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DOING MORE WITH LESS

Obstacle or Opportunity for IT?

The State of IT Funding

Technology has become one of the most appreciated and most scrutinized investments in higher education. Campuses enjoy the benefits of high-speed networks, self-service administrative applications, and innovative instructional technology tools. At budget time, however, the costs to acquire, to implement, and to maintain these technologies are discussed and derided. Whether this is fair and appropriate or unfair and excessive is irrelevant. It is the reality for most CIOs today. Declining state funding, decreased endowment returns, and increased costs for expenses such as health benefits, financial aid, and utilities have caused virtually all higher education institutions to enact repeated rounds of budget cuts.

THE EXPERT PANEL

To address the topic of "Doing More with Less: Obstacle or Opportunity for IT?" *EDUCAUSE Review* assembled an expert panel consisting of eight CIOs/VPs at higher education institutions of varying size and type throughout the United States:

Lev S. Gonick
Vice President for Information Technology Services and CIO
Case Western Reserve University

Darrel S. Huish
Assistant Vice Provost, Information Technology
Arizona State University

H. David Lambert
Vice President for Information Services and CIO
Georgetown University

Lucinda T. Lea
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William H. Pritchard
Vice Chancellor and Chief Technology Officer
Foothill-De Anza Community College District

Frederick H. Siff
Vice President and CIO
University of Cincinnati

David L. Smallen
Vice President, Information Technology
Hamilton College

Karin Steinbrenner
Associate Provost and CIO
University of North Carolina at Charlotte

With the institutional resources shrinking and the costs rising, information technology (IT) organizations are being asked to do more with less. The CIO's challenge is to spread the "less" over increasingly more diverse businesses. The typical IT organization is a utility (the network), a service business (the enterprise applications), and an innovation engine (the lab that brings the campus new technologies and ideas for their application). Often, the IT organization is also a museum that maintains legacy technology for narrow, but important, groups of users. The CIO must advocate for all these businesses and must secure the resources to sufficiently fund the past, present, and future of the campus technology.

With these challenges in mind, the EDUCAUSE Center for Applied Research (ECAR) undertook a study of the state of IT funding in higher education. The study, "IT Funding in Higher Education," to be published in December 2004, focused on the following questions:

- What are the overall trends and outlooks for IT funding?
- What are the drivers of IT costs?
- What impact did Y2K, ERP, and other high-profile IT projects have on funding?
- What strategies are institutions using to manage their IT costs?
- How well do CIOs and CFOs collaborate on IT funding issues?

The centerpiece of the research was a quantitative survey of more than 480 higher education CIOs and a companion survey, conducted with NACUBO (National Association of College and University Business Officers), of more than 380 CFOs. The study methodology also incorporated qualitative research including interviews, case studies, and a literature review. Several highlights of the research study—in the areas of the IT budget, IT costs, IT cost management, and the future—are particularly germane to the following discussion of "doing more with less."

The IT Budget

How has IT fared in the current environment of budget cuts? For most IT departments, the IT budget appears to have changed proportionately to the institutional budget. Of the institutions surveyed, 65 percent reported that their IT budget had maintained its share of the institutional budget from 2001 to 2003. Only about 20 percent reported that the IT budget's share had declined.

Survey respondents reported that, on average, their budgets grew by 5 percent from 2001 to 2003. However, there was a wide disparity in results. More than 40 percent of institutions reported that their budgets were flat or in decline for the same three-year period.

Institutional control played a large role in determining how budgets fared. At public institutions, the IT budget grew by only 2 percent on average. In contrast, private institutions reported an average IT budget growth of nearly 5.25 percent. It is interesting to note that there were no statistically significant differences in the change in IT budget by Carnegie class.

Institutions with organizationally influential CIOs did not fare appreciably better than institutions with different reporting structures. Survey respondents with CIOs who serve on the president's cabinet or who sit on committees that establish the budget did not see IT budget changes that were significantly better than the IT budget changes at institutions with less influential CIOs.

Survey respondents expect these trends to continue. About 40 percent foresee flat or declining budgets next year. The rest expect some continued growth in operating funds. Expectations regarding one-time investments are similar. Three-quarters of respondents anticipate that over the next three years, they will make one-time technology investments that are equal to or greater than their investments over the last three years.

Only 30 percent of respondents automatically set aside funding to maintain technology after it is implemented.

IT Costs

IT organizations face rising costs. Although the economic slowdown may have eased upward pressures on IT salaries, other costs have continued to grow. Network equipment purchases, hardware and software maintenance contracts, and hardware purchases were reported by respondents as the fastest-growing IT costs over the last three years. Institutions expect these costs to continue to be the fastest-growing portion of their IT budgets.

