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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 mini-computer and provided homes, of course, for many of the world's high-performance supercomputers. In 1986, the NSFNET was

created from ARPANET to connect super-computer 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."²

In computer science, the "numbers and percentages of bachelor's degrees to women have decreased in the last decade."³ 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."⁴ 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."⁵

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.⁶

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."⁷ According to the Bureau of Labor Statistics, 17 percent of the workforce in the United States will be 55 and older by 2010.⁸ 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."⁹ 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."¹⁰ 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.¹¹

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.¹²

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 central campus functional organizations, and

- ◆ 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."¹⁶

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."¹⁸ 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."¹⁹ 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.²¹ 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, Imperato 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.²²

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.²³ 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.”²⁹ 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.³⁰

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 con-

servative 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.³¹

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 research³² 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

1. Media Matrix, "Male Users Active Online," 6 Nov. 2003, <<http://www.emarketer.com/news/article.php?1002539#article>>.
2. National Science Foundation, *Women, Minorities, and Persons with Disabilities in Science and Engineering: 2000*, NSF 00-327, 2000.
3. *Ibid.*, p. xii.
4. *Ibid.*, p. xiii.
5. *The Future of the City of Intellect: The Changing American University*, S. Brint, ed., Stanford University Press, 2002, pp. 315–316.
6. *Ibid.*

7. C. Davies and J. Love, *Tracing Baby Boomer Attitudes Then and Now: A Comparative Look at the Attitudes of Baby Boomers in the 1970s and 2002*, AARP, Aug. 2002, p. 1, <<http://research.aarp.org/general/bbattitudes.html>>.
8. U.S. Dept. of Labor Statistics, *Occupational Outlook Handbook*, 2002/2003 Online Edition, <<http://www.bls.gov/oco/>>.
9. AARP, *Impact of Stock Market Decline on 50–70 Year Old Investors*, AARP, 2002, <http://research.aarp.org/econ/market_decline.html>.
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.
11. AARP, *Staying Ahead of the Curve 2003: The AARP Working in Retirement Study*, AARP, 2003, p. 6, <http://research.aarp.org/econ/multiwork_2003.html>.
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.
14. This compares favorably with the 43.5 percent cabinet participation reported in B. L. Hawkins, J. A. Rudy, and J. W. Madsen, *EDUCAUSE Core Data Service: 2002 Summary Report*, EDUCAUSE, 2003, p. 2.
15. S. Overby, "The Incredible Shrinking CIO," *CIO Magazine*, 15 Oct. 2003, pp. 66–76.
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.
18. IBM Corp., "The Role of the CIO in a Transforming World," IBM Working Paper, 1994, p. 3.
19. Ibid., p. 3.
20. J. McCredie, "Does IT Matter to Higher Education?" *EDUCAUSE Review*, Vol. 38, No. 6, Nov./Dec. 2003, p. 22.
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."
22. N. Imparato and O. Harari, *Jumping the Curve*, Jossey-Bass, 1996, pp. 204–205.
23. Ibid., pp. 205–208.
24. Ibid., pp. 209–211.
25. Ibid., pp. 218–224.
26. E. Turban, *Information Technology for Management: Transforming Business in the Digital Economy*, John Wiley & Sons, Inc., 2001, p. 665.
27. H. E. Johnson, *Mentoring for Exceptional Performance*, Griffen Publishing Group, 1997, p. 4.
28. Ibid., pp. 4–5.
29. Ibid., p. 5.
30. Ibid., p. 6.
31. See, for example, R. B. Kvavik et al., *The Promise and Performance of Enterprise Systems in Higher Education*, ECAR, 2003.
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.