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Views on Technology in Higher Education

SUNGARD HIGHER EDUCATION

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Author: Dr. William T. Luckey, President, Lindsey Wilson College, Columbia, KY

Foreword

By Dr. James L. Fisher

Like it or not, technology is the name of the game in higher education today on both the administrative and academic sides of the house. Students, prospects, parents, faculty, and donors expect competence in technology, and institutions that are behind the curve are at a major competitive disadvantage. However, in my experience, the application of the newest and best technology is often a case of extremes. Some colleges do not do enough, while others go too far. Regardless of which specific applications a given campus selects, though, some basic fundamentals apply.

For example, it is imperative that a seasoned, highly competent technology officer report directly to the president, not to the chief academic officer, nor to the business officer. That officer should be responsible for developing an institutional technology plan that includes orientation, periodic instruction, evaluation, and costs. Using this model, one college moved from literally nowhere to a national leadership position in technology in less than two years. That institution now boasts fiber-optic connections throughout the campus, universal high-speed internal access, more than 100 computer workstations for students, a PC on the desk of all faculty members, state-of-the-art student information and financial systems, availability of a learning management system for all faculty and every course, upgraded email capabilities and campuswide wireless capability. The next steps are to provide IBM ThinkPads and laptop computers for all full-time faculty. This college enrolls fewer than 2,000 students and operates with a minuscule endowment. With the improvement in technology, along with strong management and enrollment increases, a recent budget deficit of more than $2 million has become a surplus, and future prospects are promising. Not bad.

While this institution presents a compelling case study for doing virtually everything right, using technology as a powerful agent for change, conversely there continue to be critics: staff, faculty and a few unenlightened presidents. Even today, it is not uncommon on some campuses to find that less than 20 percent of the faculty is computer literate beyond basic word processing and spreadsheets. Tending to be suspicious, fearful, and even resentful of technology, these obstructionists are easily identified and too often influential.

On the other hand, some institutions go overboard, using technology as a panacea for all campus areas of need, investing in every new development before it has been adequately tested and proven. Unbridled enthusiasm has led some independent colleges to unwisely

invest scarce resources in technology that is not cost-effective, improving only marginally these institutions' market shares while not significantly increasing their bottom lines. Such efforts should be approached with caution, for most believe that in the final analysis, the technology race will be won by public institutions with deeper pockets.

Some seem to have forgotten author John Naisbet's sage "high-tech, high touch" axiom: when all is said and done, our colleges and universities—and especially smaller independent institutions—are still "people"-driven, and it is ultimately interpersonal skills that will attract both students and voluntary support. The editors and authors in this book are in the front ranks of technology. They have done it and their experience and recommendations are as inspiring as they are instructive. This book should be thoughtfully read and considered by all who are responsible for leading our independent colleges and universities in the new millennium.

> *Dr. James L. Fisher is President-emeritus of the Council for the Advancement and Support of Education (CASE) and Towson University. He is the most published writer on leadership and organizational behavior in American colleges and universities today. He is the author or editor of nine books.*

Preface and Acknowledgements

The story is told of 19th century Micronesian islanders who had never before seen a sailboat. When early colonists excitedly pointed to ships just offshore, the islanders could not see them—the experience was just too far outside their perception. Likewise, many of us in higher education could not envision the ways in which technology would transform our operations and marketing for better or worse, helping to level the playing field for small and mid-sized colleges with limited endowments, while challenging us in ways that we could not even imagine a decade ago. As one technology builds upon another, we continue to be inspired by the immense promise and the infinite possibilities.

This book is designed to help address that new awareness. We dedicate this project to our many friends and colleagues in independent higher education who provide outstanding leadership while making critical decisions concerning technology that will impact services provided to future generations.

We are especially indebted to

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—Dr. Marylouise Fennell, RSM
—Dr. Scott D. Miller

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Dr. Marylouise Fennell is senior counsel for the Washington, D.C.-based Council of Independent Colleges (CIC), for which she also coordinates the New Presidents Program. She is past president of Carlow University in Pennsylvania, and her background includes both teaching and administrative positions at Saint Joseph College and the University of Hartford, both in Connecticut, as well as at Boston University.

Dr. Fennell holds the Bachelor of Arts degree from Diocesan Sisters College, the Master of Education and the Certificate of Advanced Graduate Study from the University of Hartford, and the Ed. D. from Boston University. She has also published widely. An internationally recognized management consultant, she has worked in more than 20 countries, including a post as chief consultant for the Association for Private Universities of Central America (APRICA). Her awards include more than 40 honorary doctoral degrees, and she is presently a member and/or chair of six college boards of directors. In addition, Dr. Fennell serves as executive director of the Inter-American Consortium, a partnership of six American and 11 foreign higher educational institutions.

