Mobile technologies, consumer IT services, cloud computing, and changing expectations impact what colleges and universities want and need from IT and IT leaders. In addition, the economic downturn has heightened existing challenges. In August and September 2009, EDUCAUSE interviewed 14 higher education chief information officers (CIOs) to understand how these developments are influencing the evolution of the role. EDUCAUSE distilled the themes that follow from their comments. This input will inform EDUCAUSE efforts to monitor and respond to important changes in the profession, as well as to stimulate further thinking and dialogue within the community.

(Please note that the themes in this brief reflect EDUCAUSE’s analysis of aggregate interview comments. They, and the views represented by the quotations used to illustrate them, cannot be ascribed to all CIOs interviewed for this process.)

**An Evolving Role**

Several factors in today’s environment are driving the evolution of the CIO role.

1. Technology now supports the entire institution, giving the CIO broad responsibility and demanding unprecedented flexibility.

   “Once upon a time, the CIO may have had primarily to respond to administrative systems and the network, maybe research computing. However, the CIO now also has to be concerned about the LMS [learning management system] as a critical institutional system; safety and facilities systems—everything from building alarms to climate management—many of which now run on the campus IP network; research compliance issues, such as changes in IRB [institutional review board] systems, clinical trials systems, nuclear materials tracking systems, et cetera—all based on external requirements imposed on the university from regulators, and all of which have significant technology components.... Now, all major IT systems and functions seem to be considered mission-critical, with 24 x 7 uptime assumed. The tremendous increase in the application of IT across the institution has spread the CIO and IT organization’s reach broadly across the institution as well.”

   “Technology used to be finite.... [I]ncreasingly technology is blurred because everything has technology in it. As it relates to higher education, now I get called into a lot more meetings because the lines between business and IT are extremely blurred.”

   “Because of the major changes in technology, CIOs must be open, flexible, and build IT organizations capable of turning on a dime.”

2. Security, compliance, and risk-management issues increasingly dominate the CIO’s responsibilities.

   “What I used to love about being CIO was getting the chance to be directly involved in small, cool projects led by faculty; now, I find myself spending most of my time talking with security auditors and those involved in regulatory compliance.”
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“Risk management and data security have just overwhelmed the space for thinking about these more strategic issues...”

“...CIOs are now increasingly in the risk-management business; so much university data is online or exposed to the Internet that protecting that data from intrusion has huge implications in terms of legal, regulatory, and reputational [effects].”

3. CIOs must be seen as leaders who engage in strategic planning and decision making going beyond technology in order to maximize the strategic benefits of IT for their institutions.

“As technology moves forward, the CIO role is becoming less of a technologist and more of a business strategist, communicator, and financial manager...relying on a different skill set. The challenge here is that CIOs have had to adapt and acquire a new set of skills....”

“Over the past three years my role has broadened.... I don't just worry about IT, I worry about things around the entire campus.... Now I focus more on teaching and learning because my institution is not focused on research as much. My focus has shifted towards doing technology work that is aligned with the mission of my university.... The new focus is technology for advancing the mission of the institution rather than technology for the sake of technology.”

“Until the other institutional leaders see the CIO as a peer, it's very hard for [CIOs] to be as effective as they need to be for the institution. I have colleagues at other institutions who not only don't report to the president, but even report a level down from the VP position, which puts them too far from the strategic decision making of the institution for technology to truly be deployed effectively to support those strategic decisions.”

4. Higher education may have entered an era in which the IT unit is less a provider of IT resources and services and more an organization that sources and coordinates resources for campus stakeholders.

“IT is no longer driving the development of the central institutional IT environment, but rather is engaged in a partnership with institutional stakeholders in terms of the technologies that get introduced into the institutional IT environment and how they're managed and maintained. Disintermediation of IT is becoming a dominant trend—we're starting to see a time where central IT may not be in the discussion about what technologies and applications institutional stakeholders are using....”

“Increasingly our services are not provided on campus. We have outsourced e-mail, administrative systems, and software [provided] by a contracted vendor.”

5. Negotiating, contracting, and working with suppliers has grown significantly and will increase further as institutions move to above-campus sourcing.

