IT Strategic Planning in the CSU:
A Study of Best Practices

Executive Summary

Background

One ITAC recommendation to the Executive Council in 2004 on the Organization of IT Resources was that each campus should have an IT strategic plan that aligned with the institutional strategic plan. At the June 2005 Executive Council retreat, TSC presidents discussed this recommendation with their colleagues and a subsequent survey determined that roughly half the campuses had no such IT plan. Much of the IT strategic planning in the CSU for the past decade has revolved around the systemwide Integrated Technology Strategy. There had not been a systematic inventory of campus IT strategic planning since the late 1980s.

The TSC determined that a sample framework for strategic planning would be beneficial to campuses. Accordingly, the ITAC Executive Committee (IEC) commissioned a systemwide study of IT strategic planning among CSU campuses in summer 2005. ITS provided staff to the IEC for the study and interviews were scheduled at eleven CSU campuses, including all whose presidents serve on the TSC or whose ITAC designee serves on the Executive Committee. In most instances, the interviews lasted one hour each and included presidents, provosts, VPs for student affairs, library directors, VPs/chief financial officers, college deans, VPs/deans of physical plant, CIOs and senior IT staff, and others. The CIOs on each campus were responsible for choosing the individuals to be interviewed. In spring 2006, an ITAC workgroup formed to review the draft report and prepare the recommendations and sample framework.

The background research for the project included electronic access to key strategic planning documents on the campuses; hard copies of documents collected during campus visits; searches of CSU campus websites; and, environmental scans of the professional IT literature.

In addition to a sample strategic planning framework, the goals of the study were to:
- Describe IT strategic planning models and processes among CSU campuses
- Highlight IT themes, initiatives, and projects that have proven especially effective
- Suggest ways for aligning IT goals and priorities with the institutional academic culture and programs, budget cycles, and capital plans, drawing heavily from national norms and best practices.
- Identify the conditions or criteria that underlie effective implementation of campus IT strategic plans.

It is the collective belief of the committee that adherence to the following principles will greatly enhance the probability of success of the strategic planning process:

1. **System Perspective:** Campus IT strategic planning should complement and reinforce initiatives within the Integrated Technology Strategy at the system level. CIOs should actively participate in shaping ITS initiatives, and insure that campus IT strategic planning is in harmony with system goals.

2. **Institutional Transformation:** IT planning should be an integral part of the institutional planning process. IT can and should be a transformative element that supports campus strategic priorities and initiatives

3. **CIO Role:** Ensure that the CIO position is, first and foremost, about advancing the institutional mission and priorities through technology

4. **IT Alignment:** Achieve alignment with academic, infrastructure, administrative, and fiscal planning.

5. **Communications:** Inform the campus community about the vision and status of the IT strategic plan.

6. **Accountability:** Develop a monitoring, evaluation, feedback, and formal assessment mechanism to review and revise the IT plan.

Overview

The study contains eight major sections:
1. A prologue that provides a brief history of five decades of IT in the CSU
2. An introduction that describes the goals and methodology
3. A detailed review of institutional and IT strategic planning models and processes
4. An assessment of IT organizational and governance structures
5. Best practices in IT and academic alignment
6. Best practices in IT and infrastructure alignment
7. Best practices in IT and fiscal alignment
8. A list of selected readings

This executive summary offers a high-level overview. Specific examples of best practices on CSU campuses are contained in the full report.

Strategic Planning Models and Processes

Regardless of the model of institutional strategic planning employed, the purpose of information technology strategic planning must be to achieve the campus strategic goals. Thus, the success of IT strategic planning depends upon "alignment" with planning at the campus level. Fortunately, effective planning at both levels share the same characteristics; namely, a compelling vision, a clear communication plan with a wide array of campus stakeholders, leadership combined with collaboration, and a practical means for execution together with access to the necessary resources.

According to a recent Educause study, campuses with a high degree of IT alignment were those:
- with a clearly articulated campus vision and/or priorities;
- that consider planning important and closely linked to the institutional budget;
- that have published an institutional plan or campus IT plan or that engage in planning activities continuously;
- reporting dynamic or stable environmental climates (as opposed to turbulent or volatile ones);
- that perceive both their IT governance process and their IT strategic planning process to be effective;
- that have greater communication with and involvement of key constituents, especially faculty and deans; and
- where objectives are clearly documented at the time IT initiatives are approved.

Within the CSU, the study identified several models of strategic planning for information technology that met the above criteria. The spring 2006 survey of campus presidents showed that 13 campuses currently have a campus-wide IT strategic plan and three more have them under development. The remainder indicated either that the systemwide Integrated Technology Strategy serves as their strategic plan or they have such plans at the divisional level.