Technology appears to have taken on some of the financial characteristics of facilities maintenance. The more you have, the more resources you require to maintain what you have. As institutions extend their network, add more applications, and increase the numbers of users, they need more resources for support. Respondents reported that they now commit, on average, 20 percent of their budget to annual maintenance contracts. However, most institutions have not developed any systematic approach for funding technology renewal and replacement. Few have created a technology equivalent of the facilities-renewal fund. Only 30 percent of respondents automatically set aside funding to maintain technology after it is implemented. Nearly 40 percent fund the maintenance of new technology from their existing IT budget. Interestingly, one of the few areas of significant difference between the surveyed CIOs and CFOs is the adequacy of funding to maintain new technology. For the most part, CFOs feel that budgets do

TABLE 1

COST-CONTAINMENT STRATEGY	CONSIDERING	PLANNING TO IMPLEMENT
Implement across-the-board cuts	46.5%	41.1%
Join consortia or shared purchases	56.2%	38.6%
Minimize supported technologies	47.7%	34.4%
Cut renewal and replacement	31.5%	27.2%
Use open source	33.0%	21.6%
Share technology implementation	37.1%	20.1%
Limit duplicate IT organizations	24.9%	19.7%
Cut service levels	28.4%	18.0%
Outsource	20.1%	12.7%
Freeze salaries	23.9%	11.2%
Layoff staff	15.8%	9.1%
Other	8.5%	5.0%
Use external software development	28.4%	3.7%
Cut benefits	7.3%	3.3%

increase sufficiently to cover increased maintenance costs, but less than half of the CIOs agree.

Although reallocating funds may be possible in the near term, it is not a sustainable strategy. Eventually, the many pulls on existing resources, coupled with the continued adoption of new technologies, will cause something to give. Either service levels will erode or IT organizations will no longer be able to respond to new user needs. Already, 14 percent of respondents reported that they had one or more applications that were off the vendor-prescribed maintenance and upgrade schedule.

The rising costs of maintaining increasing numbers of new technologies is tying up the IT budget. The ECAR survey revealed that most IT organizations begin the year with 70–80 percent of their budgets fixed. Funds are largely committed to contractual payments to vendors and to personnel dedicated to the support of legacy technology. If maintenance costs continue to rise as expected, institutions will have even less flexibility in their budgets. The loss of flexibility and discretion in the budget translates into a diminished ability to react to the unexpected (e.g., IT security) and to work with users to meet new and emerging needs. As a result, technology innovation and reliable operations will suffer.

IT Cost Management

Virtually all the surveyed institutions are engaged in the search for IT cost reduction. Many are considering traditional strategies, such as implementing across-the-board budget cuts, reducing the number of supported technologies, and joining purchasing consortia. Others are contemplating relatively newer or more aggressive strategies, such as shared services, outsourcing, and using open source technology.

The challenge is that most of these newer strategies either are unproven in higher education or are politically complex to implement. Table 1 illustrates which cost-reduction strategies respondents are contemplating and which they are planning to implement. It shows that institutions are more likely to implement traditional strategies. Conversely, institutions are less convinced of the merits of corporate-style restructuring strategies. Respondents were asked whether they considered outsourcing, external software development, and shared services to be key cost-containment strategies:

- Only 17 percent of respondents think that outsourcing can provide IT services at a lower cost.
- Only 13 percent of respondents think that external software-development firms will be critical to containing IT costs.
- Only 20 percent believe that their institutions will be more likely to pursue shared IT services in the future.

TABLE 2

NEW REVENUE SOURCES	PERCENT PURSUING
Grants	64.3%
Fund-raising	41.7%
Increased student fees	35.1%
Corporate partnerships	34.4%
Expanded use of charge-backs	14.1%
Other	12.7%
External provision of services	10.4%
Technology transfer	5.6%
External provision of products	2.7%

Institutions are also looking for new revenue sources to fund IT. Table 2 illustrates the percentage of respondents who are pursuing new revenues. Grants, fund-raising, increased student fees, and corporate partnerships are some of the more prevalent revenue-enhancement strategies. However, these sources fund a relatively small portion of the IT budget.

The Future

The need to do more with less will persist. Despite an improving economy, few institutions will be able to fund the maintenance and expansion of technology through increased budgets alone. CIOs are concerned about funding the future. Although most feel that their funding is adequate to meet today's strategic objectives for technology, they are less confident about having sufficient funding to keep pace with the future. This is especially true in areas such as research computing and instructional technology.

So, the quest to become more efficient and effective in the use of technology will continue. CIOs will need to look harder for ways to reduce costs. Institutions will have to find the will to tackle politically difficult issues, such as the duplication of IT services. In addition, a greater willingness to experiment with alternative management strategies, such as outsourcing and shared services, will be needed. Most important, before pursuing new technologies to enable their futures, higher education institutions must find ways to secure funding to maintain their *existing* technology.