“I don't hire any systems development people any more—it's all about interfacing and integrating packages and managing the contracts, licensing, and business relationships that go with them.... I have not had to make a new installation into our
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data center for over a year—more and more applications and services are being cloud based as opposed to institutionally based. We have to manage cloud-based and consumer-based applications, rather than applications centrally managed and hosted within the institution.”

“Within the past five years, I find myself spending more time on contracts than technology.”

“There is a lot more negotiation with vendors and other institutions than what’s within my comfort zone. CIOs with sales training or formal negotiations training are going to have an advantage.”

6. CIOs also face pressure to maximize the value of existing IT investments as opposed to pursuing new initiatives.

“[I]n the short term, resource constraints make IT just one more cost center that has to be contained. It’s hard in the current environment to make the case for strategic IT innovations that will move the campus forward when the resources simply aren’t available to pursue them.”

“Learning how to manage an increasingly growing role with limited resources in a volatile environment...There seems to be more of everything except for the money to do it all.”

7. CIOs cannot assume their place in the president’s cabinet is a given.

“CIOs are not as likely to be at the senior-level table. It never was enough to be good at operations. The more CIOs embrace a self-concept that is rooted in how well they manage the operational part of the job, the less like university leadership they look.... If the CIO role is more about operational issues, then the position will decline.”

“The recipe for being a successful CIO right now is to focus on risk management, focus on infrastructure, focus on disaster planning, and pursue those arguments within the institution. Those arguments will sell with boards and institutional leaders, but they won’t help the academy from a strategic perspective—they don’t drive to the mission.”

“This may be one reason why we’re seeing some CIO positions being moved back under the CFO or CAO, as opposed to reporting directly to the president—failure to execute from an operational standpoint deprives the CIO of the credibility necessary to participate in strategic institutional decision making.”

Required Skills and Capabilities

This environment requires CIOs and aspiring IT leaders to have a broad range of skills and capabilities, including the following:

1. The ability to develop and maintain a strategic perspective that grounds IT in the institutional mission and strategic objectives
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“...CIOs need to have the knowledge and skills to engage with other senior leaders effectively on the broader strategic issues of the institution and the mission the institution needs to achieve.”

“CIOs would be better served and would better serve [their institutions] if they thought about how IT could be brought to strengthen the university mission and objectives.....”

2. Communication and outreach capabilities that enable the CIO to frame IT issues clearly, concisely, and in terms relevant to the institution as a whole

“CIOs haven’t generally done a good job of listening to what presidents and provosts, or CFOs...are saying matters to them, and then building their case for IT on that basis.”

“I get more work done in the campus Starbucks than just about anyplace else, meeting with colleagues and key stakeholders...helping to connect the dots regarding IT’s role in major institutional successes...”

“Senior leaders need to understand that these are very complex issues. It can look awfully simple if you don’t know the issues. You need to let them know all the ways things could go wrong. Educating leaders on these issues is critical. It [technology] is not magic!”

3. The ability to collaborate effectively to leverage shared needs and resources within and beyond the institution, and thus maximize IT’s value in advancing higher education

“(The current context) places a much heavier responsibility on the CIO and his or her staff to collaborate and partner with units across the institution. It also helps if CIOs...collaborate across institutions to achieve common ends.... [M]y participation and the participation of colleagues at other institutions in [a regional education network] has established the credibility of higher education IT professionals in terms of what they can achieve on behalf of higher education and other public-sector goals.”

“The needs within higher education are similar. However, the goal is to be as unique as possible, and in doing so organizations take on that character and lose opportunities to work together. We should be seeking professional organizations to broker those conversations with a bias that these lead to action.”

4. Operational management skills (especially as above-campus sourcing increases)

“Over the next five years we’re going to continue to see a trend of the CIO being a person dealing largely with operational issues. However, these are some of the most complex issues and problems at the institution. This is not a degradation of the role. These are extremely challenging issues. This is just a shift in expectations of the position.”
“The door to being a leader is execution, and if you can't build IT organizations to execute, you're never going to get the opportunity to participate in senior institutional leadership.”

“...large-scale project management, ERP issues, technology skills and vendor-relations skills, as well as contract management skills...the practical skills CIOs need to be successful in the current environment... How do we teach the next generation the practical execution skills from a broad organizational perspective?”