Institutional strategic planning in the CSU can be thought of as a continuum, ranging from relatively simple mission and goals statements posted to the Web, to full-scale public relations campaigns that permeate the campus, to detailed "no-nonsense, by-the-book" technical exercises. Campuses tend to develop IT planning that mirror their culture of institutional strategic planning.

Three things stand out about IT and institutional alignment in the CSU: first, the commitment to accountability and a culture of evidence; second, executive involvement with IT as represented by the Technology Steering Committee of campus presidents and the Provosts Technology Steering Committee; finally, strong IT advisory structures at both the campus and system levels.

IT Organization and Governance

A major study by Wells and Ross of more than 300 IT enterprises in over 20 countries concluded that effective IT governance is the single most important predictor of the value an organization generates from IT. They found that corporate enterprises with common governance mechanisms across multiple divisions performed better than those where mechanisms were unique to each division.

Beyond organizational structures and governance practices, a second key element of IT effectiveness involves behavioral and leadership principles. The CIO position is, first and foremost, about advancing the institutional mission and priorities through technology. Neither the CIO nor the IT division can succeed if thought of as a vertical silo; IT must occupy a horizontal position on the campus spanning all functional units.

Within the CSU, organizational models and views about strategic planning vary greatly. The results of a recent presidential IT organization survey found that seven CIOs report to the president, nine to the provost, and five to the administrative vice president. Among the twenty campuses with CIOs, seventeen are sitting members of the president's cabinet, and two join the cabinet as needed.

In general, technology seems to be better integrated into campus strategic plans when a formal planning structure, process, and methodology are used to develop them. "Thematic" campus strategic plans often provide a compelling vision but the operational underpinnings, such as technology, may receive little or no mention. IT advisory committees are indispensable in bridging the gap between strategic vision and practical application.

Beyond personalities and campus culture and history, sheer size may be the single most important factor in IT organization. Smaller campuses rarely need elaborate planning committees and larger ones often were too decentralized to make them effective. It is probably no accident, then, that some of the most integrated planning structures and processes were found on medium-size campuses.

No matter what the topic, the issue of "breaking down silos" (both organizational and cultural) came up time and again in the campus interviews. Balkanization among academic colleges and departments was a common theme, as was the opportunity for IT and libraries to work closely as library content is linked to learning management systems and learning centers providing academic technology support across student and faculty organizational lines evolve. IT governance and organization may vary between campuses, but their goal must be building a unified vision and providing planning structures that effectively focus IT resources on the mission of the university.

IT and Academic Alignment

The section on academic alignment addresses five major themes: academic transformation, the "net generation," online learning, libraries, and student services.

Academic Transformation: As several provosts in the sample pointed out, the CSU suffers from an abundance of campus and disciplinary silos, everyone trying to be all things to all people rather than using focused, coordinated approaches. The rigidity of system and campus budget formulas, driven by FTES, remains a major hurdle for overcoming coordinated strategies.

Historically, on almost all CSU campuses, academic technology has not received an adequate or stable base of funding like administrative technology or networking. Part of the reason is organizational; academic technology needs and resources tend to be discipline-oriented and distributed throughout the colleges and departments while administrative technology and networking infrastructure readily lend themselves to centralized organization and funding. As a result, academic technology has often had to rely on soft money or student fees to make ends meet. Academic technology has been hampered both by inadequate resources and poor institutional integration of those resources that do exist.

If the transformation of teaching and learning is to have any significance, the campus interviews stressed at least three crucial and interrelated factors: first, use of IT must be accompanied by incentives and rewards for faculty; second, early adopters must act as leaders and teachers in their own departments; and third, deans and provosts must be champions of IT. One TSC president also suggested the need for more disciplinary-based IT councils across campuses in the system.

The "Net Generation": Student surveys in the CSU and elsewhere point to a college generation that is "connected" to a web of people and to information that surpasses anything in human history. Almost all students own personal computers, cell phones, and other digital devices that give them immediate and ubiquitous access to information. The trends among net generation learners are now familiar themes: from linear to hyper-media learning; from standardized instruction to discovery and learning by doing; from absorbing information to

navigating and using it; from studying alone to studying collaboratively and virtually; from learning as work to learning as entertainment and fun; and from teacher as transmitter to teacher as facilitator.

Online Learning: CSU interviewees were quick to point out the toll that up-front costs can have on the development of online courses. On some campuses, a faculty member may receive release time or small perks to develop a new online course. Several CSU campuses offer faculty grants to encourage the use of IT in the classroom, and those faculty can serve as role models for others in their department by offering workshops and sharing course materials. However, the paucity of disciplinary instructional designers is a major problem throughout the CSU, and almost no campus has made the use of IT in instruction a priority in the RTP process.

