Key Findings

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

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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 (such as accounting) or a professional (such as librarianship, medicine, or law) education. Professions are often distinguished by credentials, and some of these, in fact, include jurisdictional certifications and licenses (admission to the bar, CPA, state medical license, and others). The practice of information technology management is, for practical purposes, less than 50 years old, intellectually diverse (in the extreme), and characterized by rapid change and redefinition. The nature and scope of this practice is 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 appears in English first in the 14th century to mean a gathering of people who share a sense of common identity and characteristics. Of course, people sharing common cause can and often do evolve formal bodies of knowledge and certifications, creating professions.

The higher education IT community is now approaching 50 years of age. 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,
- climate of the workforce,
- mobility of the workforce,
- leadership styles of higher education's IT leaders,

- climate for innovation in higher education central IT organizations,
- frameworks and markers of effectiveness within this community, and
- next generation of IT leaders and the possible shape of the future of this professional community.

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

- 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 do not strongly foster innovation, especially at research-intensive institutions.
- Perceptions along a variety of studied dimensions vary widely depending on how far the respondent is from the "executive suite."
- Those IT leaders who enjoy a seat at their presidents' cabinets report a considerably broader role and impact on their institutions.
- The community is not diverse.
- The community is graying, and this may pose issues of leadership continuity.
- Members of the community share a unified culture, including many shared 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 help identify and clarify issues and to 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 to those in the general population. This study incorporates the validated Multifactor Leadership Questionnaire (MLQ)[1] to classify leadership styles, the Rusaw multifactor assessment of innovation climate in central IT organizations,[2] and the "Creating the CIO Executive Success Cycle" self-assessment questionnaire developed by Gartner and Korn/Ferry.[3]

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

IT Leader Populations

While the study looks at respondents as a whole, we found it extremely useful to segment the sample population into subgroups that help us better understand the leadership community and the key leadership issues. Of our 1,850 respondents, 330 were senior-most IT leaders with overall responsibility for IT at their institutions; 286 others said they aspire to such a position at some time in their careers.[4] These subgroups and the related terminology are used extensively throughout this report.

Key Definitions

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

Other IT professionals (82 percent)—All respondents who are not senior-most IT leaders as defined above.

Other IT professionals: Aspirants (15 percent)—Respondents who say they aspire to the senior-most IT leadership position.

Key Findings

Much was learned or confirmed as regards higher education's IT community. A number of engaging themes emerged that are not only interesting in their own right but also can provide insight and guidance for the future. These themes cover a wide range of issues—from pure demographics to leadership style behaviors to work-environment characteristics to perceptions of IT effectiveness.

Higher Education Is a Calling

The ECAR study reveals among respondents a remarkable loyalty to higher education and often to specific institutions. Nearly one-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. More than three-quarters of respondents' previous positions were in higher education. Not only have respondents been loyal in the past, they say they plan to stay where they are. Professionals under the age of 40 years (61.2 percent) and aspirants to CIO positions (59 percent) plan to stay 15 years or more. What is the draw? Some respondents expressed their passion for students and the mission of higher education. Others

mentioned their sense of increased job security compared to the private sector; found the academic lifestyle appealing; or acknowledged attachment to their alma mater. One respondent succinctly said, "It's taken so long to understand this institution; I'm loath to leave it."

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

Part of the call to higher education is the academic environment. 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 postbaccalaureate degree. Members of the senior-most IT leadership subgroup are mostly likely to have an earned doctorate (22.4 percent). Of special note is a generation difference in education—respondents under 55 years of age are less likely to have earned a doctoral or other terminal degree. Almost 6 percent (5.7 percent) of respondents are tenured members of the faculty, and slightly more than 25 percent hold some kind of faculty appointment. Of the senior-most IT leaders who responded to the survey, 13.7 percent claim tenure and 34.9 percent hold an academic appointment. IT professionals are inclined to participate in teaching and other academic pursuits. There is mobility from academic positions into administration of IT, and some argue that this trend is likely to increase.

A Positive Work Environment

Salaries seem, overall, to be holding ground for IT professionals in higher education. Respondents' median annual salaries—between $75,000 and $100,000—compare favorably to the 2003 estimates by Gartner of annual IT salaries ($68,800); median cash compensation, including spot bonuses and other non-salary cash items ($73,200); and median bonuses ($7,000).[5] Nearly 60 percent (58.3 percent) of those with overall responsibility for IT earn more than $100,000 per year. These top IT leaders are likely paid less well than their counterparts in industry. In 2002, CIOs in private industry were reported to have earned an average of $186,000 per year. Of course, those salaries vary widely by company size.

Higher education IT respondents in central IT organizations rate their direct managers positively in key areas of managerial performance—much higher than do IT staff members in industry.[6] These areas of performance include dealing with conflict, keeping employees informed, providing feedback on job performance, and creating an open atmosphere. Of special note is that respondents largely agree (77 percent) that their direct manager creates an atmosphere in which they feel free to speak openly, as opposed to only 47 percent in industry. The open nature of higher education may contribute to higher education's appeal as an employer.

