td>
<td>55.1</td>
</tr>
<tr>
<td>I participate in shaping institutional academic directions</td>
<td>4.7</td>
</tr>
<tr>
<td>I participate in shaping institutional business directions</td>
<td>52.4</td>
</tr>
<tr>
<td><strong>Habit #2: Set Expectations</strong></td>
<td></td>
</tr>
<tr>
<td>I can quickly assess the ability of IT to deliver on new offerings or service</td>
<td>74.7</td>
</tr>
<tr>
<td>I am engaged in regular executive discussions about the IT implications of institutional decisions</td>
<td>82.6</td>
</tr>
<tr>
<td>I spend time working with executives to set expectations and delivery commitments based on what is possible</td>
<td>69.5</td>
</tr>
<tr>
<td>My negotiations strengthen rather than weaken relationships between IT and rest of the institution</td>
<td>85.0</td>
</tr>
<tr>
<td><strong>Habit #3: Deliver</strong></td>
<td></td>
</tr>
<tr>
<td>I use IT architectural considerations to focus design and delivery efforts</td>
<td>62.3</td>
</tr>
<tr>
<td>My major campus stakeholders understand and support the need to adopt IT standards for key IT infrastructure and IT-enabled services</td>
<td>49.7</td>
</tr>
<tr>
<td>My institution understands importance of maintaining an up-to-date IT infrastructure</td>
<td>68.9</td>
</tr>
<tr>
<td>My executive colleagues accept appropriate responsibility for business programs and projects that have a large IT component</td>
<td>42.5</td>
</tr>
<tr>
<td><strong>Habit #4: Lead</strong></td>
<td></td>
</tr>
<tr>
<td>My executive colleagues think of me as an effective partner</td>
<td>82.0</td>
</tr>
<tr>
<td>My executive colleagues know my vision for IT and can articulate it if asked</td>
<td>39.5</td>
</tr>
<tr>
<td>My executive colleagues view my participation in their projects as essential to their success</td>
<td>58.7</td>
</tr>
<tr>
<td>My executive colleagues respect my knowledge of IT</td>
<td>90.4</td>
</tr>
</tbody>
</table>
We see the strongest difference in the Shape Demand habit, followed by the Lead and Set Expectations habits. Cabinet members operate within the executive suite and therefore perceive themselves as having significantly more impact on the institution. They are exposed to critical institutional information and have an outlet for expressing higher-order direction-setting and decision-making skills at the institutional level. We saw smaller differences between cabinet-member and non-cabinet-member CIOs for the Deliver habit. These skills are directed more at the implementation level and, not surprisingly, appear less dependent on regular access to executive levels of the institution.

Finally, we looked at the CIO executive success cycle self-assessment instrument in relation to transformational leadership style—and again, leadership style matters. Regardless of whether respondents had a seat at the table, those with higher transformational leadership behaviors were much more likely to answer “almost always” to all questions in the Shape Demand, Set Expectations, and Lead categories. Again, differences in the Deliver habit were minimal. This finding implies that leadership style may affect individuals’ ability to play a role in both shaping the institution’s direction and generating IT solutions to institutional problems. And those who are cabinet members have an opportunity to exercise these transformational skills at a different level than those not on the cabinet.

These important findings raise many questions. What factors determine whether an institution benefits by including IT leadership at the cabinet level? What configurations of executive organization are most effective? Under what organizations can IT leaders most positively impact academic and business directions and align IT with institutional goals? Future research can and should address these and related questions.

**Endnotes**

3. Individuals who responded as the single senior IT leader; report to at least the vice president/vice chancellor or vice provost level; have a title of CIO or at least assistant/associate vice president/vice chancellor or assistant/associate vice provost; have management responsibility for academic computing/instructional technology, administrative systems, data communications, institution-wide IT policy, institution-wide IT planning, and user support and training; and are on the president’s/chancellor’s cabinet were determined to meet the Synnott and Gruber criteria.
6. Statistically significant differences exist between cabinet-member IT leaders and other senior-most IT leaders on 10 of 16 of the Gartner-Korn/Ferry self-assessment CIO executive success cycle survey statements at the \( p < 0.01 \) level. All Shape Demand habits were significant at this level.
This chapter explores our respondents’ perceptions about IT’s effectiveness both within the central IT units and at the institution as a whole. The ECAR survey asked respondents’ opinions on 41 questions that we call IT effectiveness markers. We developed these markers from the body of research on IT leadership and its impact on organizations. They cover a wide range of IT topics, including governance, strategic alignment and planning, general management, change management, technology, and measurement. We asked respondents to rate each marker using a Likert scale (from 1 = strongly disagree to 5 = strongly agree). We present their opinions in this chapter and discuss:

- how we derived our IT effectiveness markers;
- an overview of results—specifically, how distance from the executive suite matters; and
- specific IT effectiveness markers.

Key Findings

- Perceptions of IT effectiveness become less positive the farther away from the executive suite you get. Indeed, where you stand depends on where you sit.
- Perceptions of IT effectiveness about IT strategic alignment also become less positive the farther away from the executive suite you get.
- Perceptions of IT effectiveness involving communication processes are comparatively low.
- Perceptions of IT effectiveness for IT governance, strategic alignment, and measurement are higher among respondents from institutions that have a formal IT planning process.

Developing IT Effectiveness Markers

Since the emergence of the CIO, there has been keen interest in the nature of this position—what makes a successful CIO, what roles is this person called upon to play, what are the most important skills and competencies for success, and what effect does a successful CIO have on his or her organization? These questions have captured the imagination of academicians, research and consulting organizations, and IT leaders themselves. In turn, numerous frameworks, models, scoring systems, and classification systems have arisen to guide CIOs and help define the top IT leadership position. We used a subset of this research to generate a set of Likert questions about IT effectiveness for the survey, and we reviewed three frameworks.

Arenas: Business, Human Relations, and Technology

Nelson and Green\(^1\) conducted a study based on the recurring idea that CIOs need...
expertise in three major areas: business, human relations, and technology. They surveyed CIOs to determine what factors in each area were perceived as the most critical to success and found that, indeed, all three areas are highly important. Specifically, a CIO needs to understand

◆ the institution and its cultures;
◆ major issues of concern such as resources, politics, and perceived needs;
◆ a broad set of technologies, perhaps more from the perspective of their impact on constituencies than their nuts and bolts;
◆ both the centralized and decentralized IT staff;
◆ the major influence groups across the institution; and
◆ the institution's executives.

Thus, our IT effectiveness markers covered these areas.

IT Strategic Planning and Alignment

Another recurring theme is the CIO's critical role in IT strategic planning and alignment of IT with institutional goals. Effectively aligning and managing IT resources to meet institutions' strategic needs has been shown to improve both IT success and organizational performance within academic institutions. Therefore, we used a planning framework to derive questions that looked at how successfully IT initiatives align with institutional strategies throughout the organization. We also asked respondents about their institutions' IT planning and governance practices.

CIO Competencies, Roles, and Habits

Finally, we looked at descriptive frameworks focusing on recommended CIO competencies and their link to outcomes for the IT organization as well as the overall institution. Primary sources included "The Role of the CIO in a Transforming World," the framework for understanding leadership, the IS lite framework, the nine core IT capabilities and six skills, and the CIO executive success cycle, discussed in chapter 8. These frameworks and classification schemes provided a breadth of issues and topics related to how IT leadership impacts the organization.

Distance from the Executive Suite Matters

Looking at respondents' overall perceptions about IT effectiveness, a striking pattern emerged that is generally consistent across the full set of 41 statements: distance from the executive suite matters. We present two illustrative effectiveness markers, "The IT organization delivers high-quality services" (Figure 9-1) and "The IT governance process is effective" (Figure 9-2). The bottom line: senior-most IT leaders consistently rated IT effectiveness markers higher than their followers did. Furthermore, the low standard deviations indicate substantial agreement among these senior-most leaders. Taking these stair-steps down, we found that central IT staff rated these IT effectiveness markers somewhat lower, followed by the IT staff respondents in administrative units. Finally, IT professionals in the academic units rated IT effectiveness markers the lowest of all. Indeed, where you sit in the organization affects where you stand on issues of IT effectiveness.

