Top 10 IT Challenges of 2000

by EDUCAUSE Current Issues Committee, Paul B. Gandel, Chair

E very year the EDUCAUSE Current Issues Committee compiles a list of the most critical challenges that could adversely affect the deployment and management of information technology (IT) and electronic resources on our campuses. This year we put a new spin on this tradition—we asked you, EDUCAUSE members, what you thought were the most pressing issues through a Web-based survey administered by the EDUCAUSE staff (see the survey report on page 4). Four key issue types were identified:

• most strategic issues for your campus to resolve
• emerging issues with the greatest potential impact
• issues demanding the most attention of the IT leader
• issues capturing the most campus members?

Here the Current Issues Committee members have described the top 10 challenges in the first area—IT-related issues that are most important for your campus to resolve for its strategic success—based on the survey results. Our goal is to initiate an active discussion of the challenges in all four areas. We encourage you to contribute articles to EDUCAUSE Quarterly about how your campus is addressing these challenges (send articles to Dena Nishek, EQ editor, at dnishek@educause.edu).

Funding IT
In spite of decreasing costs of technology in the marketplace, college and university budgets for information technology and IT support systems continue to increase. Chief information officers (CIOs) continually seek funding to renew and replace PCs, administrative systems, network infrastructures, and instructional support systems and to provide competitive IT salaries, training, and additional staff to support new services. To develop effective IT funding practices, institutions need to address the following issues:

• Does our institutional strategic planning process address IT as a key element and link its funding to budget development? Do all units and departments plan together to optimize IT fund use?

• If IT administrative functions are distributed to departments, are central IT units and departments required to budget IT expenditures jointly? Are funds requested for IT projects approved centrally to avoid duplication? Does the institution understand how critical it is to keep a sufficient number of currently trained staff to accomplish its strategic goals?

• How can the campus afford to update current technology and implement new technologies at the same time?

• How far can we stretch replacement cycles to ensure an optimal rate of return on our investments?

Funding IT

How can we encourage institutional leadership to develop a “deep reserve” for funding renewal and replacement?

• To keep up with the demand for higher levels of customer (student) services, how do we determine what services we can afford to offer? Should we eliminate existing services to provide new ones or develop services on a cost recovery basis?

• How can we determine total cost of ownership (TCO) so we can reduce these costs? Should we investigate leasing strategies? Could standardization of hardware and software reduce our costs? Are site licenses used to the fullest extent possible?

• Should outsourcing services be considered? Can external companies provide IT services and support more cost effectively than internal organizations? Are some services better candidates for outsourcing than others and, if so, which ones? Are cost savings possible through consortial or partnership arrangements with other institutions?

Funding IT

Distance Education
Just-in-time lifelong learning and the growing desire to be educated anyplace and anytime are driving the demand for distance education. Colleges and universities are developing asynchronous learning environments and the associated services to support students involved in education from off the campus. As IT managers, we need to collaborate with our institution’s academic leadership to address key issues associated with off-campus learning.

• What are the impacts of intellectual property and copyright issues, and how will our institutions respond to the Digital Millennium Copyright Act?

• How can our educational institutions partner with others (public libraries, for example) to make access to computers reach more deeply into the external community?

• What role are the third-party content providers playing in education? Are they taking over the market? Will content continue to be developed by faculty or will publishers increasingly play this role?

• What support systems will be necessary to assist students who are taking courses at a distance, for example, student record, financial, and financial aid? How will institutional support (technical and help desk) be addressed for anytime, anyplace learners? What policy issues will need to be addressed with regard to serving students at a distance? One obvious area is financial aid: How will institutional support (technical and help desk) be addressed for anytime, anyplace learners? What policy issues will need to be addressed with regard to serving students at a distance?

• What kind of authentication and authorization systems do we need to develop to support these policies?

• Should institutions partner with others to develop “virtual universities” and who might those potential partners include?

• What technical infrastructure decisions would best serve a national and global user base? Should worldwide service providers be used for Web pages and streaming media?

E-Learning Environments
The ability of information technology to fundamentally change the teaching and learning process has never been more apparent than now. Thanks to IT...
If so, how will we ensure all students have access and can take advantage of the new e-learning environments?

• What steps are necessary to ensure e-learning issues are fully integrated into our campus business plans? How will we evaluate e-learning environments?

• How do we decide if the new system should be used as an agent for organizational change, for business process reengineering, or for both?

• How do we weigh benefits of vendor-supported, state-of-the-art integrated applications versus homegrown, tailored applications? How do we determine if off-the-shelf software will meet the institution’s needs? How do we manage the expectations for the delivery of new functions and control the scope of the project?