—Phil Goldstein, ECAR Research Fellow

Costs, Revenues, Stability, and the Future

Each panelist was asked four questions:

1. Have you cut IT costs? If so, what have been your most effective cost-cutting strategies?
2. Have you increased IT revenues? If so, what have been your most successful strategies for raising revenues?
3. Have you reallocated departmental resources or implemented other strategies that have led to greater financial stability for the IT department?
4. What are your ideas about the future of IT funding for higher education? Do you feel that cuts to IT budgets are an obstacle or an opportunity for IT departments and for higher education overall? Why?

1. Have you cut IT costs? If so, what have been your most effective cost-cutting strategies?

Gonick

Generally, our approach has been to identify where we might gain efficiencies, either in staffing or in non-salary expenses. Costs that are typically cut are those that support services that have low usage in the user community but high resource allocations.

In our case, effective cost-reduction strategies include

- negotiating Master Service Agreements with our strategic vendors, a strategy that gives us leverage in terms of predetermined discounts on products, discounted services (e.g., project management), and price predictability as well as partnership opportunities for new projects, beta testing, etc.;
- reviewing and reallocating resources for baseline services (i.e., entitlements) and communicating the extent of entitlements and benefits to our internal customers; and
- appropriately and accurately pricing premium services—typically incremental costs we incur to provide tailored and/or customized services—to our user community.

Huish

At the institution level, we are increasing our investment in IT. At a lower level, that of the units that provide centralized IT services, the cost/budgets are generally steady-state.

Lambert

Yes, we have cut IT costs—by approximately 20 percent in the last two budget years. This has been caused by reduced funding and by a combination of flat funding and increasing costs for technology maintenance and staff benefits. We have also had to make additional investments in critical programs for which we have not been able to get additional funding, such as security, growth in the use of the Web and scholarly information systems, and disaster recovery.

We have cut costs in several ways. We have reduced staff levels by about 20 percent in that time period. We have seen major decreases in the costs of providing telecommunication services and have

been able to repurpose some of those funds. We have extended our replacement cycle for hardware. We have renegotiated and changed the terms of support contracts, accepting more risk but also acquiring local inventories of equipment in order to do self-maintenance. We have eliminated nearly all use of outside consulting resources. During the past year, we have significantly cut back funds for purchasing new and replacement equipment. We have enhanced our engineering and our engineering review processes to drive down the costs associated with providing and supporting key elements of the infrastructure.

Lea

Yes, we have cut IT costs. As a result of economic downturn in recent years, the Tennessee legislature has mandated significant budget reductions for higher education.

An important strength at Middle Tennessee State University is the emphasis placed on strategic planning by the president, Dr. Sidney McPhee, and by the entire executive team. Faculty, student, governing board, and community leadership were engaged in 2001 in the development and articulation of an updated comprehensive Academic Master Plan as requested by the president. The plan states the ten-year direction for the institution and gives strategic priorities as the university pursues the goals of academic quality, a student-centered learning environment, and the establishment of partnerships with area institutions and businesses.

It has been and continues to be important to evaluate the worthiness of all IT endeavors, including services and new projects, according to the goals and strategic priorities as set forth in the Academic Master Plan. IT projects and services are measured on a continuing basis against these goals and priorities by institutional effectiveness criteria that include defining the required resources, ascertaining the impact enterprise-wide, measuring productivity improvements, determining importance to the university image, calculating potential cost savings, and analyzing the return on investment both qualitatively and quantitatively.

With ongoing use of such a "score card," it has been much easier to determine the projects and services that could be cut or, perhaps, greatly curtailed to achieve the budget cuts mandated by the state and the governing board. Certainly good strategic planning has enabled this painful process.

Pritchard

Yes, we have cut costs . . . considerably. Since 2001, our overall budget has been cut almost 30 percent. Although we tried to find ways to cut without laying off anyone, we found that to meet the level of cuts required, we would have to make layoffs. We lost almost 25 percent of our staff through layoffs (although some of the lost staff were from cancelled contracts and grants that were not renewed due to budgetary problems with the funding agencies). Along with the layoffs, the associated operating budget was also eliminated.

Siff

Of course, we've cut IT costs. Hasn't everyone—if only to find budget cap room to grow new services, to keep pace? But renegotiating contracts, or taking advantage of market price changes, isn't enough. My favorite example is that over the past three years, our bandwidth costs have decreased by 57 percent, but bandwidth requirements have quadrupled—so total cost has increased by 172 percent.

Our overall strategy is to focus on *core* services, those that the community needs from us and depends on us for and that we can deliver better (in terms of quality and cost) than anyone else. We have to recognize that some 70 percent of central IT is operations and focus on that. Our challenge is to cut costs but not corners. The modem pool—we believe, and the community validates—is core, but exam-grading services are not (we moved to self-serve). Marginal computer labs are not core, but Internet express stations are. We charge for services that were once offered at no charge (e.g., printing in the labs, massive storage requirements). We offer more large-scale software licensing services (e.g., Microsoft, Adobe, Network Associates) and hardware purchasing services to take advantage of volume discount arrangements.

