

UNRESOLVED ISSUES, UNMET NEEDS

Despite the elaborate detail contained in the annual campus surveys and biennial user surveys conducted for eight years, in some cases the data raised as many questions as they answered. This is typical of almost any such study. Additional or different research is almost always needed to resolve conflicts and anomalies among campuses and user groups. Moreover, resource constraints virtually guarantee that some issues are overlooked in the research process because the funds are not available to make them an immediate policy priority.

Unresolved Issues

There were many details in the aggregate MOS data, both in the institutional and user surveys, that time and resources did not permit investigating, or that simply were outside the scope of the MOS reporting process. At least three deserve attention here.

1. *Campus Size And Resources:* The goal of a minimum baseline is probably the most important feature of the ITS. Its intent is to overcome campus disadvantages due to history, size, demography, and resources. By design, the MOS focused on overall system findings; individual campus variations in the data were profiled in graphic form for campus and system metrics but without campus identification. No analysis was undertaken to discover possible explanations of those variations. Conventional wisdom suggests that large campuses have certain built-in advantages due to economies of scale, greater flexibility in resource allocations, and potentially greater depth in technical expertise, but these matters await more detailed study.
2. *IT Governance:* Discussions about IT governance, both nationally and in the CSU, generally focus on two major dimensions: centralization versus decentralization, and academic versus administrative technology.

Campus CIOs have devoted a great deal of attention to the advantages and disadvantages of a centralized versus decentralized IT organization. Almost everyone believes that organization matters, but few know for sure on what issues, under what circumstances, and to what extent. Fortunately, there is a large professional literature on this subject that may offer clues on where to look for governance effects among CSU campuses.

Similarly, the familiar distinction between academic and administrative technology and the reporting lines that often accompany them are constant concerns of CIOs, provosts, presidents, and executive management generally. Breaking down silos (both organizational and cultural) and the increasing balkanization among academic colleges and departments are recurring themes of IT management and operations. The questions usually are these: does it matter if the CIO reports to the president, the provost, the CFO, or sits on the president's cabinet; is IT a university-wide resource where distinctions between academic and administrative technology are artificial; and how can a greater integration of academic, administrative, and networking technologies be achieved in an environment of increasing decentralization and specialization of IT resources, both hardware and software? Again, these are topics for research and debate among national professional audiences, but their implications for CSU campuses have not been tested in any systematic way.

The bottom line is that these two issues (centralization/decentralization and academic/administrative technology) could be candidates for case studies within the CSU where qualitative variables can be addressed more directly than in raw quantitative surveys. As always, the problem is one of introducing experimental or statistical controls to test the independent effects of governance and organization versus a host of other influences on IT outcomes, such as campus history, culture, size, leadership, resources, etc. However important these organizational "fault lines" are to CIOs and others, they were beyond the scope or intent of the MOS reports and await further study.

3. *Online Learning:* Almost nothing goes to the heart of infrastructure buildout and its relationship to student access more than online teaching and learning. Fiscal and political constraints limit the physical expansion of current campuses or the building of new campuses and off-campus centers.

There is both good news and bad news associated with online learning in the instructional process. The good news is that information technology has been infused into the curriculum of virtually every academic discipline and degree program in the CSU, ranging from student and faculty use of electronic library resources to the World Wide Web to course management systems. Computers, network access, "smart" classrooms, specialized software, and the like are integral parts of the teaching and learning process throughout the system. This was not always the case when

the ITS was launched 15 years ago, but today all forms of technology are as ubiquitous as books and blackboards. The policy goal of making information resources available on an anytime, anywhere basis has largely been achieved. This would not have been possible without the technology infrastructure buildout across the CSU system.

The bad news is that transforming entire courses into either online or hybrid (combination of online and face-to-face instruction) modes has been slow to develop. While it is true that some disciplines and some courses lend themselves more easily to online instruction than others, there are strong cultural and technical forces in higher education that have worked against its widespread adoption by faculty and students. Faculty usually prefer the type of face-to-face instruction that characterized their own careers in the university, and national studies show that students like the social interaction and peer group relationships that have always been part of traditional education.