Respondents also report having the opportunity to learn new skills and to experience new occupational roles, despite the fact that more than 44.4 percent of senior-most IT leaders report spending one 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. It appears that the dynamic nature of the technology environment—new technologies as well new job functions necessary to implement and manage those technologies—creates constant opportunities for respondents to learn and grow professionally. Indeed, 62 percent of survey respondents said they served in their current position for four years or less, and more than half (53 percent) said they held three or more different jobs in the past 10 years.

Respondents also work considerable hours: 28 percent of all respondents work in excess of 50 hours per week, and senior-most IT leaders work even more—45.8 percent report working more than 50 hours per week. Respondents from public institutions reported working as many hours as those in 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.[7] 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 scores of those senior IT leaders responding to the ECAR survey suggest that higher education has strong IT leaders who are good role models and are able to intellectually stimulate and motivate their followers. The findings are robust across institution types (Carnegie class or public and private institutions) or when moving from smaller to larger institutions. 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 to roughly 35 percent of other IT professionals. Importantly, those respondents who aspire to the top IT leadership positions also show highly effective leadership profiles; 49 percent of aspirants have high scores for transformational leadership behaviors. These findings suggest that those respondents with transformational leadership skills have moved to the top-level position and that there is a pool of aspirants that have developed similar skills.

A Surprisingly Cool Climate for Innovation

Innovation is a key component of successful IT initiatives and is highly dependent 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, this is 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: while the IT leaders surveyed showed effective leadership profiles, they seem to be working in IT climates perceived as not being conducive to innovation. More study in this area is needed.

Those from doctoral institutions report significantly lower support for innovation in their central IT units. This suggests that IT leaders in doctoral colleges and universities face additional barriers to creating environments that support IT innovation. Doctoral institutions are often larger and extremely

complex and have highly challenging regulatory environments. These factors might 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 unit impact the institution in a positive way? 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 environments very differently from respondents who feel their IT units have lower support for innovation. For example, they agree more that their IT organization is increasingly influential, that IT is a prominent element in institution-wide strategic plans, that the leadership of the institution understands the value of IT, 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 where there is support for innovation is likely to have high payoff for their institutions.

Distance from the Executive Suite Makes a Difference

ECAR asked respondents about their perceptions of IT effectiveness using a set of 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 of IT effectiveness vary little based on Carnegie class, private versus public, and size of institution. Nor do they vary much with gender, age, or other demographics.

Perceptions differ greatly, however, if we look 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. Respondents were asked to rate their level of agreement with the statement, "The central IT organization delivers high-quality services." Looking at the mean scores and standard deviations, a clear stair-step pattern is evident—senior-most IT leaders are most positive, followed by central IT staff, followed by IT professionals working in central administrative units, and finally the IT professionals out in the academic units—schools, colleges, divisions, and departments.[8] Indeed, this pattern was generally consistent 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 center of the institution? Are these perceptual differences explained by role difference? 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? These questions cannot be answered with confidence in this study, but they suggest the need for additional research. Whatever the case, in these times of growing pressures, these differences in perspective can become increasingly problematic. Understanding these differences and how to better align the institution if necessary deserve our attention.

Not Surprisingly, a Seat at the Table Is Important

The lively and ongoing conversation about the nature of the CIO position has reiterated the importance of establishing high-level reporting relationships, especially an official place on the executive team.[9] 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/chancellor's cabinet. An analysis found striking differences between IT leaders who have a seat at the table and those who do not.

Cabinet-member IT executives reported much more interaction with senior management, especially with the president/chancellor, the board, and academic leadership. They have responsibility more often for the library and also for voice communications. They are stronger advocates of 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 these individuals have slightly more formal education and earn higher salaries than their counterparts.

Perhaps most significant, the IT leaders who sit on the cabinet see themselves as having much greater impact on the institution than those who do not. Those with a seat at the table indicated that they have significantly more participation in shaping the institution—influencing both academic and especially business directions. And with respect to IT, they reported more interaction with other executives about the implications of IT in institutional decisions. They also said their institutions have a better understanding of the value of the campus IT infrastructure. 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 leaders responsible for IT at their institutions are also white (92.4 percent) and even more male (78.6 percent). Only 21.4 percent of the senior-most IT positions are held by females. Although 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 to that of men (28.2 percent).

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 exist at the high end of salary levels as well: 27.4 percent of male respondents reported salary levels in excess of $100,000 per year, while only 17.8 percent of female respondents reported such income levels. While some of this discrepancy is due to the fact that the male survey respondents were generally older than women respondents, differences are primarily explained by the fact the males hold more of the top positions.

Female respondents reported differences in educational attainment and career goals. They are less likely to have earned a doctoral degree but more likely to have earned an MA degree. Females are also more likely to have part-time jobs (working fewer than 40 hours a week) and are more likely to agree that their spouses/partners' careers limit their own career mobility. While they report similar plans to take higher-level positions within their institution, they are somewhat less likely to plan a career move to a different higher education institution.