But shouldn't we be talking about services instead of costs? IT costs represent services, and we should frame the on-campus dialogue accordingly. Cutting costs equates to cutting services. This is especially difficult when the demand for—even the dependency on—those IT services is increasing. A more appropriate framework considers whether the services are valuable and, of equal importance, cost-justified. Thus we see the increasing need to benchmark the cost of services—and run the operation like a business. Just as the university's money must be considered as an investment that will pay dividends, the money spent by IT has to be considered likewise: returns have to be shown (they don't have to be ROI, but they do have to be defined if not measured). That said, we still must engage in R&D and exploratory projects (funded by operations savings); we can't focus only on current services.

Smallen

We haven't had to make *significant* cuts to our IT budget, although the non-personnel budget has actually decreased over the last three years as part of a college-wide effort to reallocate resources to support strategic goals.

Our avoidance of significant cuts has largely been the result of our long-term strategies to make good use of outsourcing and student help. For example, we outsource the repair of computing and telephone equipment, and we rely heavily on consultants to help with implementing new technologies. Over 40 percent of our technology support is provided by student help, including a successful internship program with another college.

Steinbrenner

UNC-Charlotte did not experience a direct budget reduction, but we also did not receive the type of year-end money usually allocated in prior years to fund major IT initiatives. Our "normal" budget barely covers essential operational expenditures, and we are relying on so-called one-time funding for new IT initiatives. We have avoided spending in some areas to allocate resources for essential, must-have initiatives such as security. We delayed PC replacements and other infrastructure updates and used the money to fund initiatives in security, e-learning, and necessary network upgrades.

2. Have you increased IT revenues? If so, what have been your most successful strategies for raising revenues?

Gonick
With the exception of introducing premium services for customer service and support, our revenue model has not increased. Rather, we have begun efforts to better rationalize expenses to our user community, as well as to exploit ways in which we can stretch our budget and gain economies of scale. Some of these activities include consolidation of services into the central IT pool, where efficiencies can be gained with the use of central resources—for example, server and storage consolidation, routine help-desk activities, and centralized computer-refresh programs.

Huish
We are in the early stages of identifying services that will generate additional revenue. Although the actual change in revenue has been minor, there is an emerging understanding that some services are not part of the baseline infrastructure and will therefore be priced to generate revenue. I expect we will do more of this, which will foster a lot of healthy analysis about what is for the institutional good and what is more of a niche service.

Lambert
Overall, we have lost IT revenues due to decreased recovery for voice communications. But we have expanded several programs on a cost-recovery basis. We have been able to build a substantial research computing cluster through the active participation of researchers who have used funds from grants to expand the size of the (shared) cluster and to cover the cost of support staff. Since we have had to limit our ability to extend enterprise applications, we have created Georgetown's first significant cost-recovery program for business application and Web development. We are currently overhauling our service model to tie existing fund sources to "baseline" services and are preparing to recover for services that go beyond that baseline. We have begun to build partnerships with university departments that have been tasked with bringing in increased revenue and are working with them to ensure full-cost budgeting for IT. We have aggressively worked with research primary investigators to address technology costs in the direct-cost components of grants. And we have directly pursued grants to develop advanced technologies to support our research community. We have also redoubled our efforts to ensure that we are leveraging our relationships with our hardware and software vendors.

Lea
Yes. The elevation of IT to cabinet-level status, with the formation of the Information Technology Division and with the Vice President for Information Technology and CIO position reporting to the president, has provided much greater visibility and awareness of IT initiatives and services campus-wide. This new status has provided me with more opportunities to educate decision-making col-

leagues about the importance of IT investment for the institution. I have been in a position to deliver the message, at the highest level, concerning the importance of all IT assets, including personnel and infrastructure.

The CIO is in a position to help executive-level colleagues understand that IT projects and services are the business of everyone, not just IT, and that they are a critical piece of the university portfolio. This leads to the realization that the strength of the IT organization is an integral component for success as the institution endeavors to utilize the strategies and realize the goals outlined in the Academic Master Plan. It is also important that as CIO, I understand the big picture and work with my colleagues, which often means looking at projects from their viewpoint, as we work to fulfill the university's mission. Everyone must be willing to engage in give-and-take behavior.

The IT budget changed very little over the several years that IT reported at a lower level. A seat at "the table" has definitely been the key to generating new revenue in the last couple of years.

Pritchard

No, we have not increased IT revenues, although we did successfully apply for, and receive, some new grants, most notably support for an enterprise portal application from Oracle and CampusEAI. Historically, we have not charged for IT support, except for grant-funded projects and "special" projects. Implementing a charge-back service environment at this time would be especially difficult given budget cuts that have occurred throughout the institution.

