By Robert H. Bruininks

Tight Times: Utilizing IT to Optimize Scarce Resources

It's hardly news that, across the country, state and federal governments are asking public higher education to do more with less. Many colleges and universities—the University of Minnesota included—are looking more closely than ever at the scope of their programs and how they can leverage external resources and organizations to support their work.

Although I have no doubt there will be long-term consequences for our country from underinvesting in higher education, I feel just as strongly that finding the optimal use of public resources is our duty. In this "age of permanent fiscal crisis," as the authors David Osborne and Peter Hutchinson have called it, those of us who are part of publicly funded institutions must do some of the heavy lifting ourselves; more than ever before, we need to create a culture and structures that reward improved efficiency and continuous improvement within our colleges and universities. The reallocation of saved resources to higher academic priorities will continue to be one of the most important ways that higher education institutions can invest in the future.

Compared with my colleagues, many of whom are great evangelizers for the Web and for electronic communication, I am a relative novice when it comes to technology. Although extolling the value of ignorance is dangerous for any academic, I do believe that my lower-tech mindset allows for a certain amount of immunity to the appeal of technology for technology's sake. Even from my pen-and-paper perspective, however, I've seen how information technology, when properly aligned with an institution's needs and organizational structures, can be a powerful tool in helping public higher education continue to flourish.

The role of information technology in higher education—particularly at a research university—is not widely understood. I was reminded of this recently during an interview with an investigative reporter from one of our state's largest and most respected newspapers. One of his questions went like this: Technology is frequently cited as a major cost driver at the University of Minnesota. Since the university cut the number of secretaries at the institution by five hundred over two decades (by his calculations), shouldn't the university have been able to cover the cost of technology and new computers through the savings realized by those cuts? Putting aside how job classifications have changed from the early 1980s until today—it would have been difficult to find a webmaster on our payroll during the Reagan era—his question goes to the heart of the role and the costs of information technology in higher education. That role is surely not, as this question implied, solely to take the place of what secretaries at our colleges and universities did twenty years ago.

At the University of Minnesota, we think of information technology as serving two basic but critical purposes. The first purpose is to support the institution's mission, vision, and priorities. Under this category falls costly but absolutely critical support for continually upgraded library services, for class assignments made over the Web, and for research in cutting-edge science in areas like bioinformatics, where terabytes of information are exchanged over Internet2.

The second purpose is to identify and create strategic institutional opportunities that leverage investments in business or academic-related informational technology. One example we're particularly proud of at the University of Minnesota was how we provided privacy training to our employees to comply with the new Health Insurance Portability and Accountability Act (HIPAA). Through an innovative combination of our enterprise course management and portal applications, we provided HIPAA training to 40,000 employees via the Web at a fraction of the cost of providing this content through more traditional means. This required creative thinking and collaboration from both the academic and the administrative sides of the university. The end result was a high level of compliance with the HIPAA regulations among our employees and an optimized use of resources—in other words, both superior service and increased productivity.

From a central administration perspective, our biggest opportunities for optimization have been and continue to be in three areas: enterprise system exploitation, standardization, and economies-of-scale service offerings and support. Within these areas, the University of Minnesota has had some notable success in application of information technologies to our institutional goals. The university was home to the Internet's first worldwide text-based search application (Gopher) and the first paperless financial aid in the country. Perhaps our biggest ongoing success has been the implementation of enterprise systems that now serve the entire university, along with the leveraging of these systems to provide an increasing number of direct

services and valuable data by which the university can be managed and positioned for improvement.

The university was able to consolidate academic and administrative computing operations and service delivery models in the early 1990s. This permitted economy-of-scale technology investments in institution-wide technologies, which yielded higher returns on IT investments (although, as anyone who has been involved with enterprise systems implementation will understand, these returns were hard-won). The maturation and evolution of these technologies has yielded enterprise systems that can be managed centrally yet offer local administrative controls and end-user self-service capability.

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Based on past successes and a scan of our current environment, IT administrators at the University of Minnesota have identified several areas of opportunity, ones where public research universities can continue to integrate information technology into their operations in order to create significant "wins":

- *Leverage enterprise system investments in order to provide the data that can help institutional leaders make informed and strategic decisions—over the short and the long term.* One of private industry's major strengths is its understanding of cost pools and revenue streams. Systemic financial reporting and benchmarking practices are disciplined and are reported with a focus on overall financial performance. Higher education, in general, needs to make great strides in these areas, in order to improve its own management and to respond to public policymakers' increasing calls for institutional accountability.
- *Utilize enterprise systems to identify, leverage, rethink, and pursue e-business model opportunities that automate processes (both business-to-business and business-to-consumer transactions).* Enterprise systems permit greater efficiencies in key business units (i.e., human resource and finance). On the one hand, they demand more expertise at the central level, especially in their planning and assessment, but on the other hand, they eliminate the need for highly distributed and often ad hoc work at the unit or program level.
- *Appropriately eliminate technology duplication and its corresponding duplication of support efforts.* This duplication and associated lack of interoperabilities result in "work-arounds" that drain resources that could alternatively be optimized more strategically throughout the institution.
- *Align the institution's organizational technical support structure with the technical capabilities of its mature enterprise/institutional technologies.* Enterprise systems should be managed as part of the core infrastructure, and where feasible, distributed services should be pooled or "regionalized" to optimize technical support resources. This implies shared, common resources across historically protected organizational boundaries in order to improve efficiency and effectiveness and to provide higher-quality services.
- *Explore the feasibility of desktop computer purchasing standards and expand negotiations of aggregate purchasing to include additional technologies that take advantage of economies of scale.*

Of course, there are barriers to taking advantage of these opportunities. At the University of Minnesota, many pockets of enterprise system and other technical service duplication remain—a remnant of early technologies and historically decentralized technology management. My observation and my conversations with colleagues lead me to believe that this is the norm in higher education and is not limited to the technical environment. This norm can also be found in the way that colleges and universities have organized themselves to manage other support activities such as financial, human resource, and other traditional management functions needed to support the institution. Unfortunately, this type of organizational structure prevents a public university from reaping the greatest return on the state's investment and impedes its ability to take advantage of opportunities that lie ahead.

To frame the issue in a different way, the ability of an institution to get the most out of information technology has not been, in our university's experience, a product of any particular, "magic bullet" technology. Rather, our wins have come when faculty, department heads, deans, and senior administrators have come together in agreement on the value that a particular technology or system can bring to the organization. Our successes have been predicated on a central IT organization that has an ability to form strategic relationships with functional service areas such as university CFOs, human resource executives, the registrar, student admissions, and financial aid as well as provosts, deans, and those on the academic side of the house.

Creating these types of alignments is probably the hardest part of administering a large and complex organization. But those of us who are leading public universities today have an obligation to optimize our scarce resources in order to create a sustainable and vibrant higher education model for the future.

Robert H. Bruininks is President of the University of Minnesota.