Why is this so? Do senior-most IT leaders have a clearer picture of reality because they have better access to information? … more involvement in key administrative issues? … an overall broader perspective? Or is this phenomenon better explained by staff's familiar complaint that their leaders are “out of touch” or, as one survey respondent commented, “too far from the action”? Respondents from noncentral IT administrative and academic units had varying
opinions. Some did feel they were too far from central IT to give accurate answers. One respondent said, “I am shielded from central campus IT to a large extent, which may be one reason why I enjoy my job so much. We are very decentralized—hopefully others higher up in the organization can tell you more about central IT.” Others were sensitive to the complexities of decentralization, including coordination of activities, differences in mission and goals, and proximity to the customer. One respondent perceived that “too often policy decisions are made by people who are too far removed from the front lines of user support. They don’t know what is really useful and implementable and what is not.” Another summed up the problem by saying, “The most insurmountable challenge is the inability of IT professionals, administrators, and end users to understand (or care about) each other’s needs, objectives, and constraints.”

Widely differing views among the non-central IT professionals are typical and corroborate the data. In addition to their overall lower ratings on IT effectiveness markers, their opinions varied widely among themselves. Tables 9-1 through 9-7 show that although many effectiveness markers’ “mean” rating scores may suggest mild agreement, the often large standard deviations indicate a substantial contingent that disagrees or strongly disagrees.

**IT Effectiveness Markers and CIO Role**

A framework developed by the IBM Consulting Group and presented in “The Role
of the CIO in a Transforming World incorporates many ideas and findings from other frameworks. This work sought to guide CIOs in dealing with their organizations’ increasingly changing environments—specifically the impact of globalization; economic and political uncertainty; redefinition of enterprises, organizations, work, and jobs; and technology’s continuing rapid evolution.

We used part of this work to frame analysis of our IT effectiveness markers. Specifically, the IBM framework defines six primary roles for the CIO: trusted consultant, partner in deployment of IT, visionary, change agent, technology architect, and service provider. Below we discuss these roles and relate them to our IT effectiveness markers.

**Trusted Consultant**

Other executives and managers recognize the CIO as a “trusted consultant” engaging in meaningful and frequent interactions with other high-level institutional leaders, including academic and administrative executives, department heads, deans, and key faculty. The University of North Carolina System’s Robyn Render talked about her strategy to this end. “As you build and develop relationships with your colleagues around the table, the more you can understand the total business. For example, I have attached myself to the CFO—whether he likes it or not. Over the course of two years, we have made tremendous strides. I have done the same with the chief academic officer and the university affairs executive officer to different degrees for different reasons. At the end of my day, my goal is for them to regard me not as a person to call when the network is down, but to think of me as a valuable colleague in sorting through their issues.”

This active involvement in the institution’s governance and administration facilitates understanding of its political, financial, and cultural environment and its major issues, goals, and strategies.

We asked numerous questions about IT governance (Table 9-1) and found that, overall, the senior-most IT leaders play a large role in establishing the institution’s IT governance structure. Just over 80 percent agreed or strongly agreed that they are responsible for the IT governance structure. Further, 69 percent of all respondents agreed or strongly agreed that the IT governance process is effective, although only 47.1 percent of respondents agreed or strongly agreed that this process was well understood. The

<table>
<thead>
<tr>
<th>IT Effectiveness Marker</th>
<th>Senior-most IT Leaders</th>
<th>Other IT Professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top IT leader is responsible for the IT governance structure</td>
<td>Mean* 4.07 Std. Deviation 0.864</td>
<td>Mean* 3.51 Std. Deviation 1.109</td>
</tr>
<tr>
<td>Administration is actively involved in IT governance</td>
<td>Mean* 3.83 Std. Deviation 0.832</td>
<td>Mean* 3.53 Std. Deviation 0.969</td>
</tr>
<tr>
<td>IT governance process is effective</td>
<td>Mean* 3.69 Std. Deviation 0.876</td>
<td>Mean* 2.94 Std. Deviation 1.044</td>
</tr>
<tr>
<td>Faculty are actively involved in IT governance</td>
<td>Mean* 3.33 Std. Deviation 1.006</td>
<td>Mean* 2.91 Std. Deviation 1.030</td>
</tr>
<tr>
<td>IT governance process is well understood</td>
<td>Mean* 3.32 Std. Deviation 0.966</td>
<td>Mean* 2.64 Std. Deviation 1.014</td>
</tr>
<tr>
<td>Deans are actively involved in IT governance</td>
<td>Mean* 3.10 Std. Deviation 0.982</td>
<td>Mean* 2.86 Std. Deviation 1.022</td>
</tr>
</tbody>
</table>

*Scale = 1 (Strongly Disagree) to 5 (Strongly Agree)
administrative areas clearly dominate IT governance, with deans and faculty not as involved as administrators. We found little difference across Carnegie class, institution type (public versus private), or institution size regarding these perceptions.

Looking at other factors, we found it interesting that IT governance effectiveness markers were rated significantly higher by those senior-most IT leaders who also reported having a formal institution-wide IT planning process. For example, of those respondents using a formal planning process, 57.8 percent agreed or strongly agreed that faculty were involved in IT governance, compared with 33.6 percent where no planning process was used. This finding held whether or not a single top-level IT committee existed and even if the process did not result in a published plan. Apparently, the process itself is the key.

Stony Brook University’s Richard Reeder noted the criticality of the planning process over the planning document. “My primary tool is the president’s five-year plan, which the faculty, staff, and task forces develop. Those initiatives that the five-year plan accepts are treated very seriously. The president expects you to do them. I interweave technology into the five-year-plan initiatives to make sure the infrastructure and business processes are in place to make those things happen. I don’t create an absolute technology plan for the campus because, by itself, it doesn’t mean much. Its value comes from its being applied to solve business, research, or instructional initiatives identified in the plan.”

**Partner in IT Deployment**

Building on the “trusted consultant” relationships, the CIO gains recognition as a “partner” with academic and administrative units in deploying new initiatives and processes. Ideally, the CIO interacts with managers to stimulate new ideas about how to use IT more effectively to benefit the institution and works from the executive suite down through campus units to help align their IT priorities with institutional and central IT strategies and plans. Table 9-2 shows the IT effectiveness markers concerning strategic alignment of IT with institution-wide goals.

One positive finding is that many respondents (71.1 percent) agreed that their “institution has a clearly articulated vision, mission, and strategy.” In fact, 78.7 percent of senior-most IT leaders and 69.4 percent of other IT professionals agreed or strongly agreed with this statement. However, existence of a clearly articulated institution-wide strategy may not translate fully into strategic IT alignment as it cascades down through the organizational hierarchy. Once again, distance from the executive suite matters: agreement about the level of alignment of IT plans and priorities diminishes as we move from central IT to administrative units to academic units. Although 71.1 percent agreed or strongly agreed that the institution had clearly articulated strategies, far fewer respondents agreed that there was an effective process for setting IT priorities (39.7 percent), and fewer than half (44.7 percent) perceived that central IT organization priorities were derived from institution-wide priorities. And the trend continues. In fact, respondents ranked the last IT effectiveness marker in Table 9-2, “Deans/department heads look to institutional IT strategic plan when making their own IT investment decisions,” lower than any other IT effectiveness marker in the survey.

Looking at the institution as a whole, it seems that publishing an institution-wide planning document does help clarify and communicate the college or university’s direction. An overwhelming 90 percent of respondents from such institutions agreed that their institution had a clearly articulated vision and strategies. These respondents also reported more agreement that the central
IT organization priorities were derived from institutional priorities.

Now, looking specifically at IT planning, alignment issues again seem to benefit from a formal planning process. Senior-most IT leaders from institutions with a planning process perceive more strategic alignment than do those from institutions without planning processes. For example, 71.7 percent of respondents from institutions with a formal IT planning process agreed that IT priorities are derived from institutional priorities, compared with 50.4 percent of respondents who reported no planning process. We also noted that the existence of a top-level steering committee did not make a difference; the planning process appears to be a more critical factor.

These results point to the potential value of having both a formal, published institution-wide plan and especially an IT planning process to better align central IT initiatives with institution goals. DePauw University’s Dennis Trinkle described the institution-wide initiative designed to integrate and align IT throughout his institution: “Our institution has a fairly focused technical undertaking and strategic plan called 361 degrees to encourage collaboration at every level. IT is not a sideline or add-on; it is pervasive and strategic, so we have used a partnership metaphor. So I work with every VP, and the IT staff works with every area. We need to look at every institutional decision and consider the strategic implications from the technology side.”