Siff

Yes. Just as public universities can no longer run on state funding and need to increase external funding, so must central IT. This has to be accomplished not at the expense of the students but rather as a result of creative business models and relationships with external business partners.

Corporate America practices outsourcing more (and more wisely) than higher education does. Central IT can be a provider of outsourced services. If we are any good, we should be able to offer IT services at attractive prices not only to the internal university community (colleges and departments) but also to the external community. Examples of internal outsourcing include running college or departmental servers in our data center, behind the firewall with redundancy and clean, backed-up power; providing data storage and file backups; operating college and departmental computer labs and electronic classrooms; and providing Web services. Colleges and departments may have been doing these things themselves, but if we can't provide these services better and more economically (creating a win-win in which they save money and we make some), we ought not to be in the business. In addition, there are funding sources external not just to central IT but to the university as well—grants and contracts, for example. But beyond that, there are unique services we can offer to other institutions, such as backup and offsite storage over our state educational

network. We can offer videoconferencing, applications hosting, and other services that we are handling for ourselves anyway.

A growing recentralization of IT is occurring not just in higher education but also in most large organizations. As departments become more willing to rely on central services, they get out of marginal businesses too. Central IT can take advantage of this situation.

Smallen

At Hamilton, we don't yet charge our users for any computing resources, so raising revenues is not something we are currently considering. We do charge for telephone services, but that charge is designed as a means of managing demand. We will be charging for printing within a year, but we view this change as a conservation effort rather than a way to increase revenues.

Steinbrenner

Our only revenue comes through the telecom department, which is an independent cost center. Our long-distance revenue has all but disappeared. We increased charges for regular phone services for faculty and staff and are in the process of adding new services, such as Integrated Messaging, which will be provided for an additional charge. We are migrating to VoIP telephony and are merging the telecom and network departments into a single communications department. This will free up a manager position that we can utilize somewhere else. We are contemplating charging for network connections and changes, just as we now charge for phone connections and changes. Further, we are looking into consolidating the IT help desk and telecom support into a single help desk for IT.

"Items that are completely necessary when free are used more rationally when a small cost is attached."

3. Have you reallocated departmental resources or implemented other strategies that have led to greater financial stability for the IT department?

Gonick

Yes. We have reallocated resources to accommodate our strategic framework. For example, we have revised all job descriptions in the division to reflect the positions and qualifications needed to achieve our goals and objectives. During this effort, resources were reallocated to allow a minimum training budget of $1,500 per person to provide the appropriate training for the revised positions. This outlay for training is now a permanent line item in our operating budget, thus minimizing the number of contractors needed on a routine rather than a specialized basis.

Additionally, by closely scrutinizing our activities, we have been able to systematically eliminate those services that did not advance the university's strategic IT goals. Services affected either were eliminated entirely or were transferred to other departments. Although typically minor budget items, overall these services presented distractions to our managers, who were being tasked with managing non-strategic commoditized services such as poster printing and passport-photo operations.

Finally, other resource-allocation efforts include jointly sponsored locally sourced ventures for networking infrastructure and enterprise help-desk services. Transforming these services into a joint-venture model allows us to focus on managing the relationship rather than the activities and lets the group with expertise in that particular area (i.e., help and support) deliver the product. We believe that this model will enhance service levels and be more cost-efficient in the long run.

Huish

One strategy that allows greater financial stability is establishing (even modest) cost-recovery rates for growing services. An obvious example is student printing in computing labs. Once a modest fee was established, actual use became much more moderate. Similarly, when we established a small fee for premium e-mail service, the demand for this more expensive service was curtailed. Items that are completely necessary when free are used more rationally when a small cost is attached.

Lambert

Beginning in 1998, Georgetown began a process of bringing nearly all IT support functions into a central IT organization (except the Law Center and the Business School, which maintain IT staffs). This has resulted in a consolidation of IT funding and has created a number of opportunities to use resources more flexibly. We have been able to consolidate desktop replacement funds at the campus level. This has allowed us to move to a systematic, three-year desktop replacement cycle throughout most of the university. Stable (and centralized) funding for the desktop replacement cycle has enhanced support and saved money. We have been able to create multi-year technology capital plans that have allowed a predictability in funding and replacement cycles.

Lea

It has been our practice to carefully and continually scrutinize and examine every aspect of the IT organization and the associated resources. This includes the following: modifying job duties and moving personnel as the IT environment changes; going out for bids to get better pricing; renegotiating contracts; eliminating and/or consolidating services; standardizing software, hardware, and IT services where feasible; sharing resources

"Standardizing on hardware and software is another strategy that helps us with our purchasing power."

with other institutions in the Tennessee Board of Regents system; leveraging our buying power through joint contracts with other institutions in the state; engaging in system-wide and regional training opportunities; collaborating with other departments and divisions within the university to avoid duplication of effort; monitoring equipment effectiveness and updating maintenance contracts accordingly; automating systems and functions where possible; and protecting the practice of setting aside replacement and renewal funds for infrastructure according to an equipment depreciation schedule.