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Prior to coming to Wesley, Dr. Miller served as president of Lincoln Memorial University (1991-97). Before being named president, he previously served that institution as executive vice president (1988-91) and vice president for development (1984-88). A native of Philadelphia, PA, Dr. Miller is a former director of university relations and alumni affairs at the University of Rio Grande in Ohio. Well known nationally for his contributions to higher education, he was one of 17 presidents nationwide featured in a Kaufman Foundation-funded book entitled *The Entrepreneurial College President* (American Council on Education/Praeger Series on Higher Education, 2004). Two years ago, the Wesley story was one of four "amazing turnarounds" featured in the book *The Small College Guide to Financial Health* (National Association of College & University Business Officers, 2002). He is a regular columnist for *The Delaware State News* and *College Planning and Management*.

Both serve as consultants to college and university presidents and boards.

CHAPTER 1

Technology: Expense or Investment?

By Dr. Laurence W. Mazzeno, President, Alvernia College

Nearly a decade ago, when I was serving as chief academic officer of a small Catholic college in Ohio, I was accosted by the chief financial officer who was carrying around the hefty budget request I'd submitted for IT hardware and software. "Okay," she said, "I can see where we'd benefit if we spend this $200,000 next year, but when will all this spending for computers end?" Hoping not to be too flippant, I responded quickly but firmly, "Never; technology costs are like the poor in the Bible—they'll always be with you."

"Information technology is not simply a 'thing' we purchase. Rather, it is a means to achieving strategic ends, and therefore deserves the president's attention."

So far, my observation has proven to be accurate. Every year college presidents in institutions large and small are confronted by IT professionals, faculty, and campus leaders with annual budget requests for new equipment, software, interconnectivity systems—and the people to support all these things.

Whether you're president of a major state university system or a small liberal arts college, you can't escape the question: What will you spend this year on technology? But how you view that spending can make a great difference to your students, faculty, and staff. Will you grit your teeth and authorize *expenditures*, or will you look for ways you can maximize your *investment* in IT resources?

"Investing"—"spending"—no matter what you call it, money just goes out the door, right?

Wrong. One of the key reasons presidents need to think of "investing" in technology rather than "spending" on technology is that we are conditioned in our society to think differently about expenditures and investments. It may be cliché to say that we spend in the present but invest for the future—but that cliché has merit. When we talk about investments, we naturally think about the *value* that our investments will bring in the long term. We tend to *plan* our investments so that, through them, we can achieve *goals* that we've set for ourselves.

The need for presidents to develop the "investment" mindset is critical. For the second year in a row, respondents to the annual EDUCAUSE Current Issues Survey reported in 2004 that

"funding IT remains the number-one IT-related issue in terms of its strategic importance to the institution." It's no wonder; as David Ward and Brian Hawkins observe in a recent issue o*f The Presidency*, "information technology is a critical enabler of institutional strategy." Information technology is not simply a "thing" we purchase. Rather, it is a means to achieving strategic ends, and therefore deserves the president's attention. In fact, they make the same point I'm aiming at in this article: "Instead of thinking of information technology as a cost center," they argue, "presidents would be well advised to focus the discussion on the extent to which the investment in technology furthers both sub-unit and institutional goals."

Why view information technology as an investment? Here are a few practical reasons.

First, today's students expect to be able to use the latest (or nearly latest) computer-assisted, Internet-based systems to gain and exchange information and to handle the "business" of living. They are comfortable with the rapid changes in technology, and increasingly demand 24x7 services. They want to apply to your institution over the Internet, do their research and submit assignments electronically, register and pay their bills that way, and use the electronic superhighway for entertainment. While you may not think you're losing students because your technology's not up-to-date, you may not realize how many people never even apply if they discover you don't have what they want.

"Ask yourself: What educational goals do I want to achieve? Can those goals be achieved more efficiently and effectively if I enhance current operations through technological innovations?"

Second, many faculty will have similar expectations—or in some cases, unrealistic expectations about what your institution should or should not be providing. Every campus has its techno-jet-setters and its Luddites among the faculty. Simply spending to satisfy the first group without a sound plan that takes into account the larger educational goals of an institution is sure to bring about a reaction from those who believe that any change from the chalkboard-assisted lecture is a change for the worse. When you make it clear that you view investing in technology as a means to achieve educational goals, you can gain faculty buy-in by demonstrating that those whose teaching and research are aligned with the institution's strategic objectives will be supported appropriately.

