

From Wires to Users

During the last several months, there has been quite a lively discussion about the strategic importance of IT infrastructure to the health and vitality of an organization. As most *EDUCAUSE Review* readers know, in the May 2003 issue of *Harvard Business Review*, Nicholas Carr suggested that IT infrastructure has become a commodity, much like electricity, and thus its strategic importance has diminished.¹ In the November/December 2003 issue of *EDUCAUSE Review*, Dr. Jack McCredie made a strong and convincing case that IT has yet to transform teaching and learning and that the IT infrastructure indeed matters a great deal to the strategic plans of the college and university.² It is my view that this critical discussion has focused far too heavily on the importance of wires and computer programs. The single most indispensable element to the coming transformation of the higher education institution by IT has been largely ignored—namely, the faculty. Significant changes to the structure of the new university will come from the use of the current IT infrastructure by the faculty, higher education's greatest asset.

It should come as no surprise to the reader that those in charge of IT services at colleges and universities will see a strategic value in expanding the infrastructure. Most, if not all, IT managers witnessed firsthand the transforming effect that the build-up of this new infrastructure had on their institutions during the expansion of the 1990s. I believe, however, that the IT infrastructure is quickly approaching build-out for the majority of colleges and universities and that the time has come to focus energy

and money on encouraging users to develop new ways of employing the power of the infrastructure for teaching and learning. This is not to say that IT managers in primarily teaching institutions should ignore advancements in technology or discontinue expenditures on system upgrades. Rather, I am suggesting that chief information officers need to start shifting their primary emphasis from wires to users. This view is in agreement with the opinions expressed by Drs. Edward Ayers and Charles Grisham in an article published in the same issue of *EDUCAUSE Review* as the article by Dr. McCredie. The authors state: "We now need to invest in people and content in the same ways that we've invested in hardware and lowest-common-denominator instructional software. We need to encourage the key people in our institutions—the best teachers and scholars—to build what they want and need. We've built around the content of teaching and scholarship; now we need to build within teaching and scholarship."³ The strategic value of IT to transform teaching and learning does not and will never arise from a piece of hardware. Rather, the strategic value of IT to a college or university will be determined, as it has always been determined, by the ingenuity of its faculty.

Dr. McCredie argues: "Without a consistent IT architecture and infrastructure, and an appropriate IT governance model, modern colleges and universities are simply not able to recruit and retain first-rate scientists and scholars in most disciplines. Without a competitive IT infrastructure, they cannot win in the increasingly complex competition for research grants and contracts."⁴ This is certainly

true in the case of the research university. However, Dr. McCredie overstates the importance of IT infrastructure for the vast majority of higher education institutions, whose primary business is teaching. The National Center for Education Statistics lists only 262 (6.2%) of the 4,197 accredited colleges and universities as having research as their primary objective.⁵ Moreover, research universities can use IT infrastructure for strategic planning because they have an enormous advantage over teaching institutions. Research universities are able to develop and implement "advanced" IT infrastructure projects from the funds received through the indirect costs (overhead) associated with research grants and contracts from federal agencies such as the National Institutes of Health and the National Science Foundation. Such funds simply do not exist, to any great degree, at the small liberal arts colleges or the large teaching institutions, which constitute the majority of higher education institutions in the United States. Dr. McCredie is correct in his assessment that the research university can still gain a strategic advantage over its competitors by investing heavily in IT architecture and infrastructure. Indeed, the new research fields of bioinformatics and computational biology will demand powerful new technologies, many of which have yet to be invented. For the remaining 94 percent of colleges and universities, those whose IT budgets are tied to their general fund, I see no strategic value in increasing expenditures on an already underutilized IT architecture and infrastructure.

There is little controversy in the suggestion that the core of higher educa-



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tion—teaching and learning—has yet to be transformed by the information revolution. The didactic lecture methods used in the classroom of today remain virtually identical to those of the first universities in Egypt some eleven hundred years ago. Given that faculty are underutilizing the existing IT infrastructure for teaching activities, it is difficult to understand how increasing computing power through expenditures on new technology, such as terabyte bandwidth, will transform teaching and learning. Moreover, inexpensive and accessible Internet connections, course management systems (i.e., WebCT), and e-learning design tools (i.e., Macromedia's eLearning Suite) ensure that colleges with small student enrollments, and undoubtedly similarly sized IT budgets, can remain competitive with the larger public teaching institutions. It is, therefore, even more difficult to understand how increasing expenditures for IT infrastructure will give one college a strategic advantage over another—since all colleges will always have, to a large degree, similar computing capacity.

Those who direct IT services must find ways of encouraging faculty to use the IT infrastructure. Simply increasing

computer power and services to the faculty is not the answer. No matter how inviting the next generation of hardware may seem, it is of no benefit to teaching if faculty do not use it. All too often I have observed well-meaning faculty committees agree to purchase new technology based on the recommendation of similarly well-meaning IT professionals, only to find the device or service fall into disuse either because it is too complicated for most faculty or because it has limited applications. However, persuading faculty to increase their use of technology is not the sole, or even the primary, responsibility of IT staff. This responsibility falls squarely on the shoulders of the academy. Among most faculty members, there is a widespread misunderstanding regarding the value and use of technology in the classroom. As a result, faculty have often allowed the IT department, a non-academic unit, to make critical decisions about teaching. Even today, my campus does not have a standing Academic Senate Committee on Technology or guidelines for the evaluation of proposed online courses. The academic governance of colleges and universities can no longer afford to ignore a simple economic reality: technology will transform the way we

teach. The academy can either choose to define technology's use in the classroom, or the academy can have this use thrust upon it.

We are entering a time of great change in the structure of the higher education institution. The paradigm that shaped the current university and that has lasted for over one thousand years is coming to an end, due largely to the dramatic developments in IT and in IT infrastructure during the past ten years. In light of these developments, I agree with Dr. McCredie that IT infrastructure does matter. However, I disagree with his assessment that IT infrastructure will have a strategic role in shaping the new institutional paradigm. Because most of the IT infrastructure is already in place and available, further advances in this area are unlikely to elicit additional changes in teaching and learning. Rather, the most significant changes to the structure of the new university will come from its greatest asset, the faculty. I believe that in developing the new institutional paradigm, U.S. colleges and universities should follow the same model that was used to create the world's most sophisticated and accessible system of higher education. That is, campuses should provide faculty with the best-possible infrastructure while simultaneously supplying the necessary resources, incentives, and freedom for experimentation. It is only through faculty experimentation with institutional models that the best use of technology in the classroom will be developed.

Notes

1. Nicholas G. Carr, "IT Doesn't Matter," *Harvard Business Review*, May 2003.
2. Jack McCredie, "Does IT Matter to Higher Education?" *EDUCAUSE Review*, vol. 38, no. 6 (November/December 2003): 14–22.
3. Edward L. Ayers and Charles M. Grisham, "Why IT Has Not Paid Off As We Hoped (Yet)," *EDUCAUSE Review*, vol. 38, no. 6 (November/December 2003): 47.
4. McCredie, "Does IT Matter to Higher Education?" 16–17.
5. Thomas D. Snyder and Charlene M. Hoffman, *Digest of Education Statistics, 2002* (Washington, D.C.: National Center for Education Statistics, U.S. Department of Education, 2003).

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