These perceptions about IT strategic alignment issues did not vary by institution size, institution type, or Carnegie class, with the exception of the community colleges. These colleges had slightly stronger agreement with these effectiveness markers on
alignment of IT initiatives with institution-wide strategies.

**Visionary**

The CIO’s role calls for a visionary, someone who understands what is possible and relevant to the institution and can inspire new and creative uses of IT. This includes responsible innovation and experimentation, which means understanding emerging technologies, how to apply them to further institutional goals, and how to articulate and communicate IT directions and strategies to campus management and staff. These ideas are then translated into the IT strategic planning processes.

Indiana University offers one example of a visionary at work. Brian D. Voss, associate vice president (telecommunications) in the Office of the Vice President for Information Technology at Indiana University, said, “I often refer to the vice president for information technology and CIO, Michael McRobbie, as the straw that stirs the drink. He helped an existing, sound foundation of IT leadership and staff to focus at a different level. He used his excellent relationship with the faculty to draft them into leading the process to develop the strategic plan in less than a year, and his excellent relationship with the president to get it funded and accepted throughout the institution.”

Vince Sheehan, CIO and associate dean for information technology, Indiana University–Purdue University Indianapolis, agreed and noted that “McRobbie is extremely visionary and has a heck of a track record for accomplishing things. His strategic plan will not end up as a doorstep.”

Table 9-3 shows IT effectiveness markers related to the CIO’s visionary role. Overall, 65 percent of respondents agreed or strongly agreed that IT is prominent in institution-wide strategic plans, and somewhat fewer (56.5 percent) agreed that the institution is forward-thinking in IT use. As one respondent commented, “True visionary leaders are seldom in abundance, as it takes a very confident, powerful individual willing to risk his or her career to push long-term goals in the face of governing boards looking for short-term, politically correct wins.” And if we again look at respondents from institutions with a formal IT planning process, we find that they rate both of these IT effectiveness markers higher.

<table>
<thead>
<tr>
<th>IT Effectiveness Marker</th>
<th>Senior-most IT Leaders</th>
<th>Other IT Professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td>The IT organization is increasingly influential</td>
<td>4.21</td>
<td>3.71</td>
</tr>
<tr>
<td></td>
<td>0.658</td>
<td>0.984</td>
</tr>
<tr>
<td>The IT organization is proactive in developing vendor partnerships</td>
<td>4.12</td>
<td>3.78</td>
</tr>
<tr>
<td></td>
<td>0.803</td>
<td>0.960</td>
</tr>
<tr>
<td>IT is a prominent element in institution-wide strategic plans</td>
<td>3.82</td>
<td>3.60</td>
</tr>
<tr>
<td></td>
<td>1.001</td>
<td>1.036</td>
</tr>
<tr>
<td>Institution has reputation for being forward-thinking in use of IT</td>
<td>3.77</td>
<td>3.48</td>
</tr>
<tr>
<td></td>
<td>1.021</td>
<td>1.152</td>
</tr>
<tr>
<td>Institution’s IT planning process is broadly inclusive and well understood</td>
<td>3.23</td>
<td>2.60</td>
</tr>
<tr>
<td></td>
<td>0.906</td>
<td>0.983</td>
</tr>
</tbody>
</table>

*Scale = 1 (Strongly Disagree) to 5 (Strongly Agree)
Just as we saw that respondents generally don’t perceive the governance process as well understood, we see also that they don’t universally perceive the IT planning process as “broadly inclusive and well understood,” especially the nonsenior IT professionals. Half (50.2 percent) of these respondents disagreed or strongly disagreed with this statement, and another 30.3 percent were neutral. The communications issue surfaces yet again.

Change Agent

The CIO as a change agent empowers the institution through meaningful changes in long-standing business processes and also spearheads creative changes through new initiatives. The change agent works within the context of institutional culture and considers bringing about positive change an essential aspect of IT deployment. Further, some respondents felt increased receptiveness to change was the silver lining in tough economic times. One stated, “In these financially lean times, we can serve as the catalyst for making major organizational changes, reducing duplication, and streamlining business processes.”

Table 9-4 shows that senior-most IT leaders agreed or strongly agreed (89.5 percent) that their central IT units foster innovation and that they see their IT initiatives as an opportunity to challenge existing procedures and processes (79.5 percent). Also interesting, one of the most frequent motivations given by those who aspire to CIO positions was to be able to make meaningful change in the institution. As one typical aspirant said, “I want to inspire change and lead higher education to the next level of IT integration.”

Are these efforts successful? Does this positive intent translate into actual change? Respondents mildly agreed that IT initiatives do result in such changes. Especially interesting, in light of higher education’s cultural tenacity, 53.9 percent of all respondents agreed or strongly agreed that IT initiatives often result in sustainable and positive cultural change. However, some acknowledged difficulties in actually implementing change. Stony Brook University’s Reeder spoke of their PeopleSoft implementation: “It has touched every business process at the university and continues to do so. The pressures of having to change business practices should not be underestimated. While we have had a very

<table>
<thead>
<tr>
<th>IT Effectiveness Marker</th>
<th>Senior-most IT Leaders</th>
<th>Other IT Professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT organization fosters responsible experimentation and innovation</td>
<td>4.20 (0.719)</td>
<td>3.65 (1.035)</td>
</tr>
<tr>
<td>IT initiatives challenge long-standing procedures and processes</td>
<td>3.98 (0.760)</td>
<td>3.60 (0.967)</td>
</tr>
<tr>
<td>IT initiatives often result in sustainable and positive cultural change</td>
<td>3.78 (0.744)</td>
<td>3.36 (0.960)</td>
</tr>
<tr>
<td>IT initiatives result in highly innovative changes in administrative offices</td>
<td>3.57 (0.880)</td>
<td>3.08 (1.024)</td>
</tr>
</tbody>
</table>

*Scale = 1 (Strongly Disagree) to 5 (Strongly Agree)
successful implementation of our ERP [enterprise resource planning] system, we are still several years away from the vision that I have of totally integrating PeopleSoft into our environment."

Numerous respondents expressed serious frustration with their highly change-resistant institutional cultures. One survey respondent warned about his institution, “Whatever you do, I don’t think that the institution wants real change.” Overall, we found little difference in perception between respondents from private and public institutions, smaller and larger institutions, and different Carnegie classes.

In Chapter 7, on the IT innovation climate, we found that respondents who gave their central IT units high marks for supporting innovation also agreed much more with the Table 9-4 IT effectiveness markers about IT-related changes in the institution. Improving the innovation climate in central IT units may actually translate into IT initiatives that result in positive and tangible changes throughout the institution.

**Technical Architect**

The CIO is the primary architect in setting the technical strategic direction and standards that provide for future growth and flexibility. This requires maintaining current knowledge of emerging technologies and technology issues and controversies. The architect focuses also on issues such as security, financial and technical maintainability, performance, and reliability, among many other things.

The senior-most IT leaders gave some of their highest ratings to IT effectiveness markers involving technical infrastructure issues (see Table 9-5). Most (91.1 percent) agreed or strongly agreed that their IT organization is the final authority on campus-wide infrastructure decisions, and 89.5 percent agreed that the IT organization sets architecture standards and guidelines that guide cam-

Table 9-5. Perceptions About IT Infrastructure

<table>
<thead>
<tr>
<th>IT Effectiveness Marker</th>
<th>Senior-most IT Leaders</th>
<th>Other IT Professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT organization is final authority on campus-wide IT infrastructure decisions</td>
<td>4.43 0.720</td>
<td>3.55 1.161</td>
</tr>
<tr>
<td>IT organization sets IT architecture and standards that guide independent IT decisions of divisions/departments</td>
<td>4.30 0.747</td>
<td>3.61 1.040</td>
</tr>
<tr>
<td>Institution’s IT infrastructure is recognized as an important institution-wide asset</td>
<td>4.27 0.801</td>
<td>3.77 0.965</td>
</tr>
<tr>
<td>Institution’s IT infrastructure is sufficiently flexible to accommodate IT in departmental units in cost-effective manner</td>
<td>4.01 0.844</td>
<td>3.33 1.052</td>
</tr>
<tr>
<td>Institution’s IT infrastructure easily accommodates new and emerging technologies</td>
<td>4.00 0.859</td>
<td>3.34 1.071</td>
</tr>
<tr>
<td>IT organization actively communicates IT architecture to campus</td>
<td>3.83 0.815</td>
<td>3.29 1.052</td>
</tr>
</tbody>
</table>

*Scale = 1 (Strongly Disagree) to 5 (Strongly Agree)
pus IT decisions. Although this group seems in general agreement (low standard deviations), opinions ranged widely among the other IT professionals. We noted that those out in the academic units have a different picture of reality: only 45.7 percent of these respondents agreed or strongly agreed that the IT organization is the final authority on IT infrastructure decisions. Also, they don’t overwhelmingly see the central IT organization as setting architecture and standards (51 percent agreed or strongly agreed).

