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s tuition costs at U.S. colleges and universities continue to rise while funding and budgets for higher education remain static or even fall, institutional leaders face growing pressure to justify their dollars spent, particularly the increasing amount allocated to information technologies (IT). For example, a recent analysis of data collected by the Consortium of Liberal Arts Colleges (CLAC) indicates that typical spending on IT as a percentage of overall institutional expenditures has doubled in the last decade. But before institutional leaders can provide others with rationalizations for their investments, they must first themselves understand the reasons behind their growing IT expenditures. Providing answers to the following four questions can help them do so.2

1. Are we spending appropriately on IT resources to support the institutional mission? Most campuses have made multimillion-dollar investments in their IT environments, convinced that these resources are essential to achieving their teaching, learning, research, and administrative goals. Whether they are spending appropriately on IT resources is a strategic question. Private institutions have developed spending guidelines to ensure that the value of their endowment does not erode over time and that it continues to support the institutional mission. Public institutions have developed similar guidelines for spending money raised from taxpayers. Institutions that have ignored their spending guidelines have sometimes put themselves in significant peril—or out of business. Answering this first question can result in the development of spending guidelines that will allow IT investments to continue to support institutional goals.

In 1980, Richard Van Horn, then provost at Carnegie Mellon University, asked a seminal question: “How much [academic] computing is enough?”3 His question is still relevant more than twenty years later. He emphasized the need for every institution to have a strategy that links the choices about computing to the institutional mission. By a strategy, he meant a few broad, high-level policies that define the role of computing at an institution. Choices that institutions then make about IT resources are guided by this strategy.

A first step for any institution is to develop this strategy, or strategic plan. But institutions also need ways to compare their expenditures with those of other institutions with similar missions. And they need to have a better understanding of the relationship between the institutional mission and the needed IT resources. An institution with a teaching focus will likely need different spending guidelines from those used by an institution whose mission has a significant research component. Even simply going through the internal process of collecting the data needed for benchmarking will result in an improved understanding of the relationship between IT spending and institutional goals.

2. Are we providing appropriate IT support services to meet the needs of users of IT resources? The second question reminds us that support services are essential to enable faculty, staff, and students to use technologies to achieve institutional goals. Some IT support services are available at almost all institutions (e.g., help line, network services, Web services, training, hardware repair). These services are provided in different ways at different institutions, but they all are provided. Some services are candidates for outsourcing or for consortial arrangements with other institutions. Some can be more effectively and efficiently delivered by internal staff. Current staffing shortages require us to think creatively about these various service-delivery options.

Institutions commonly compare themselves with peers to understand service needs in other traditional areas such as health care services for students. In-depth study of IT support services, including data collection and analyses among institutions, can help to further understanding about service options.

3. Are we staffing our IT organizations appropriately and compensating our staffs appropriately to attract and retain the needed support personnel? A major factor in delivering reliable services is the availability of highly trained staff. In higher education, expectations are abundant—some would say they are out of control—and are running far ahead of the availability of qualified staff. More colleges and universities have recognized the need for IT support staff and have allocated positions. Unfortunately, the proportion of allocated positions left unfilled averages 10–20%, and national studies

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1. Viewpoints: Rationalizing Our IT Investments
2. By David Smallen
3. His question is still relevant more than twenty years later.
indicate that the shortage of trained IT staff will persist for the future. This has been recognized by IT leaders, who recently stated that their top-two priorities are “retaining current IT personnel” and “helping IT personnel stay current with new technologies.”

To answer the third question, institutions need to develop benchmarks for staffing levels that are comparable across institutions with similar missions. Looking at staffing levels by type of service delivered provides insight that would otherwise be lost. For example, by closely examining helpdesk operations at similar institutions, an institution can determine typical ratios for the number of computers that can be supported by a helpdesk staff member while also studying the factors that affect the ratios (e.g., the degree of homogeneity of the technology environment).

Offering regionally competitive salaries is key to attracting qualified IT support personnel. However, salary is only one form of compensation. Providing for the professional development of IT staff is essential. Institutions must budget sufficient funds on an annual basis for IT staff to continue to improve their technical and communication skills. Some short-sighted IT leaders have been concerned that if staff are offered professional development, these staff members will leave after they have improved their skills. This is indeed a risk! However, the alternative—note providing for development and having current staff stay—is worse. Ensuring an adequate institutional commitment to providing professional development for staff can make colleges and universities attractive to IT professionals.

4. Are we maintaining our IT infrastructures appropriately to ensure that they continue to deliver the necessary services? There may have been a time when chief financial officers and maybe even IT staff and administrators believed that investments in IT infrastructure were a “one-time” purchase. No one believes that today. We’ve upgraded classroom facilities to permit faculty and students to use IT in the classroom. We’ve improved our campus networks and servers to enable learning at all times. We also know that the reason hardware becomes obsolete is not because it breaks or wears out but rather because our technology environments are highly integrated and interrelated. Changes in software result in needed hardware changes, which require changes in the network and servers. The obvious conclusion is that IT infrastructures need to be replaced on a regular cycle.

And our infrastructures must be highly reliable. Our constituents expect that things will work at the same level of reliability that they have come to expect from the local electric or telephone company. The expectation is that things will work—essentially all the time. The regular updating of infrastructure is essential to achieving such high levels of reliability.

Annual budgets must be created to replace desktop and laptop computers, printers, central servers, network electronics, data projectors, and other components of critical IT infrastructure. Institutions must determine the appropriate replacement cycles for each infrastructure category. At Hamilton College, for example, personal computers are replaced on a three-to-five-year cycle, servers on a three-year cycle, and network electronics on a five-year cycle. In addition, there are IT infrastructure categories that we haven’t even begun to address, such as data projectors, interbuilding fiber plant, and specialized peripheral equipment. Rapid changes in technologies suggest that replacement cycles may have to be shortened to continue to meet institutional goals.

Well-managed institutions have developed guidelines for the ongoing maintenance of their physical plants. Peeling paint, leaking roofs, and antiquated classrooms and laboratories are not attractive to students, faculty, parents, and others—and neither is an IT environment that cannot adequately support the teaching, learning, research, and administrative needs of the members of the institutional community.

How can institutions find the answers to these four IT questions? Collaboration between leaders in IT, in institutional research, and in finance is necessary. Careful data collection and thoughtful analysis are essential. For some institutions, the data collection will be difficult, reflecting the complex and decentralized nature of their IT environments, and complete answers may not be possible. Valuable insights, however, are a certainty.

Notes
1. CLAC is a consortium of fifty-nine liberal arts colleges. See <http://www.liberalarts.org>.
2. Helping institutions answer these four questions is the mission of the COSTS project. See <http://www.costsproject.org>.

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