These differences between males and females are not unexpected. What is much more revealing and interesting is where we did *not* find gender differences in our data. Almost across the board on leadership characteristics and perceptions, males and females show similar profiles. They do not differ significantly in leadership style behaviors; men and women both display a tendency to effective leadership styles. Furthermore, both perceive the innovation climates in their central IT organizations

as generally low. When asked their opinions on a broad set of IT topics, ranging from governance to planning to architecture and measurement, males and females did not disagree significantly.

Leadership Continuity May Become an Issue

There is a potential erosion of leadership stability in the community over the next 5 to 10 years. This suggests a significant shift in institutional memory and experience—a hard thing to replace. The workforce in higher education, as elsewhere, is graying, and respondents are actively planning for retirement or moves to alternative career roles. As the older leaders vacate their positions in higher education, there may not be enough individuals interested in moving into more senior leadership positions, and especially into the top IT leadership position on campus.

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

The 330 senior-most IT leaders from our survey plan to vacate 175 of their current positions in the next five years. While some of these respondents plan a career 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 timeframe. Further, only 25 percent of the top IT leaders agreed that their successor would be drawn 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, a much smaller number 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 to be an effective CIO, the distasteful political requirements of the job, the perceived need for a doctoral degree, and their personal preference for maintaining hands-on technical work or remaining close to the users.

It seems reasonable to conclude that a potential imbalance may exist in the pipeline of future IT leaders. A recent American Association of Retired Persons (AARP) study suggests factors that may mitigate this problem, including the decline of the stock market (2000–2002) and increasing numbers of 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 strategy 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’s mission.

Mentoring Makes a Difference

One factor that bubbled up throughout our findings was the importance of having a mentor. Nearly one-half (47.2 percent) of survey respondents reported having (or having had) a mentor. Our data indicate that mentoring may benefit survey respondents, 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 males said they have had a mentor. Survey respondents who earn less than $100,000 per year reported they have, or have had, mentors less frequently (45.2 percent) than respondents who earn 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. For the younger IT professionals, the presence of a mentor may help them remain in higher education. For respondents under 40 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 with mentors plan to exit higher education in the same timeframe.

Mentorship may also help IT professionals develop desirable transformational leadership behaviors. Respondents with high transformational leadership scores had mentors more often (55 percent) than those with low transformational leadership scores (only 26 percent had mentors). Especially respondents under 50 years of age may be gaining transformational leadership skills, in part due to presence of a mentor. This indicates that mentoring may have high payoff for developing future generations of leaders. Further research that could 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 frequent lack of differing responses by gender, ethnicity, institution type or mission, geography, or other variables suggests a strong community culture that is rooted in and committed to the purposes of higher education. Despite the aging of the community, we continue to work hard (the elder-most respondents reported the longest work weeks) and adapt to the rapidly changing roles and responsibilities imposed by the technologies that 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 the development of our workforce despite the lack of dollars dedicated to that purpose. We are, in the words of one colleague, “wired and tired.”[10]

The next decade will witness the exit of many of those who have shaped the destiny of their institutions and of our community. Newcomers will assume positions of well-deserved responsibility. We have earned a place at the decision makers’ table, but the proof of our ongoing value will be our ability to configure IT infrastructure, architecture, services, and information resources to meet the ever-evolving needs of our institutions. Our community is strong and it is committed. Programs that fortify these strengths while placing an accent on enhancing adaptability and intimate knowledge of higher education will ensure the community’s continued prosperity.

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 as well as several other sources.

2. Adapted from A. Carol Rusaw, *Leading Public Organizations: An Interactive Approach* (Fort Worth, Tex.: Harcourt College Publishers, 2001).
3. Gartner Inc., produced in conjunction with Korn/Ferry International as an EXP Premier Report, October 2001.
4. Two hundred eighty-eight respondents share the senior-most IT position at their institution and do not have overall responsibility for IT. These respondents were treated like senior-most IT leader respondents and were therefore not asked if they aspire to a CIO position. There is reason to believe that a significant portion 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. Because EDUCAUSE is largely a management-oriented organization, there is likely to be disproportionate representation of managers in the EDUCAUSE sample. Hence, median salaries in the EDUCAUSE sample are likely to be higher than median salaries for all IT workers in higher education.
6. L. C. Ware, "What Do You Think of Your CIO?" in *CIO RESEARCH Reports*, September 15, 2003, <http://www2.cio.com/research/surveyreport.cfm?id=63>.
7. J. M. Burns, *Leadership* (New York: Harper & Row, 1978).
8. The differences in "stair steps" are not statistically significant for all of the 41 opinion questions. However, the general stair-step pattern is consistent.
9. W. R. Synnott and W. H. Gruber coined the term "CIO" and defined the position as responsible for information technology policy, management, control, and standards, implying an executive team position, in *Information Management Resources: Opportunities and Strategies for the 1980's* (New York: John Wiley and Sons, 1981), pp. 66–68.
10. From a speech delivered by Dr. Jeanette Cureton at the 2002 ECAR Symposium in San Diego, California. Cureton was referring to today's college and university students, but her description describes the higher education IT community accurately.

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A copy of the full study referenced above will be available via subscription or purchase through the EDUCAUSE Center for Applied Research (www.educause.edu/ecar/).