We might explain part of this discrepancy by communication difficulties, because once again we see the communication-related IT effectiveness marker (“IT organization actively communicates IT architecture to the campus”) rated lower. While 71.4 percent of senior-most IT leaders agreed or strongly agreed with this marker, only 36.9 percent of respondents from the academic units agreed or strongly agreed. This difference may also reflect the complex levels of technology architecture, such that senior-most IT leaders see institution-wide architecture in different terms than those in campus units responsible for local networks, databases, and so on. In fact, when survey respondents described varying campus architecture approaches and solutions, views ranged from noting the benefits of highly centralized infrastructures to praising highly decentralized environments. One respondent described “using an artist’s coop model in which artists agree on the building, utilities, and advertising and they do their own projects. Thus, we strive to agree on basic network, middleware, and database technologies and then let each department use IT as it sees fit.”

With respect to institution size, smaller institutions agreed slightly more with all the infrastructure IT effectiveness markers than did larger institutions, with the exception of “the IT organization actively communicates IT architecture to the campus.” And, most likely related to size, AA and BA institutions agreed more often that the IT organization is the final authority on campus-wide infrastructure decisions and sets IT architecture and standards for other campus units.

**IT Services Provider**

The CIO is recognized as the one who identifies and procures solutions from the best sources (internal and external) to deliver high-quality IT services to the institution. This requires effective general management of IT resources, including solid project and process management, staff and user training, system development and installations, good relations with the user base, and partnerships with vendors and consultants.

Central IT organizations received some of the most positive ratings on issues related to overall management practices (see Table 9-6). Again, the strongest ratings were from the senior-most IT leaders, who are largely responsible for these units. Senior-most IT leaders rated their central IT organizations highest in problem resolution during system implementations (92.8 percent agreeing or strongly agreeing). Other IT professionals showed less agreement (67.6 percent agreeing or strongly agreeing). Instead, these other IT professionals rated staff technical expertise as strongest among these IT effectiveness markers. Differences were slight across Carnegie class, institution type, and institution size.

Again we point back to chapter 7 results concerning IT innovation climate. Respondents who agreed that their IT units support innovation also agreed more with the Table 9-6 IT effectiveness markers than did other respondents. Respondents with higher transformational leadership profiles also rated these IT effectiveness markers somewhat higher. These findings support the notion that central IT units’ overall performance may benefit from both improving
Table 9-7 shows that queries about IT measurement practices received overall low ratings, especially those concerning the regular use of metrics and customer satisfaction measures. Among all respondents, 40.5 percent disagreed or strongly disagreed that metrics were used regularly, and another 28.4 percent were neutral. Customer satisfaction measures fared only slightly better, with 35.9 percent of respondents disagreeing or strongly disagreeing that they were regularly used; another 24.1 percent were neutral. This isn’t unexpected, given the historical challenge industry-wide in determining and communicating IT’s value and the difficulty of creating meaningful and affordable metrics. These ratings remained consistent across Carnegie class, institution type, and institution size.

However, returning to institutions with a formal IT planning process, we find that their senior-most IT leaders agreed significantly more than other respondents that their institution uses metrics to evaluate IT activities’ performance, measures customer satisfaction, and formally reports on IT activities. The IT planning process probably motivates accountability of IT initiatives and the inclusion of reporting and measurement processes.

The IT innovation climate and developing leaders with more transformational leadership behaviors.

<table>
<thead>
<tr>
<th>IT Effectiveness Marker</th>
<th>Senior-most IT Leaders</th>
<th>Other IT Professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT organization quickly and effectively resolves problems that arise during campus IT project implementations</td>
<td>4.30 0.627</td>
<td>3.73 1.007</td>
</tr>
<tr>
<td>IT organization delivers high-quality services</td>
<td>4.17 0.716</td>
<td>3.51 1.058</td>
</tr>
<tr>
<td>IT organization maintains excellent relationships with other units across campus</td>
<td>4.14 0.709</td>
<td>3.38 1.031</td>
</tr>
<tr>
<td>IT organization resolves IT vendor software problems and conflicts fairly and promptly</td>
<td>4.14 0.648</td>
<td>3.69 0.884</td>
</tr>
<tr>
<td>IT organization has staff members who are well trained in technologies required to do their jobs</td>
<td>4.06 0.782</td>
<td>3.83 0.946</td>
</tr>
<tr>
<td>There is an effective management structure for overseeing IT activities</td>
<td>4.06 0.746</td>
<td>3.23 1.088</td>
</tr>
<tr>
<td>IT organization makes organizational and personnel changes to accommodate deployment of new technologies</td>
<td>3.96 0.856</td>
<td>3.38 1.085</td>
</tr>
<tr>
<td>IT organization has strong project management and process management skills</td>
<td>3.81 0.885</td>
<td>3.19 1.190</td>
</tr>
</tbody>
</table>

*Scale = 1 (Strongly Disagree) to 5 (Strongly Agree)
Table 9-7. Perceptions About IT Measurement

<table>
<thead>
<tr>
<th>IT Effectiveness Marker</th>
<th>Senior-most IT Leaders</th>
<th>Other IT Professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean*</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>IT goals and objectives are clearly documented when projects are approved</td>
<td>3.69</td>
<td>0.844</td>
</tr>
<tr>
<td>Institution reports regularly and formally on IT performance and activities</td>
<td>3.65</td>
<td>0.997</td>
</tr>
<tr>
<td>IT organization regularly measures customer satisfaction with IT services</td>
<td>3.38</td>
<td>1.081</td>
</tr>
<tr>
<td>IT organization works with major users to establish measurable service-level agreements</td>
<td>3.27</td>
<td>1.030</td>
</tr>
<tr>
<td>IT organization regularly uses metrics to evaluate performance of IT activities</td>
<td>3.12</td>
<td>1.048</td>
</tr>
</tbody>
</table>

*Scale = 1 (Strongly Disagree) to 5 (Strongly Agree)

Endnotes


5. Nelson and Green, op. cit.


9. The differences in “stair steps” are not always statistically significant, but the general pattern is consistent.
The Future of the IT Community in Higher Education

I don’t want to join a club that will accept me as a member!
—Groucho Marx

The higher education IT community is robust and dynamic. This study describes a community rich in commitment to higher education and endowed with a leadership that is, by standard measures, effective. Effective indeed. The members of today’s higher education IT community are, literally, the first generation of information technologists on campus. In many ways, the history of information technology is the history of higher education’s IT community.

Our Community’s Leaders and Elders Have Ushered In a New Age

The members of our community were not yet part of the workforce when ENIAC was dedicated in 1946 at the University of Pennsylvania’s Moore School of Electrical Engineering. With ENIAC—a device containing 19,000 vacuum tubes, 1,500 relays, and hundreds of thousands of resistors, capacitors, and inductors—the first generation of leaders of the higher education computer science and physics communities launched the age of computing. With the operationalization of time-sharing in 1964 and the invention of BASIC, John Kemeny and his team at Dartmouth introduced IT’s second generation and made computing accessible.

A number of our current community’s elders both fostered and benefited from this generational shift in technologies.

Leonard Kleinrock, now at the University of California, Los Angeles, pioneered the concept of packet switching while a graduate student at the Massachusetts Institute of Technology. This model allowed J.C.R. Licklider and his colleagues to develop the idea of distributed communications networks in the 1960s. Lawrence Roberts, also at MIT, hatched the idea for a cooperative network of time-shared computers that would ultimately become embraced and funded as ARPANET. The ARPANET’s first four nodes were hooked up in 1969 at UCLA, Stanford, UC Santa Barbara, and the University of Utah. The first computer-to-computer chat took place at UCLA in 1972. The BITNET cooperative, begun in 1981 at the City University of New York, supported listserv servers, e-mail, and file transfers between higher education colleagues. By 1984, the number of network-connected hosts (most of them in higher education) exceeded 1,000.