Dramatic increases in off-campus instruction have been the “holy grail” of campus planners since the days of satellites, television, and distance education generally decades ago. Today, significant expansion of online learning has the potential to reduce the need for additional classroom buildings or even additional campuses. Yet, in a world of ubiquitous communications tools and network information resources, the MOS findings are not encouraging and beg the question “why?” For example:

- Enrollment in all forms of distributed learning modes (online, hybrid, off-campus) in AY 2006-2007 totaled 13,772 FTES, an amount equivalent to only 4.1 percent of total main-campus FTES for the system. Still, eleven CSU campuses have smaller FTES enrollments than the aggregated total for distributed learning, which alone points out the physical plant implications of distributed and online learning.
- A 2006 study showed that 15 CSU campuses offered 44 online degree programs, but two-thirds of these were self-supporting (i.e., offered through extension to non-matriculated students) rather than state supported.
- Availability of online instruction ranked second in importance only to technology preparation for future employment in all four student survey administrations. However, students consistently rated “satisfaction with online courses compared to regular classroom instruction” the lowest of any similar question in the surveys.
- By contrast, faculty consistently assigned a very low priority to online instruction and very few have taught online classes. When asked how important it was to “provide students with electronic online course instruction at anytime, in any place,” faculty responded with the lowest mean rating of any item in all four faculty surveys.

The MOS did not address motivational issues underlying student and faculty attitudes and behavior. These are difficult to assess through simple survey questions. More detailed, qualitative interviews and use of focus groups are usually better methods for probing the reasons that lead to certain patterns of attitudes and behavior, but also more costly to administer. These remain other studies for other days.

Aside from pedagogical, social, or institutional considerations, there is one important technical barrier to online instruction that deserves mention, known as the “last mile” problem. Ubiquitous, high-speed network access to the home is a relatively recent phenomenon. While students usually had such access on campus, faculty could not assume that it would be available to all students off campus. Online instruction may expand more rapidly as broadband resources become more mobile and reliable.

Once again, the professional research literature is awash in opinion articles and statistical surveys on impediments to various forms of distance learning and online instruction. There have been sporadic studies in the CSU as well. In some instances, faculty culture, the retention, tenure and promotion process, and workload issues are prime targets of “blame.” In others, outdated FTES formulas and expensive start-up costs are cited. Until the underlying causes for the slow adoption of online instruction are identified and resolved, the twin dilemmas of student access and space management will continue to be critical concerns of the CSU. This may be the most urgent and important item in any post-MOS research agenda given its direct implications for expanding student access while mitigating the effects of expensive physical plant construction, renovation, and maintenance.

Unmet Needs

In addition to unresolved issues in the research process, the MOS did not address all of the emerging technologies or changing IT fiscal and policy needs of CSU campuses (despite attempts to modify the campus and user surveys each year). Some IT issues are “perennials” because they never seem to command the time, attention, and resources they deserve. Perhaps the best examples are IT user training and support services for students, faculty, and staff. Others fly beneath the radar because they are new or occupy a niche position in the historical priorities of IT staffing, workstations, administrative systems, network expansion, and the like. In 2005, a study was conducted among a sample of six CSU campuses to identify some of these unmet needs, and to calculate the gaps between current funding levels and those needed to meet minimum baselines. In 2008 and beyond, these and many other areas may benefit from a greater policy and research emphasis revolving around costs and budgets.

The 2005 ITAC Funding Gap study offers a model for conducting such research. It identified four major categories of IT unmet needs (i.e., where campuses were not achieving the minimum baseline standards for access and quality) that were largely missing from the ITS initiatives and the MOS metrics over the period. These categories included: four baseline needs within the existing ITS framework (workstations, servers, technical support, and security); three new or emerging baseline needs (middleware, wireless networks, and disabled access compliance); four core academic technology needs on the campuses today (learning management systems, instructional design staff, smart classrooms, and electronic content); and four emerging academic technology needs stemming from the new systemwide ITS initiatives (student success, e-learning framework, professional development, and digital marketplace).

For each of these 15 unmet needs, the study team then developed baseline definitions together with operational metrics; collected data on the one-time costs and ongoing costs to bring these assets to and maintain them at baseline levels; and then calculated the gap between baseline costs and current expenditures in each category. The sample data were then extrapolated to the system as a whole.

This research model, incorporating the key concepts of sample campuses, core needs, emerging needs, baseline, metrics, one-time costs, ongoing costs, expenditure “gaps,” and system extrapolation could be expanded to cover other areas as new technologies or new policies warrant. That kind of research would place the CSU in a strong position for prioritizing and defending future budget requests at the campus and system levels.

Finally, the list of principles and recommendations in the next section of this report offer still more avenues for IT research to support campus and system planning and initiatives. The ones noted above should be considered in that broader context of overall research principles and recommendations.

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