An additional strategy that has created greater financial stability has come from the visibility gained through cabinet-level status and the opportunity for continuing dialogue with other university vice-presidents. University officials now understand the reality of some of the fixed costs in IT, such as new and increased maintenance fees, and allocation is made for these in each budget cycle. Previously, there was no new funding for these rising costs.

Pritchard

We closely reviewed all of our contracts to see if we could reduce costs through renegotiations. This resulted in a number of contracts being reduced in scope and costs with no direct harm to level of service to the district. In the review of our telecommunications contracts, for example, we found that our provider had substantially overcharged us, which resulted in a significant direct monetary refund to the district, as well as relatively large annual savings for the foreseeable future. We have also reorganized our IT organization and shifted some functions previously in our IT organization to other areas of the institution.

Siff

We moved early to align our telephone and data communication operations. We see a similar convergence occurring in the application environments, since integration among core systems is now a requirement to keep the business moving forward. We adjust and reallocate all the time. It is a dynamic business, run like one with cost centers, service improvements, and the like; we make clear plans (with the community, making use of the existing IT governance structure), complete with multiyear forecasts of revenues and costs, and then manage to those plans and are held accountable.

Smallen

A major component of the financial stability of our IT area has been our fully funded replacement plan for all desktop hardware/software, servers, and data projectors. In addition, we have processes in place to add to these funds as new technologies are added to the campus. This helps to create a stable source of funding for maintaining what we support.

Standardizing on hardware and software is another strategy that helps us with our purchasing power and improves our ability to support these products economically. Our biggest budget shift, over time, has been to increase the proportion of our budget devoted to student help and outsourcing.

Steinbrenner

We have consolidated PC hardware and software support into one department, which freed up one management position. That position was reallocated to become the new IT security officer. Another position was freed up for a second security position.

We established a Faculty Center for Teaching and E-learning, which combines the former Center for Teaching and Instructional Technology support. With the support of the provost, departments outside IT were asked to give up technical support positions so that a single department can leverage the expertise of all these professionals. Three staff members from Media Services and two from Distance Education were reallocated to the Center.

With the creation of a combined communications department, we want to expand our help desk to include phone support using a campus-wide help-desk system: Magic. This means that all requests for services and support will come through a single help desk and will be distributed from there. This will free up another manager position. The current help-desk manager would rather work with statistical analysis systems and will likely be reallocated to our university research department for statistical analysis support for faculty.

To fund our ERP implementation, the state approved a $50 raise in student fees for the next ten years. The university will borrow money against the expected student fee income as needed to fund the project. This has put the project on a solid financial foundation, independent of the ups and downs of state allocations and year-end spending obligations.

As CIO, I have prepared a funding model for operational costs for the provost and the CFO. The model is based on the following:

- Required funding per IT employee (e.g., supplies, professional development, phones)
- Contractual obligations (e.g., maintenance contracts, professional fees)
- IT infrastructure replacement costs (based on inventory and life expectancies)
- Permanent salaries
- Temporary Salaries

Each IT initiative has its own budget that specifies initial start-up costs (one-time expenditures) and ongoing support

costs and/or savings for a five-year period. For approved projects, FY costs are added to the operational budget to reflect the total FY IT budget.

4. What are your ideas about the future of IT funding for higher education? Do you feel that cuts to IT budgets are an obstacle or an opportunity for IT departments and for higher education overall? Why?

Gonick

It seems that efficiency is generally not rewarded; we are expected to do at least the same, if not more, with relatively flat budgets. However, IT budgets cannot be viewed solely as obstacles to the services that our communities demand, nor can budgets continue to be constrained without consequences to service levels. In my experience, with creative thinking and relationship building, there are ample opportunities for entrepreneurship in the academic environment and in inter/intra-institutional partnerships.

Opportunities at Case come in the form of partnerships with other central services and with our management centers and include ongoing conversations about creating long-term funding strategies with central budgeting. For example, we rolled out a seven-year funding plan, including expected increases to our budget over this period of time. This approach allowed us a broader planning horizon and has given us the ability to have capital budget conversations that include contingency planning and routinization of IT electronics—similar to running water in campus buildings.

Huish

IT funding will follow the broader funding pattern in higher education, which is that, increasingly, those who benefit will be those who pay. Just as we see less public subsidy for higher education, we will also see fewer instances in which general tuition revenue is used to fund specialized technology. This situation will be both an obstacle and an opportunity. It is certainly an obstacle to maintaining the status quo, but it is also an opportunity for effecting needed change. The deeper challenge is to implement the changes so that as new funding is used for technology, new value is demonstrated to those who have delivered the funding.