Colleges and universities were early adopters and testing grounds for the minicomputer and provided homes, of course, for many of the world’s high-performance supercomputers. In 1986, the NSFNET was
created from ARPANET to connect supercomputer centers at Cornell, Pittsburgh, UC San Diego, Princeton, and the University of Illinois at Urbana-Champaign. By 1989, the number of connected hosts exceeded 100,000. In the 1990s, Gopher was developed at the University of Minnesota, and the World Wide Web was born at CERN, the European university consortium for research in high-energy physics.

Today, of course, computing and communications have changed the world. The Internet has assumed a full and important place as a mass communications medium. E-commerce outperformed total economic activity in three of four categories monitored by the U.S. Department of Commerce; more than 16,000 Wi-Fi hot spots are expected to be added in 2005 in the United States; and in September 2003 alone, more than 150 million people in the United States spent an average of 27 hours online.1

In the same 60 years since the computer age began, higher education’s IT community members have transformed the very institutions they serve. Today, the existence of a robust institutional network and the provision of student, faculty, and administrator access to a host of computational resources and online information resources are the table stakes of being a modern college or university. Our community members have led institutions through IT’s generational shifts, moving from mainframes to minicomputers to networked microcomputers, and now to the multiplicity of personal digital assistants. They have reshaped their institutions’ technical architectures from dumb terminals connected to host computers to client-server models connected to the Web, and they are leading the development and exploration of grid computing, Web Services, peer-to-peer computing, and other architectures. These individuals have also helped their institutions renew aging legacy administrative systems and have kept pace with their faculties’ growing demand for technologies to support instruction and learning.

The history of higher education’s IT community is indeed a source of pride and solidarity among its members. This ECAR study, Information Technology Leadership in Higher Education: The Condition of the Community, reveals a professional community that is:

- highly educated, motivated by intellectual stimulation, and committed to higher education;
- effective at adapting to frequent role changes that likely stem from rapid shifts in the technologies we support;
- effective when scored using standard leadership style measures;
- satisfied overall with the managerial environments in which they operate (and much more satisfied than their counterparts in industry);
- working long hours; and
- mentoring the next generation.

In a general and satisfying way, we can sum up the answer to the biggest research question underlying this ECAR study, “What is the condition of the community?” as follows: our respondents believe in what they do and in the higher education missions they serve, enjoy the environments they work in, work hard and are a bit tired, and plan to finish out their careers at their current institutions and, in many cases, in their current or lateral positions.

The study also reveals present-day challenges:

- The community is not diverse from either a gender, racial, or ethnicity perspective. We are making only fractional progress on the diversity front: 89.2 percent of survey respondents 30 years of age or less are white, compared with 92.9 percent of those over age 60.
- Survey responses reveal perceptions that higher education environments don’t effectively support innovation in central IT
units and that, in particular, promoting change in research universities is difficult.

- A significant number of our senior-most leaders and their direct reports will likely retire in the next five years, begging questions about leadership continuity.
- Marked differences of opinion exist regarding central IT’s effectiveness and other issues among IT professionals in different parts or levels of the institution.
- Some research from the private sector suggests that the CIO’s role is shrinking.

So, with a truly illustrious history still with us, much satisfaction around us, and some clouds gathering on our horizon, what lessons have we learned from this ECAR study and what reflections about our collective future might be focused into supportive or preventive actions that we can take now?

**Lack of Diversity in the Community**

The lack of diversity in higher education’s IT community reflects a more widespread problem. In its most recent study of women, minorities, and persons with disabilities in science and engineering, the National Science Foundation identified as their top two concerns

- “the declining numbers and percentages of women in computer science” and
- “the declining numbers and percentages of minorities in engineering.”

In computer science, the “numbers and percentages of bachelor’s degrees to women have decreased in the last decade.” Further, “black and Hispanic students are less likely than white and Asian students to complete a bachelor’s degree in any field within five years.” This is worrisome for higher education’s IT community because 93 percent of ECAR survey respondents possess at least a bachelor’s degree.

Clearly, without deliberate investments and actions, the diversity of higher education’s IT community will not deepen.

For example, while more female survey respondents aspire to the senior-most IT position than currently occupy such positions, female respondents overall aspire to these jobs much less frequently than do their male counterparts. We need more research into why women in higher education’s IT community seem less likely to aspire to the top jobs. Then perhaps we can begin to develop programs to overcome some of this apparent reticence to lead.

**Environments Resistant to Supporting Innovation in IT Units**

Respondents to the ECAR survey generally give their central IT organizations low scores on the Rusaw survey instrument. Ironically, research universities in particular received low scores for fostering innovation in their central IT organizations. Although these scores are complex and difficult to interpret, what is likely being scored is the perceived “degree of difficulty” in making innovative changes in an environment.

The qualitative research findings strongly confirmed this explanation. Many of those interviewed echoed Joyce Williams-Green, associate provost for information resources/CIO at Winston-Salem State University, in her description of creating consensus around making a change as “fighting a fight with people who neither understand the technology nor understand the reason we need to move forward.” One anonymous survey respondent said it especially well: “IT leadership in higher education is very different than IT leadership in the private, for-profit sector. IT is not yet recognized as critical in higher education to the same degree. IT is not yet welcomed as an equal partner at any level to the same degree. Part of this results from the highly Balkanized nature of leadership in higher education.” Others liken some aspects of higher education’s operating environment to a shark tank!
The somewhat tortured nature of change management in environments where governance is shared uneasily will likely get worse over time. Richard Chait pointed out that the need for collaboration that must occur now to meet current academic and economic demands facing higher education will rise. He argued that our ability to handle changing external pressures, such as the globalization of knowledge and the inability of governments to adequately fund colleges and universities, may be compromised by our tendencies to tolerate (or foster) internal conflict. “The faculty on one hand and the administration and board on the other need not be one another’s sworn ‘enemy.’ The tenure and governance ‘wars’ may well be the wrong wars with the wrong parties. Inasmuch as all three groups share a loss of influence and recognize that the ‘net loss’ has been to external constituencies, there may be reason to collaborate.”

Former University of California President Clark Kerr, in fact, predicted a “Shock Wave II” of external pressures in American higher education in the coming three decades—pressures that will not fit higher education’s current decision-making process well.

**The Graying of the Community**

The largest portion of the higher education IT community consists of those born during the Baby Boom. As one author put it, the “baby boomers have not only come of age, they are now beginning to show their age.” According to the Bureau of Labor Statistics, 17 percent of the workforce in the United States will be 55 and older by 2010. Nearly 15 percent of ECAR survey respondents are 56 or older, and 25.3 percent of all senior-most leaders responding to the ECAR survey were 56 or older in 2003.

Ordinarily, it would be reasonable to forecast a significant retirement exodus in the next decade. Three major findings leaven this forecast. First, the AARP’s study of the impact of the decline in U.S. stock prices on 50- to 70-year-old investors found that 21 percent of those surveyed had already postponed retirement owing to stock market losses, and “half of them indicate that they envision working into their 70s or beyond.”

Second, an increasing number of studies show that the top motivations for working in retirement included “not only the need for extra money, but also a general desire to work for enjoyment, to have something interesting to do, and to stay physically active.”

Third, when retirees who plan to work in retirement were asked to rate the importance of job attributes, those rated “very important” included:

- working in an environment where employee opinions are valued,
- working for an organization that lets older workers remain employed,
- being able to take time off to care for relatives,
- being able to set their own hours,
- working for an organization that offers good health benefits, and
- working for a company that offers retiree health benefits.

These attributes closely match the higher education environment described by participants in the ECAR study and elsewhere. So we can reasonably conclude that new attitudes toward retirement may in fact delay a large near-term exodus of some elders from higher education’s IT community, reducing some of the risks of continuity management while creating new demands for employers and society at large.