• How do we create a campus culture that is receptive to and understands the criticality of an ERP system implementation? How do we develop a communications plan and strategy that effectively conveys the project’s direction and progress?

• What is the most effective way to use consultants for ERP system implementations? What role should they play in relation to the campus staff involved in the project? What governance structure will provide effective leadership for the project and appropriately engage stakeholders?

• What is the role of the campus IT organization during and after implementation? How can we attract and retain good IT staff for the project’s duration?

• How do we build a realistic budget for an ERP implementation and justify the often huge cost in light of competing institutional priorities?

IT Staffing and Human Resources

With increasing demand for IT services, our institutions are in the difficult position of needing more IT staff at a time when demand for these professionals outstrips the supply. Coupled with lower-than-market salaries and tight budgets, colleges and universities are struggling to recruit new and retain existing staff. How can we predict the next generation of required skills? How can we adequately train our existing staff to meet the new technology challenges?

IT Strategic Planning

The huge costs associated with IT investments argue strongly for good institutional planning. However, in a time when information technology is changing so rapidly, the concept of IT strategic planning is often considered an oxymoron. The debate continues primarily regarding the definition of a strategic plan. Do we use the traditional definition, which calls for a massive, disorderly, key-staked effort carried out during a strategic time period or do we see a strategic plan as an iterative series of short-term plans that address specific institutional issues? Some of the key planning issues are as follows:

• How do we choose the best planning process for our campus? What benchmark mark processes are we currently using? What are the costs and value associated with using consultants? To what extent do corporate models of IT planning fit the academy?

• Are the institutional goals supported by IT clearly articulated and accepted throughout the campus? If not, can such a process move forward or does IT planning work in a vacuum? Have senior leaders clearly articulated their expectations for IT? Are the IT organizations on campus respected for service, production, or IT leadership in keeping the institution at or near the cutting edge or is IT leadership in conflict? Have previous planning exercises delivered successful outcomes?

At the request of various constituent groups on campus, including IT staff, faculty, students, and administrators, is there an IT advisory group or a series of task forces? Who is providing input on new and developing IT products and services and who estimates costs of specific projects for planning decisions? Is there a pre-established budget into which the plan must fit or is the plan driven by funding levels? What are the expectations of the campus for IT development? If unrealistic, how can the needed levels of funding be achieved? How can the IT planning process be integrated into the academic planning so resource allocation and use are mutually supportive?

Online Student Services

Colleges and universities are developing a broad array of online services to meet the needs of prospective students, who increasingly look to the Internet as the place to conduct business. Such online student services must be an integral part of a broader campus e-business strategy that integrates enterprise transaction systems, custom transaction systems, course management systems, portal technology, and customer relationship management (CRM). Key challenges in this area include:

• Who are the key stakeholders who need to be involved in planning and developing such an environment?

What are the roles of IT professionals, administrative systems personnel, faculty, admissions officers, registrars, Web professionals, financial aid...
officers, career services, and other units on campus? What can we do to ensure campus strategies for online student services are student-centered rather than driven by the processes and procedures of administrative offices? As more student services and courses are provided online via the Web, what are the technology architecture and system integration challenges? How can we provide not only the basic but also the customized transactions students are beginning to expect? What are the most effective means of authenticating and authorizing access so online resources and student information are secure? How can we ensure that students receive the same level of service whether they live on campus or use Web-based services from a distance? What does a ‘customer relationship management’ approach mean in higher education? How and by what channel(s) should CRM be developed and coordinated? What are the most effective approaches to developing Web portals to serve students? What new opportunities will portals provide for creating new relationships with prospective and current students and alumni? What opportunities will portals provide to forge new partnerships among higher education institutions and between higher education and K–12? What are the appropriate roles for external vendors in providing online student services, especially portal technology? If we partner with vendors, how can we maintain the confidentiality of student information and not compromise our institutional identity and integrity? What policies should campuses develop or revisit given the challenges of Web-based student services, especially with respect to advertising on the campus Web site and using institution trademarks?

Advanced Networking Challenges

New initiatives in local and wide-area networking are emerging in higher education. Internet2 applications will require end-to-end network connectivity, which will lead to major upgrades in campus networks. Voice, video, and data are merging into a common digital infrastructure, and connectivity will increase between wired and wireless networking. In this advanced networking environment, key issues include:

• How do we accurately measure demand for network services and predict future demand? When we consider a network redesign, how do we arrive at the spectrum of design philosophies? Where do we get expert advice that is not associated with the sale of a specific product or service? How do we redesign existing buildings to upgrade network class space and conduits to contemporary standards?