5. A broad understanding of IT policy and regulatory, compliance, and legal issues

“Policy expertise is a number-one requirement for CIOs. You need to understand the regulations, but also how to translate those regulations to effective campus policies that work and are successful in addressing the underlying needs the original policy was intended to address.”

“What has changed is that there are so many more issues that are so much more complex and diverse. I am talking to my legal counsel almost daily. There are more issues to deal with in policy and law. Security issues I deal with now are unreal. Issues and systems are much more complex, and integration is more complicated.”

“Senior IT professionals still have to have a strong technology background but be conversant in finance, law, and policy to effectively accomplish their emerging role as a knowledge resource, as opposed to a direct operations function.”

Building the Future of the Profession

The CIOs interviewed stressed that helping IT professionals develop the capacity for senior leadership is essential to the role’s future.

“It's really a question of helping potential CIOs understand technology in the context of the university mission.... CIOs have to be able think and communicate from a different perspective, through the lenses of your different colleagues around the cabinet table. We should be preparing future CIOs under the assumption that they will be sitting at the cabinet table, and therefore think about what it means to be at the cabinet table.”

What CIOs Can Do

1. Ensure that potential leaders on their staff learn about all IT areas, and thus develop the understanding of institutional functions and priorities senior leaders need.

“I also see a large gap in terms of IT professionals not understanding the overall business enterprise—the CIO gets that holistic view of the institution.... We need opportunities for IT staff early in their careers to develop an enterprise view of the institution; the learning curve is too steep for someone to develop that perspective late in their career.”
“Being able to see the big picture and how everything fits in is critical. In regards to decision making, can you make the right decision with limited data, and how does that decision fit in the bigger picture? Be sure to consider what’s right versus what’s a cool technology....”

“Collaboration among different leaders to make sure that the new technology is actually meeting the various needs of the institution and learning how to work together to understand how things work and how to work with other people that we’ve never worked with before [are critical skills].”

2. Encourage potential leaders to access the professional networking and leadership development opportunities offered by organizations such as EDUCAUSE.

“I laud things like Frye and other leadership institutes EDUCAUSE has offered; those activities give the next generation the opportunity to learn from those who’ve gone before. Likewise, it helps with developing the cadre of next-generation CIOs; as a CIO, I often know who my peers and colleagues are, but for those at the aspirant level, it’s not always clear how to relate and connect with folks in similar circumstances with similar aspirations.”

“There’s been a real professionalization of the higher education IT profession, and now higher education needs to learn how to capitalize on that and figure out how to get the younger generation of IT professionals on the fast track to IT leadership.”

“[Aspiring CIOs] need to see the value in developing professional networks and increasing communication. This is how you move into management. This is the skill you have to learn along the way to get into management.”

3. Act as mentors in their organizations and across the community.

“More mentoring is called for to strengthen the strategic capacity of the CIO to function at a strategic level.... I’ve received calls out of the blue from new CIOs who’ve contacted me to see if they can call on me as a resource from time to time, and those conversations have proven useful to both of us.... There’s also a transition point at which someone needs to start thinking of him- or herself as a mentor and work toward developing those skills.”

What EDUCAUSE Can Do

1. Ensure presidents and other senior leaders understand IT’s strategic value.

“In terms of engagement with presidents and provosts, we as a community have to continue building and driving the case for how IT makes a difference to the future of higher education, and thus why the CIO has to be viewed as a senior institutional leader.”

“Get them [senior leaders] just enough information and give them the strategic information they need. Give them data about the facts for using technology....”
2. Engage other associations on IT’s role in addressing higher education’s major challenges, helping to position CIOs as thought leaders with presidents and others.

“The alignment of the CIO with the other institutional functions is the critical issue now and in the future. This makes it vital that the CIO community build and strengthen its links with NACUBO, the presidential associations, and other similar leadership organizations.”

3. Help CIOs share knowledge and best practices to achieve operational excellence, and facilitate the development of common solutions to shared challenges.

“The CIO community has to be able to share solutions.... We must look beyond what other higher education institutions are doing. There might be a technology that’s emerging in another industry that we can take and utilize in the academic environment.”

“It is hard to implement technology transitions in isolation. I want to talk to people about how they have successfully implemented new systems.”

“There’s an opportunity to better leverage the demand for IT products and services in higher education with vendors than higher education currently takes advantage of; this is costing higher education institutions a great deal more money than necessary.”

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