Therefore, while current higher education leaders must focus on developing employment programs and approaches to meet older workers’ needs for work/life balance, ongoing training and education, and retirement security, they must also move quickly to develop new employment pipelines and cultivate younger community members.
Happily, as of July 2003, three-quarters of ECAR survey respondents age 40 or younger expressed an intention to remain in higher education 10 years or more. Further, more than a third of these young respondents (35.6 percent) aspire to CIO jobs, and another 17.7 percent aren’t sure but haven’t ruled out the possibility. Early and vigorous efforts to reach out to this part of the community can close a possible leadership skills gap posed by the “well curve” in the higher education IT community’s age distribution.13

If higher education’s elders buck the national trend and retire at traditional retirement ages (60 to 65), many vacancies must be filled by relatively junior community members whose management and leadership skills likely haven’t been fully developed or tested in practice.

In this case, not only will higher education policymakers and IT leaders need to invest rapidly in their younger IT workers’ leadership development, but they will also need to develop additional pipelines of labor supply. While such pipelines of course include both the private and government sectors, they also include other elements of the academy, such as the professoriate. Pundits and research analysts increasingly argue that future senior IT positions will depend more on human relations skills and knowledge of the business (the academy, in this case) than on technology skills per se.

Differing Perspectives on Campus

Another interesting finding is the existence of significant and nearly across-the-board differences in perspective articulated in the study’s subcommunities, including

- senior-most IT leaders in central IT organizations,
- IT professionals in central IT organizations,
- IT professionals in local academic campus units such as schools, colleges, and academic departments.

While diversity of perspective is both largely predictable and often a good thing, the ECAR study findings demonstrate consistently that perceptions about the “wellness” of central campus IT efforts and programs erode as one moves down the organization hierarchically—as a function of “distance from the center.” More study is needed to determine whether these perspective differences can be ascribed to role differences or reflect potentially significant misalignments vis-à-vis IT’s overall effectiveness on campus. They likely reflect the fundamentally decentralized and loosely coupled nature of college and university governance, with academic units’ IT professionals affiliating with their scholarly colleagues in general opposition to all things administrative, or at least all things central. Nevertheless, as higher education funding becomes more problematic, scholarship becomes more global, tenure continues to erode, and governments press for increasing accountability for tangible academic outcomes, any misalignments will become increasingly difficult and distracting.

The Incredible Shrinking CIO

This ECAR study describes a professional community that has not only effectively ushered in a new era in higher education but has also been extraordinarily successful in establishing its leaders in senior positions of responsibility throughout higher education. Remarkably, nearly 40 percent of this survey’s senior-most respondents (38.5 percent) report to their institution’s CEO, and more than half (50.6 percent) are members of the president’s or chancellor’s cabinet.14 This community’s leaders have earned their standing as campus executives, as reflected in high transformational leadership (MLQ) scores and high scores in the Gartner-Korn/Ferry CIO executive success cycle self-assessment survey.
CIO Magazine’s October 2003 cover article proclaimed, “their [CIOs] budgets have been cut, their work’s been outsourced, their staff’s been downsized, and they’ve been pushed off the executive team. Their status within the enterprise has suffered.” The key question this article poses is, Are CIOs making the trek from the back room to the boardroom … and back? Because the CIO Magazine study isn’t longitudinal, these questions must depend on future research for clarification. Suffice it to say that the CIO Magazine analysis shows that 22 percent of CIOs reported to the CFO in 2003, compared with 11 percent in 2002, and that IT budgets declined or were flat in the past four consecutive quarters. Large-company CIO compensation declined 16 percent in the same period, and education sector CIO mean compensation is said to have declined more than 13 percent, to $126,172.15 Former Williams-Sonoma CIO Jim Brownell mused, “Quite honestly, I don’t know why anyone would want the CIO job today.”

The findings reported in CIO Magazine may reflect the strong secular downturn in IT investment associated with the current economic slowdown and the cooling of the technology-led “irrational exuberance” of the late 1990s. They may also herald a more ominous future reflected in an increasing number of articles and CEO roundtables questioning IT’s value.17

Higher education’s IT community must remain vigilant on this issue, not as a matter of protectionism, but of professionalism. One of this study’s key findings is a strong association between a seat on the president’s cabinet and a host of desirable management behaviors and outcomes. This ECAR study really bears out the management aphorism that where you stand reflects where you sit. To the extent that reporting relationships and cabinet seats result in greater perspective and influence, such structures and roles are vital for IT leaders to provide continued leadership and guidance at the institutional level. In a transformational environment, this is essential.

This debate over IT’s value and the CIO’s role isn’t new. In 1994, IBM conducted a study because “Given the continuing dispersion of many IT resources and decisions away from the traditional IT organization (e.g., the decentralization of IT budgets and resources and increasing interest in outsourcing), as well as the ongoing issue of IT value, many CIOs have been questioning their future role and whether the role is valued in today’s environment.” The IBM report’s findings suggest that “the role [of the CIO] is not diminishing; on the contrary, there is a very important and different role for the CIO to play today and in the future, particularly as it applies to business transformation.”

The IBM study, like the MLQ assessment of leadership style and the Gartner-Korn/Ferry leadership assessment, emphasizes communications, vision, and leadership as the keys to leveraging technology in support of institutional strategy.

While the study of IT’s value and its leaders’ standing within higher education deserves and will get ongoing attention, this study’s findings do support the conclusions drawn by UC Berkeley’s CIO Jack McCredie: “Even though the crystal ball may still be cloudy, there are in fact several things about which we can be reasonably sure as we plan for the future. First, organizations with an inferior IT infrastructure will be at a competitive disadvantage and will find it difficult to stay in business. Second, IT technology is still in its adolescence and will continue to evolve rapidly. Third, higher education has yet to transform its core learning environments. And finally, IT management is not likely to become boring in our lifetimes. Carr is wrong: at least in higher education, IT certainly matters.”20
Conclusions and Recommendations

We can think of many of the issues and challenges revealed in *Information Technology Leadership in Higher Education: The Condition of the Community* in terms of alignment. Today’s leaders will be challenged to align their institutions’ needs with a changing workforce, one that is not only younger but also has different values. As information technologies are further woven into the fabric of every institutional activity, today’s leaders and future leaders will also be challenged to foster alignment between the central IT organization and other organizations and individuals charged with supporting technologies elsewhere in the institution.

Actions Individuals Can Take

The term *alignment* often arises when leadership literature discusses innovative and transformational organizations. Alignment enhances unity, organizational performance, and leadership credibility and can serve as an organizing principle or context for the various recommended actions described here. In one framework, for example, Imparato and Harari suggest that leaders who align values and ideals with behavior and performance will more likely succeed. They propose using four initiatives to do so:

- take charge of redefining and living the organizational agenda,
- be inclusive,
- use human resources strategically rather than as a function, and
- discriminate according to individual differences in responsiveness.

Take Charge of Redefining and Living the Organizational Agenda

One of a leader’s jobs is to establish a new organizational agenda. This is done by clarifying the organization’s core purpose, underlying philosophy, and overarching perspective, thus leading to a revolution of minds. Such change requires asking deep questions such as, What is our organizational purpose? What do we stand for? What is our operational philosophy? What are the values we seek to live by? What are we striving for? Whom do we serve? How will we behave toward one another and our clients in the process? How do we ensure that we have a common purpose? How do our roles and behaviors change? How do we measure success?

Defining the agenda is not a one-time event; it is an ongoing, evolving circumstance, with continuing dialogues, feedback and coaching sessions, mutual exploration of the new culture and vision, and joint development of action plans. This process is collaborative, but leaders must lead. They have to take the first steps, initiate the process, champion it, and walk the talk. They must make it clear that turning back is not one of the options. The leader must act as a change agent who commits to the realization of the defined transition. As UC Berkeley’s Jack McCredie put it, “Somehow you have to figure out the right things that have to happen to get other people to follow that vision. A leader can do very little alone.”

Be Inclusive

Along those lines, the leader must make it absolutely clear that everyone can be included and participate in the new order. The new agenda cannot be a zero-sum game in which one suffers at the expense of another’s success. Effective leadership requires that everyone be treated as someone who can add value if he or she tries. Everyone is worthy of concern, compassion, training, assistance, patience, and achieving fulfillment on the job.

However, leaders must also make it clear that change is expected and those who refuse to change will increasingly find the new environment uncomfortable. Differential
magnitudes of change will lead to differential rewards. It is the leader’s responsibility to ensure that everyone has an opportunity to attain those rewards. Part of the preparation is psychological—repeated assurances of inclusion and support are vital. It is also imperative to honor past achievements so that all can learn from success, and at the same time create a sense of urgency for change.