• How can we dynamically allocate bandwidth, routing paths, and priority traffic algorithms to ensure the success of mission-critical, data-driven services? What quality of service will new generations of enterprise systems require? Do we segregate residential networks from other campus networks to enable the application of different quality-of-service algorithms? Should quality of service become fee-based? Should residential students continue to expect unlimited access to networked data service? Should researchers with external support expect priority network service? Should research indirect cost formulas be changed to support quality of service? Have we finally moved from local modem pools to a reliance on regional and national Internet service providers? Can we develop partnerships that will encourage the deployment of advanced networked services in the communities surrounding our campuses? Will authentication standards be implemented for security in a Web-based environment, and will such standards lead to turnkey systems or will local development still prevail? When will interinstitutional authentication become a reality?

• How rapidly will voice and video become completely digital or will conventional and wireless technologies converge? What will become of our massive investments in analog telephone switching equipment? Do we have the capacity to deliver digital TV and streaming video in significant quantities?

• How do we prepare our institutions for further increases in network funding requirements? Is network service to remain an entitlement or become a service based on use and associated fees? If the latter, how do we manage the politics of the transition? Can we plan the current and future replacement rates for network hardware?

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Support Services Demand

Campus IT organizations could surely edit Ben Franklin’s pronouncement to read “nothing is certain but death, taxes, and the rising demand for IT support services.” Across the country, campus IT centers are challenged to find ways to provide new services, enhance existing services, and extend the availability of those services. As IT professionals we need to engage our organizations and those who use our services in serious discussions about how we can meet this.
The “E” Is for Everything

Richard N. Katz & Diane G. Obilinger, Editors
EDUCAUSE Leadership Strategies Series, Number 2
Sponsored by PricewaterhouseCoopers

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- navigate the complex policy environment of networked education

Written for leaders, administrators, and policymakers.

Joseph Henry Publishers
May 2000
116 pages
EDUCAUSE member price $17, nonmembers $20

A complimentary copy of the book has been sent to the primary representatives at each EDUCAUSE member institution and appropriate staff and experts may be contacted from: jh@edugold.net or www.josephhenry.com or EDUCAUSE (see www.educause.edu/pubs/edus116.html).

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License Digital Information:
Policy Debates Hit the States

by Rodney J. Petersen

J ust when you thought digital tech-
ology was going to make dis-
tributed learning a reality and net-
worked information more ubiquitous, it
suddenly got a whole lot more compli-
cated. The passage of the little-known
— the Uniform Computer Informa-

tion Transactions Act (UCITA) — has
caused debate in courts across the
country in the coming months. UCITA
has the potential to radically transform
(and threaten) higher education’s ability
to acquire, access, and preserve digital
information.

Electronic commerce activities in an
time high, and states hope to capi-
talize on the information economy by
attracting more high-tech industries.

The proponents of UCITA maintain that its passage is an essential ingredi-
ent for states to be viewed as "technol-
yology friendly." In Maryland UCITA was
included among the governor’s “12-
point Information Technology Pack-

age,” which included legislation to
promote e-government, combat Inter-
net crime, and preserve privacy protec-
tions. Since contract law is a matter of
state law, UCITA is the Uniform Commer-
cial Code (UCC) that governs the sale of goods and
services. In fact, NCCUSL had been
working for more than 10 years with the
American Law Institute (ALI) to adapt the
UCC to address transactions in computer
information (formerly known as the pro-
posed Article 2B). However, the ALI
withdrew from the process earlier last
year complaining that Article 2B was
flawed in both process and substance.

Controversial Provisions

There are several controversial provi-
sions in UCITA. The most relevant to higher education and the information technology community include its scope, insufficient attention to consumer protections, use of license terms to replace the balances provided under federal copyright law, legal recog-
nization to “shrink-wrap” or “click-
through” license terms, and use of “self-
help” for breach of a license term.

“Computer information” includes computer software programs, library databases, digital books and journals, and access contracts including agree-
ments with Internet service providers. UCITA also provides the means by
which facts compiled in databases can be
licensed, essentially undermining higher education’s efforts at the federal level to
prevent the extension of copyright law
protections to databases that contain
factual information.

Two-thirds states’ attorneys general have opposed UCITA because of its
inadequate consumer protections. The proponents argue that it provides greater
protections than exist under common law. However, the attorney general from
the Maryland consumer protection divi-
sion argued vehemently throughout the
process that the protections were less

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