Lambert

Higher education is now facing the combination of cost-increase pressures and revenue constraints. These major market structure changes will persist for at least the next decade. As a result, IT leaders must commit to maximizing IT benefit in the changing environment. This will leave us very little room to make bad choices. It will be incumbent on us to challenge our traditional technical, service, and business models. Over the last fifteen years, most CIOs have found themselves "selling" the value and role of technology, with a focus on bringing new scholarly communities into technology-enabled environments. Increasingly in the future, our leadership will need to shift toward sorting out the technology uses that most directly affect cost reduction or revenue retention and generation,

much as is done by our colleagues in the private sector. The question will be whether we can do this and also continue to maintain the level of technical leadership and innovation that the higher education community has offered in the last thirty years. I believe we can. This will mean focusing on projects that disrupt traditional, costly IT business and cost models. The recent work our community has invested in dark-fiber acquisition (National LambdaRail, USAWaves, IEEAF) and collaborative software development (JA-SIG, OSPI, Chandler, Sakai) provides examples of the way we will need to work in the future.

But we cannot concentrate only on the cost side. Our industry (private and public higher education) also faces new constraints on revenue and new competitors. How can we, as CIOs, partner more effectively with our academic leaders and our researchers to make them more competitive and to make the pie bigger? Not only have we not traditionally worked this way, but our academic leadership is not used to looking at IT as a basic competitive differentiator. The worst time to be seen as a "sink" for funding is when the enterprise is under stress. What can we do to position IT to expand fund sources?

We also must focus our energy on building the types of organizations that can thrive in these new environments. This implies acquiring and developing different types and levels of technical skills and attracting to our organizations those staff and leaders who have skills in service development and marketing. We need to become more flexible at managing shifting priorities and enhancing productivity.

I think that we can use these tough times to get better. But preparing ourselves and our organizations to thrive in this new environment will undoubtedly be difficult.

Lea

IT has certainly become an integral and critical component of everyday life and work at all higher education institutions. If students, faculty, staff, administrative officials, and governing boards didn't understand this before the onslaught of viruses and worms, the events of the past year have surely been a wake-up call. With this reality, I believe that governing boards, university officials, and key campus stakeholders will do their best to provide adequate IT funding in the future. At the same time, IT decision-makers must exhibit financial responsibility in all aspects of the IT operation and expenditures, including new projects, by clearly articulating the benefit and the return on investment as these relate to the institution's mission and strategic plan. Collaboration and a spirit of cooperation with divisions, colleges, and departments across the campus must be the usual behavior as those in IT understand the many needs of the institution and understand that theirs is truly a supporting role.

As to IT budget cuts—obstacle or opportunity?—I believe the answer is a mixed bag. Budget cuts can offer an incentive not only to be more efficient but also to look for new-and-improved and perhaps more cost-effective ways to achieve our goals. This can help keep us

on the cutting edge and make us good stewards of tight resources. Budget reductions certainly provide an opportunity to take a closer look at the operation and cut out any "fat." But the question is: How many times can you do that and not become anorexic and seriously damage the institution?

Pritchard

I don't foresee IT funding in our area (California community colleges) rising very much in the near future, even though we are in desperate straits. We are nearly 100 percent funded by the state, based on enrollment. During the dot-com run-up, the state had sufficient revenues to begin moving IT funding in community colleges to a TCO (total cost of ownership) model that provided extra funds for refreshing some, but not all, of our technology. But when the dot-com bubble burst, that funding disappeared. Now, a large amount of our technology inventory is aging well past its useful lifespan. There seems to be little-to-no inclination on the part of the state to reinstate those funds. As a result, we must argue for funds within the college/district general operating budget, which has also been cut significantly. I also believe that some systemic issues related to community college funding in California need to be fixed before we'll be able to do all that is expected of community colleges, let alone what is expected of their IT support organizations.

I see IT budget cuts as both an opportunity and an obstacle. The opportunity, although not without some pain, is that we review all of our costs and processes to find ways to eliminate unnecessary expenses and/or to run more efficiently by reviewing our processes. We were able to do both in significant ways. For example, we have begun the implementation of an enterprise-wide portal with the support of an Oracle grant valued at more than $1.1 million over five years. We also are in the process of implementing a workflow automation solution that will allow the district to operate more efficiently—especially important now that we have fewer staff to do the work. The obstacle is that we are unable to advance in other areas in which we had planned to move forward. As a result, we have been set back (by several years) on some key efforts (e.g., migrating to a new ERP system). However, even that provides an opportunity for us: to find less expensive solutions for providing improved and expanded functionality through the creative use of interoperable standards without putting undue stress on our legacy system.