Cultural change may be the most difficult to bring about psychologically, but that alone is not enough; more is needed to achieve overall success. Once an organization has defined new roles, responsibilities, attitudes, and behaviors, it must develop the competencies to deliver services. It needs to develop an organization-wide literacy of “the business.” Providing open, readily available information about the enterprise—its strategies, goals, objectives, strengths, weaknesses, competitors, barriers, challenges, clients, assessment criteria, and so on—promotes knowledge. Ensuring that openness is supplemented with education and professional development, including both hard skills and soft skills, is necessary to complete the achievement of the goals.24

Use Human Resources Strategically Rather than as a Function

Align rewards, systems, and structures so that they contribute to the intended strategy most positively. This will mean examining and probably redefining key personnel processes such as measurement, hiring, discipline, and rewards.

A transformed organization will need new measures of organizational success, with more emphasis on those that reflect innovation, speed, quality, knowledge acquisition, teamwork, alliance building, partnering, client service, and client satisfaction. Techniques such as the balanced scorecard and digital dashboards are already becoming more commonplace methods of communicating shared goals and results.

As organizational measures change, individual assessment will also likely change. Managers may be measured directly by how well they achieve the institutional measures for which they have direct responsibility. However, everyone’s formal evaluation process should include questions such as, How do you specifically contribute to this new agenda? To what extent have you initiated changes in your job to better realize core institutional objectives? How did you contribute to upgrading other people’s skills or advancing the core knowledge base? And so forth.

New measurement structures and assessments should be accompanied by rewards and positive feedback to those who achieve complete success and those who have put forth genuine effort. This challenges current leaders (as reflected in innovation scores related to rewards) and will likely challenge future leaders. Be sure that pay increases are based on positive effort for change and quality of work. Also be sure to align hiring, discipline, and promotion policies with the core purpose and follow them diligently throughout the organization. Focusing on hiring individuals whose values are aligned with organizational values accomplishes four things:

◆ A team of individuals is mobilized that has a compatible set of core philosophies.
◆ The chances improve that people entering the work environment will find it both satisfying and compatible.
◆ Those already on the staff who are supporting the new agenda will find additional allies.
◆ Newly hired individuals will provide a reality check for those who oppose any change.

Discriminate According to Individual Differences in Responsiveness

To accomplish this, leaders must systematically discriminate on the basis of demonstrated commitment and results. The
highest rewards should go to those who live the stated values and meet performance commitments. Leaders must make it clear that the rules have changed because the environment has changed, and that values help shape the organization and influence its overall productivity. If change is not forthcoming, the individual should not be left in the organization.

When these four initiatives are employed in a unit, they help create coherence in strategy, unity in direction, credibility in leadership, and integrity in the organization. They demonstrate a clear, firm, supportive, and fair leadership.25

A Word to Aspirants

As those who aspire to become IT leaders of the future prepare themselves, they might gain insight from the following list of important IT needs and challenges:

◆ Know the higher education business and understand the complexity of doing business in a competitive, increasingly global, economically challenged environment. Knowing the business includes understanding and appreciating the institution’s belief systems, processes, and organizational structure.

◆ Manage the accelerating pace of technological change.

◆ Understand that IT may reshape major aspects of institutions so that they become technology driven.

◆ Realize that IT often is the primary enabler of better solutions to administrative and academic problems.

◆ Communicate within the academy using educational rather than technological language to gain acceptance as a knowledgeable, contributing member of the senior leadership team.

◆ Establish the IT organization’s credibility and leverage it to increase the technological maturity of the college or university.

◆ Create a shared vision of IT’s future at the institution through a formal IT planning process.

◆ Implement an IT plan and infrastructure that will support the vision and garner the backing of others to maintain and enhance it.

◆ Maintain a stated level of technological currency across the entire institution.

◆ Establish and maintain IT fluency for administrative staff and academic disciplines.26

Future IT leaders who comprehend these needs and challenges and help other executive officers appreciate the necessity of engaging such issues will likely become and remain valuable members of their college or university’s senior administrative team.

A Word to Current IT Leaders Regarding Aspirants

Many years ago, Peter Drucker identified the elements related to a manager’s essential work as setting objectives, organizing, motivating, communicating, measuring, and developing people. Many observers believe current leaders continue to neglect the element of developing people.27 Reportedly, nine of 10 individuals who have received any kind of mentoring in the workplace regard it favorably, yet only 38 percent have ever received any mentoring.28 Happily, this study’s results indicate that almost half of respondents in the higher education IT community report that they have had a mentor at some point. ECAR will consider further study on the nature, scope, character, and quality of mentoring in higher education’s IT community.

The formal definition of mentoring is “to facilitate, guide and encourage continuous innovation, learning, and growth to prepare the business for the future. Mentoring in business is most effective when discretely targeted at three levels: (1) the individual, (2) the management team and other working
groups, and (3) the entire organization and its culture. This poses an ongoing challenge for higher education generally and our IT community in particular.

Mentoring the higher education IT workforce is not a quick fix, fad, or experiment; it is a concerted effort to develop leaders and other IT professionals. In this context, it goes well beyond “coaching” or a completely unstructured and informal approach. In general, developing people requires processes that identify, utilize, and expand people in ways that strengthen both individual and organizational effectiveness. A comprehensive, organization-wide mentoring program offers one means of accomplishing perpetual innovation and learning.

Today’s IT leaders need to design such organizational processes and demonstrate significant mentoring themselves. Doing so will improve current organizations as well as future organizations and organizational leaders.

**Actions the IT Community Can Take**

In addition to the actions outlined above for individual leaders to enhance their effectiveness amidst changing organizations, there are actions that can be explored regionally, nationally, or internationally that span institutions.

**Influence Higher Education Executives’ Awareness and Expectations About IT**

The happy news is that IT has become woven into the fabric of higher education’s core purposes. The unhappy news is that colleges and universities remain problematic environments for implementing institution-wide change. Much of IT’s promise therefore lies fallow because of a host of change-management issues unrelated to the new technology per se. Further, higher education’s senior leadership—our chancellors and presidents—remain somewhat conservative if not outright skeptical overseers of IT’s roles in the academy. Finally, while IT has become pervasive at many institutions and its value (at some levels) is deemed axiomatic, many IT leaders at other levels have failed to convey IT’s value in ways that are compelling to institutional and academic leaders. The growing research literature is rich with tales of technology battles won and wars lost—that is, expensive projects delivered on time and within budget that nonetheless failed to create meaningful changes in institutional practice, efficiency, productivity, or effectiveness.

The disconnect between the delivery of stunning technology on the one hand and the failure on the other to engage or educate others about its potential, communicate its value, or realize its full benefits presents complex challenges and will require action on many fronts.

First, the organizations that support the IT community must continue to develop and implement programs designed to raise higher education leaders’ engagement and awareness on IT matters. EDUCAUSE is particularly active in this domain. Educational offerings should place special emphasis on the relationship between IT and process change and on developing a widespread appreciation of IT’s limits vis-à-vis change management.

Second, the IT community in higher education (and elsewhere) needs a framework and a language for discussing IT’s value constructively and in the context of academic priorities. Too often, IT investments are couched in technical terms not well understood by general managers and academic leaders. This sets the stage too well for “won battles and lost wars.”

**Continue to Offer Management and Leadership Development Programs**

IT leaders must work to become indispensable partners to those charged with
recruiting students and donors, those influencing institutional academic directions, and those striving to promote institutional research agendas.

To accomplish this, not only do national organizations need to continue to offer management and leadership development programs, but they must also focus these programs on skills that will enhance leadership effectiveness at the executive level. Younger community members must be acculturated to a new understanding that, while technical knowledge and skills are the profession’s basic “entry fee,” the ability to communicate a vision, motivate staff, and influence others is key to successful job growth and organizational impact.

One gap frequently identified in the literature and in ECAR research is the creation of business cases that situate prospective IT investments in an academic and financial context to help senior decision makers set priorities. Bill Glassen, CIO of Cashman Equipment, said it well: “If the president of the company said one day, ‘Hey, I want to do e-commerce,’ the CIO would buy tons of servers, hire Web programmers, basically spend a lot of money—frequently without building a business case.” The lack of effective business case development is perceived as both a skill deficiency and an operating style issue. Education of IT professionals and further collaborative actions between EDUCAUSE, NACUBO, and others can increase the community’s effectiveness in this arena.