Libraries: The library has always been considered the physical, intellectual, and cultural "heart" of a campus, the center of knowledge and learning. The library model is changing from one of ownership and duplication of print materials in vast warehouses to a dynamic "just in time" model of learning based on electronic and inter-institutional sharing of materials in multiple formats. The idea of a virtual library has become something of a cliché, and there is still a wealth of content in non-digitized form. However, there is no doubt that today's libraries stretch far beyond the physical boundaries of a building or the campus itself. Since the role of the library is to connect people with content, they are in a unique position to teach foundational information literacy skills.

In September 2005, the CSU Council of Library Directors (COLD) issued the third five-year strategic plan for the system. An informal survey of campuses in November 2005 indicated that some had local, independent library strategic plans, but several others were being developed in conjunction with broader university and academic planning processes.

Student Services: Student support services grew out of at least two historical eras: a demographic era of serving young undergraduates on residential campuses, and a social era of providing public services for needy and underserved populations. Both influences produced a labor-intensive model of student support services. Information technology offers economies of scale that point to a new model of student services.

The student services deans and vice presidents in the interview sample all agreed on the need for greater automation and self-service, and on using high-tech as a means for conserving resources for needs that are high-touch. Academic advising and career planning are two functions that already have a great deal of IT involvement.

IT and Infrastructure Alignment

For campuses to meet the needs of current and future students, they must plan, build, and manage a flexible IT infrastructure to accommodate changes in technology and the changing expectations of students and faculty. Information technology provides resources for communication, collaboration, knowledge access and management in the physical environment.

The emergence of a network infrastructure introduces challenges for retrofitting campuses to accommodate new realities. The enrollment and physical master plans for many CSU campuses were designed in a pre-network era where physical place and size were the overriding factors. The vastly different life cycles of buildings and technology make it even more important that the two are planned in concert. Network technology has a way of altering cultures even in the most traditional institutions, and the design, construction, and renovation of physical spaces must reflect that change.

Technologists and teaching and learning experts need to be important collaborators in the design, construction, and renewal of campus facilities. Campus decision-making processes should recognize that pedagogy, technology, and physical design of spaces (e.g. classrooms, labs, libraries, and common areas) can have powerful impacts on learning. Physical flexibility and a campus infrastructure that promotes social interaction are primary factors to be considered in planning and implementing learning spaces. If properly designed, informal areas can be turned into highly effective spaces for learning (e.g. social gathering spaces for group project interaction). Accordingly, it is crucial that campuses have a funding model that includes refresh, support, and maintenance of the campus technological infrastructure (e.g. smart rooms, network security, etc.)

Formal learning spaces such as classrooms and labs are only part of the facilities/technology equation. As mobile and integrated, multimedia technologies become more of an everyday commodity, informal and virtual learning spaces assume greater importance (e.g., hallways, courtyards, food service areas, dorms, etc.). Traditional facilities planning processes need to be supplemented with concerns for emerging technologies and

the roles they may play in how space is used and in how and where learning occurs. The effect can be especially acute on space and building life-cycles as technology renders them ineffective or obsolete as learning centers.

Infrastructure design principles that should be considered include:
- Increasingly, campus infrastructure for teaching and learning depends as much on the network as on the physical plant.
- Flexibility and modularity are the most important factors in facilities design if the building life cycle is to accommodate multiple generations of students and technologies.
- Spaces that permit student interactivity and collaboration are key to improving learning outcomes.
- If physical space is properly designed, informal areas can be turned into virtual learning communities at will.

In many ways, collaborative learning spaces are a return to the historic sense of scale in higher education facilities design. The notion of a campus as a village or a yard with public spaces such as courtyards and quadrangles has always stressed the importance of collaboration and intimacy in the teaching and learning process.

IT and Fiscal Alignment

CIOs and other campus decision makers (e.g. provosts, CFOs) may have different perspectives on the costs and benefits of information technology initiatives and services. Aligning those perspectives with institutional priorities and creating a common understanding among campus decision makers is crucial to the university's effective use of IT.

In several recent national surveys, CIOs were asked about their most pressing unmet need. In each instance, they indicated that getting a handle on technology budgets was the source of greatest concern—how much was being spent, on what, by whom. In an earlier era of centralized computing, the answers were relatively easy to find. In the current era of distributed staff, workstations, computer labs, networks, and training and support services, the answers are more elusive and require much more time and effort.