Siff

I'm all for making lemonade out of lemons, but let's be realistic: reduced funding is *not* an opportunity. I don't need someone cutting off my right hand in order to make me learn how to dribble a ball with my left. I don't need budget cuts to force me to get my house in order. We're running as lean and powerfully as we can after years of budget cuts. Reduced funding means reduced opportunities and support services, so we have to spend more time correcting for those losses. That is why we're having this dialogue: How can we compensate for

reduced funding without reducing critical services? Cutting services is not an option—the reliance on and the need for IT is growing in higher education. We are being asked to spend less while users' needs and demands for IT services are increasing. Is there a way to balance it all? One simple answer is that we have to begin operating as a successful business and increase revenue.

Smallen

IT has become a central part of the operations of our institutions and must be managed in ways similar to those used to manage other institutional resources. Economic constraints require all institutions to reevaluate the way they do business, and I see this as an opportunity for IT organizations to lead the way in a number of areas and to be part of an institutional effort to utilize resources more efficiently.

First, we must be exemplars of relating benefits to costs. That is, we should be able to clearly explain all the costs associated with increased service levels for existing services or all the implementation and continuing costs associated with new services. We should ensure that the resources are committed before proceeding with enhancements or new services.

Second, we have the opportunity to be major players in efforts to improve institutional efficiency through the use of IT. For years, we have talked about the potential of IT to transform the way we do business. Now, many of the technology tools are mature enough to enable the institution to walk the talk, improving services and controlling costs.

Third, we need to be continual advocates for making replacement costs part of the operating budget, not just for IT but also for other critical institutional resources (e.g., renewal of plant). Helping to change the organizational culture to one that recognizes the need for renewal is ultimately in the best interest of the institution.

Finally, we must more closely align IT goals with academic goals to ensure that our IT investments are targeted at those things that most directly support the teaching and learning goals of the institution. Even with tight alignment, the institution will have to make choices about what it can afford to accomplish in all areas, not just IT.

Unfortunately, it appears that only under the stress of budget constraints is it possible to have discussions about what is most important to the institution. These discussions won't be easy, but if we want to be major institutional players, we should see these times as opportunities rather than obstacles.

Steinbrenner

For institutions that view IT as an operational unit providing low-cost services, cutting funding is often detrimental. Reductions in funding may force the IT organization to delay essential upgrades and equipment replacements and to cut services. One of the major challenges for IT is having a provision for replacement costs. Though one can delay some infrastructure replacement for some time, avoiding it for too long will cut away the muscle, making the IT infrastructure unreliable, inefficient, and vulnerable. This is especially true for state institutions, which are not allowed to carry funds forward across fiscal years.

As a result, departments may seek their own IT resources for quality IT support and state-of-the-art equipment. IT departments in colleges and administrative areas outside the central IT department add significant costs if they are allowed to create and operate independent infrastructures or manage on their own what should be part of the campus-wide IT infrastructure: PCs, servers, e-mail. The proliferation of departmental IT organizations can raise distributed IT costs and put additional burdens and costs on the central IT organization, which needs to ensure that decentralized IT initiatives meet institutional standards and are integrated into the institutional IT infrastructure.

However, reduction in IT funding can create opportunities. It can encourage standardization and coordination across all institutional areas, as well as collaboration and adherence to a common architecture and standards. Joint planning among departments and central IT can lead to the elimination of redundant systems and services—redundancies that are still prevalent at many colleges and universities. Tighter budgets can force IT and other areas to think outside the box and to review if they can be organized better, which will reduce the number of management positions and/or improve existing processes. Funding cuts may also cause IT departments to look at alternatives such as server consolidation, thin clients, and integrated systems. Too many institutions operate on automatic PC-replacement pilot instead of reviewing if PCs are the appropriate tool for all areas.

It is thus critical that the CIO be endowed with the authority to implement initiatives—such as security, identity management, classroom technologies, backup and recovery, server consolidation, PC management, messaging systems, network management, and course management software—that are effective only if they are applied campus-wide. When the CIO is a member of the senior management team, he/she can help identify institutional services and processes that are no longer needed because of changing technology or more effective processes facilitated by new systems.

Most colleges and universities realize that IT costs will continue to increase as a percentage of the overall operating costs, since IT is integral to every aspect of institutional life and holds the potential to be a strategic asset. However, those increases should be more than offset by savings in other areas or should be justified to create competitive advantages. If what Alan Greenspan, chairman of the U.S. Federal Reserve Board, said is true—that most of the productivity gains in the United States can be contributed to information technology—higher education still has a long way to go.

RELATED RESOURCE

The EDUCAUSE Executive Briefing "Funding Information Technology" (http://www.educause.edu/LibraryDetailPage/666?ID=PUB4002) offers a set of effective IT funding principles and practices, as well as references to supportive literature. The briefing is based on discussion among members of a working group, created in cooperation with NACUBO and composed of nearly fifty IT leaders and business officers from a variety of colleges and universities.