**Promote Mentoring**

One of this study’s key findings is corroboration that being mentored really is associated with having or developing an effective leadership style. A conundrum presented in this finding is that at the same time, being mentored in an IT environment is not associated with an aspiration to hold the top IT position. So the data reveal a possible situation in which

- a leadership supply imbalance may exist;
- we are mentoring young people more, particularly women;
- being mentored is associated with high transformational leadership scores; and
- being mentored is not associated with career aspirations to become CIOs.

Somehow we need to simultaneously increase the number of junior people in our community being mentored and use the mentor relationship to understand mentees’ career ambitions and, wherever possible, encourage promising mentees toward CIO positions. These findings suggest the need to explore increasing the ties between the higher education IT community and organizations like the Institute for Women and Technology; the National Center for Women in Science, Engineering, and Math; the Center for American Women and Politics Forum for State Legislators; the International Museum of Women project; the Girls in Math, Science, and Technology Initiative; and others.

These findings also suggest the need for additional research into the nature and frequency of existing mentoring activities and their deeper relationship with career and leadership behavioral outcomes. This ECAR study provides a large base of both mentors and mentees who expressed a willingness to participate in extended research in this area.

**A Final Word**

As discussed, the current condition of higher education’s IT community—reflected in this population’s survey responses—is mostly positive. On one hand, the IT community is dedicated to higher education’s mission, is culturally cohesive, enjoys a positive work climate, and exhibits leadership styles believed to be effective. On the other hand, our community is not diverse, and, although more female respondents aspire to the top jobs than currently hold such jobs, they aspire to those jobs less frequently than their male
counterparts. And survey respondents—particularly those at research universities—describe central IT organizational environments as lacking in support for innovation.

Nonetheless, the community’s future appears solid. While many members are approaching retirement and plan to exit higher education soon, many other respondents plan to remain in higher education 15 years or more. We can safely characterize the community’s primary challenge as one of continuity. Can higher education’s current IT leaders identify and develop the next generation of leaders quickly and effectively? Can our community adapt to possible new workforce dynamics, including younger leaders, leaders from nontraditional sources, and increased reliance on alternate service providers (offshore programmers and hosted solution providers) in areas where labor shortages (from traditional sources) may appear? Can our community uncover why some people and populations aspire to senior-most leadership roles and some don’t?

The IT community’s challenge for the future is neither one of capability nor one of commitment. Rather, it is a challenge of availability. In this, the IT community is not alone. Nearly all higher education associations and government labor statistics organizations report anticipated shortages, ranging from faculty members to business officers, facilities experts, budgeters, planners, and the like. We face, no more and no less, the consequences of the broad demographic shift from a baby boom to a baby bust, to an echo boom. We also face a cultural shift from a shared generational set of values, as embodied in the baby boomers who dominate today’s IT community, to those of “generation Xers” and “millennials” who will lead higher education in the future.

To build the bridge between today’s accomplished and aging community and tomorrow’s sometimes reluctant leaders, we must continue to emphasize leadership development, mentoring, succession planning, and even workforce experimentation. Our elders need to groom not only their possible successors but also others who can and will lead elsewhere in higher education. We need not only develop the aspirants but also find and energize the many community members who “don’t know” whether or not they aspire to the top. While leadership is sacrifice and responsibility, it is also fun and an adventure, and today’s leaders need to infuse our juniors with the promise of both the opportunity and the obligation.

The data from Information Technology Leadership in Higher Education: The Condition of the Community confirm that those of us who lead have a great recruiting tool at our disposal. We offer our successors the opportunity to serve the greatest enterprise—higher education—at a time when our very work, information technology, is helping reshape the institution’s role in the global economy and social fabric. We offer, too, the opportunity to serve as part of a community possessed of a deep understanding of the technologies we manage and the institutions we serve. And finally, we offer a chance to serve as part of a community that cares deeply about its own members, one that offers professional development and collegial sustenance throughout the course of a career—and beyond.

**Endnotes**

3. Ibid., p. xii.
4. Ibid., p. xiii.
6. Ibid.


10. AARP, *Staying Ahead of the Curve: The AARP Work and Career Study*, AARP, 2002, <http://research.aarp.org/econ/multiwork.html>. This study reports the results of a nationally representative telephone survey of 1,500 people between the ages of 45 and 74 who were either employed or looking for work.


12. Compared to workers with household incomes under $30,000, more-affluent workers are more likely to associate retirement with a chance to stop working for pay completely and instead work for enjoyment, perform volunteer work, relax, and travel. (See reference 11, p. 14.)

13. Approximately one-third (35.3 percent) of the ECAR survey respondents were between 41 and 50 years of age.


16. Ibid.

17. N. Carr, “IT Doesn’t Matter,” *Harvard Business Review*, May 2003, has fostered a flurry of articles and Webcasts and an international debate on whether IT investments have been commodity inputs and thus “invisible” and no longer strategic.


19. Ibid., p. 3.


21. Davies and Love, op. cit., pp. 4–5. This summarizes comparisons made between boomers in the 1970s and their parents’ generation versus boomers today in 2002 and their children’s generation. While the authors generally report a “vanishing generation gap” between today’s boomers and their children, both generations agree that the younger generation has “less concern with being honest” and “less sense of personal responsibility.”


24. Ibid., pp. 209–211.


28. Ibid., pp. 4–5.

29. Ibid., p. 5.

30. Ibid., p. 6.


32. Sixty chief business officers and CIOs met in April 2003 to discuss IT value. Business officers frequently cited the lack of CIO skills in developing sound business cases to support institutional investment decisions in IT as a significant source of mistrust and misalignment.
Appendix
Interviewees in Qualitative Research

Bryn Mawr College
Jean Lacovara, Coordinator of Information Services for the Sciences

Case Western University
Lev Gonick, Vice President, Information Technology Services/Chief Information Officer

Dartmouth College
Edmond Cooley, Assistant Professor, Director of Information Technology, Thayer School of Engineering

DePauw University
Dennis Trinkle, Coordinator of Information Services and Technology

Georgia State University
Mary Jane Casto, Interim Associate Provost for Information Systems and Technology

Indiana University
Brian D. Voss, Associate Vice President (Telecommunications) in the Office of the Vice President for Information Technology

Indiana University School of Medicine
Vince Sheehan, Chief Information Officer and Associate Dean for Information Technology

Kennesaw State University
John Isenhour, Director of Information Technology

Lasell College
Deborah Gelch, Chief Information Officer
Massachusetts Institute of Technology
Vijay Kumar, Director of Academic Computing

Normandale Community College
Niels Jensen, Director of Information Technology

North Carolina Agricultural & Technical State University
Rodney Harrigan, Vice Chancellor of Information Technology & Telecommunications/Chief Information Officer

The Ohio State University
Susan E. Metros, Deputy Chief Information Officer, Executive Director for eLearning, and Professor of Design Technology

Reed College
Martin Ringle, Chief Technology Officer

Stony Brook University
Richard Reeder, Chief Information Officer

Temple University
David Feeney, Director of Digital Education, Fox School of Business

Trinity University
Vidya Ananthnarayanan, Instructional Support Manager, Instructional Media Services

The University of British Columbia
Ulrich Rauch, Director, Arts Instructional Support & Information Technology

University of California, Davis
John Bruno, Vice Provost

University of Colorado at Boulder
Robert Schnabel, Vice Provost for Academic and Campus Technology

The University of Kansas
Marilu Goodyear, Vice Provost for Information Services

University of Minnesota
Susan M. Grotevant, Director, Information Management Systems

The University of North Carolina System
Robyn Render, Vice President for Information Resources
University of Notre Dame
Dewitt Latimer, Deputy Chief Information Officer and Chief Technology Officer

University of Oregon
Mary Harrsch, Network & Information Systems Manager, College of Education

University of Puget Sound
Norman Imamshah, Associate Vice President for Information Services

The University of Toledo
Joseph Sawasky, Interim Associate Vice President for Educational and Information Technology

University of Toronto
Eva Swenson, Director, Student Information Systems

Winston-Salem State University
Joyce Williams-Green, Associate Provost for Information Resources/Chief Information Officer