Historically, funding academic technology has always been an especially difficult challenge in the CSU and elsewhere. First, most of the resources and activity surrounding academic technology takes place in distributed environments where the teaching and learning process occurs, relatively "hidden" from centralized computing centers and administrative budget offices. Second, college deans and department chairs often are expected to support specialized technology needs through grants and gifts apart from traditional state and institutional sources. Third, funding streams for network infrastructure projects and administrative systems overhauls tend to be large, institutionally driven, and long-term while those for academic technology tend to be for projects or purchases that are smaller, discipline driven, and short-term in duration. While academic technology may stand closer to the center of the institution's core mission, it often finds itself competing for funds for infrastructure buildouts and legacy system replacements.

Perhaps the biggest problem in institutional budgeting generally is that universities are inherently "silo-driven;" that is, the primary unit of analysis and the locus of control rest largely with individual departments. Therefore, the challenge for those interested in economies of scale and ROI is to translate silo issues into institutional ones, and since IT is a horizontal priority across all campus units, it makes sense to "sell" it as such. Campus CFOs in particular always want to know the "big picture" in an environment that too often revolves around technical expertise and specialized knowledge. To that extent, technology planners should seek to integrate IT needs into broader institutional projects (not to mention their budgets) rather than attempting to stand-alone. Given the pervasive nature of technology across the institution, ownership of IT is everyone's business, and the adroit CIO will never present a technology proposal without the support of either the CFO or academic leadership, or both.

On balance, the campus interviews suggested that the CSU system should implement more wide-ranging approaches to cost management including, where appropriate:
- Centralization and system-wide procurement
- Use of open source software
- Lifecycle management including the full cost of ongoing maintenance and support (e.g., total cost of ownership or TCO)

- Use of enterprise architecture as a method to reduce the cost of maintaining services, tie IT more closely to campus business processes and benefits, and enable more flexible deployment of new services

IT assessment must occur on both the administrative and academic sides; it should involve "intangible" outcomes, not just "tangible" or input categories such as asset inventories or activity counts. Although many of the data collection efforts on CSU campuses revolve around WASC or disciplinary accreditation processes, they rarely include assessment data and IT tends not to be a central feature of such reviews. For the most part, "the culture of evidence" that underlies IT strategic planning on the campuses appears to come primarily through systemwide mandates (e.g., the MOS) or through participation in national studies sponsored by Educause, ECAR, and the Campus Computing Project.

Summary of Major Findings

- The organization and governance section shows that:
    - Success in IT organization depends on a formal structure and systematic processes.
    - Success in IT governance depends more on having effective processes, e.g., stakeholder consultation, than any given structure.
    - However, a prerequisite for both is an institutional strategic plan widely disseminated and understood by campus stakeholders.

- The academic alignment section indicates that:
    - Campus IT strategic planning must take into account the movement towards a new institutional culture and ethic that points to a transformation of the traditional teaching and learning process.
    - Digital technologies, lifestyles of the "net generation," and the expansion of on-line learning will drive this transformation by forcing pedagogical changes that increase convenience, collaboration, and individual control.
    - Traditional functions such as academic libraries and student services are similarly being transformed by the proliferation of virtual environments. Automation and self-service applications will allow staff to devote more time to personal interaction with students.

- The infrastructure alignment section suggests that:
    - A robust network infrastructure, "smart" learning spaces, and the active involvement of IT in the design, construction, and renovation of the campus physical plant are central to infrastructure alignment.
    - Flexibility and modular design together with opportunities for social interaction are two of the primary factors that should drive building and space decisions in a technological era.

- The fiscal alignment section concludes that:
    - There is a lack of stable, predictable and adequate funding sources for IT in the CSU and elsewhere, especially academic technology. This is crucial because all evidence indicates that IT strategic plans will not be implemented in the absence of direct linkages to the overall institutional budget.
    - In order to make the IT business case, both CIOs and CFOs must recognize and articulate the operational, tactical and strategic value of IT to the institution.
    - There must be a "culture of evidence" surrounding IT investments, including a formal accountability process, well-defined success indicators and appropriate metrics.

A sample strategic planning model is contained on the following page and is described more fully in the report.

Basic IT Strategic Planning Model

Institutional Vision: Establish the campus mission, values, and strategic directions

Current IT Environment: Develop readiness criteria to conduct strategic planning; document IT capabilities by performing an internal and external SWOT and "gap" analysis

Future IT Environment: Engage the campus community in creating a new IT vision tied to the campus mission; develop an IT strategic plan that effectively organizes objectives, priorities, projects, resources, and timelines to implement the vision

Communication Plan: Constantly inform the campus community about the vision and status of the IT strategic plan

Accountability: Develop a monitoring, evaluation, feedback, and formal assessment mechanism to constantly review and revise the plan