Third—and this is a direct follow-on to my second reason—developing a plan for investing systematically in hardware, software, and personnel will help you ride out the natural ups and downs that will occur when "the next hot idea" sweeps across the educational landscape. Not everyone needs to be on the bleeding edge; developing long-term goals for your campus's use

of technology will allow you to say "no" to fads while having the resources available to say "yes" when you and your management team decide it's time to upgrade, expand, or change systems. In recent years, there've been a number of tools developed to measure the effectiveness of technology. Dennis Jones's Technology Costing Methodology (TCM) or Frank Jewett's BRIDGE model, both described briefly in Sally Johnstone and Russell Poulin's *Change* article on the cost of educational technology, may prove useful tools. But finding the right tool is at best the *second* step; *first* you need to commit to a "long-term" attitude regarding the purchase and replacement of information technology as a means of enhancing your educational enterprise.

In fact, you will do well to think of developing a technology plan in the same way you would a plan for personal investing. Ask yourself: What educational goals do I want to achieve? Can those goals be achieved more efficiently and effectively if I enhance current operations through technological innovations? What will it cost to add or upgrade technology to current operations? How will those operations be transformed? What will the "people costs" be?

On this last point, I can't stress too much the importance of figuring people into the technology equation. Institutions that spend for the latest gadgetry but fail to invest in training and appropriate support personnel usually end up seeing no improvements in either instruction or business functions. Perhaps the greatest investment one has to make is in the people who use technology. On campuses where people have been shown the advantages information systems offer in the classroom or in their offices, not only has productivity increased, but there's been improvement in job satisfaction—and in student learning, our core business.

Finally, presidents need to appreciate the need for systematic investment in new technologies to meet regulatory requirements. While no one likes to think that the federal or state government should dictate what we do, in fact we are subject to many regulations and require many services that now make ongoing technology upgrades a necessity. The U.S. Department of Education's insistence that federal financial aid matters be handled electronically is but one example. There are issues of student privacy, records security, and increasing demands from many outside agencies that we protect the information we keep—all of which demands continuing investment in upgraded hardware and software to meet the increasingly stringent requirements set by those who, for better or worse, have significant control over the way we do business.

While many of us like to think of ourselves as running institutions to serve the public good and advancing the frontiers of knowledge, it's an inescapable fact that as college presidents we run a business. Larry Tabb, CEO of a Massachusetts-based financial management group, observed recently that "getting one's technology priorities aligned in this age is incredibly important, so important it should not be left to either the CFO or CIO." Rather, he urges, technology

leadership "must come from the corner office." In my view, the only way to determine one's priorities is to think strategically—and the only way to do that with information technology is to view it as a necessary investment that, when used wisely, will enhance the quality of education we offer students and improve the opportunities of our faculty and staff to conduct their business effectively. Becoming a savvy investor in technology for our campuses is a role we must embrace.

About the Author

Dr. Laurence W. Mazzeno is President of Alvernia College, Reading, Pennsylvania. Prior to assuming his current position, he was interim President at Ursuline College in Ohio, where he also served as chief academic officer for five years. He has been a dean at Mesa State College, Colorado, and on the faculty at the U.S. Military Academy and the U.S. Naval Academy.

Dr. Mazzeno holds a Ph.D. from Tulane University and has published widely on literature, history, business, and education, including articles on information technology. He has been a national speaker on drug and alcohol issues in higher education, serving on the Council of Advisors for The Network for Addressing Collegiate Alcohol & Other Drug Issues, and has been active as a leader in the Pennsylvania Athletic Conference.

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CHAPTER 2

Presidential Leadership:
Key to Use of Technology in Colleges and Universities

By Dr. Michael K. Townsley, former President, Pennsylvania Institute of Technology

Introduction

If colleges and universities are havens of reflection and restraint, where change is glacial and all systems exist to serve the institution, high technology is a revolutionary temptation, a promise of control to students, faculty, and presidents that offers the same regard for academic tradition that the iconoclast offers the town church.

Most presidents recognize the obsolescence of their institutions' mission statements and strategic plans amid the self-serving, high-speed, high-tech movement. Students at colleges large and small won't tolerate lengthy queues, *ad nauseum* policies and procedures, or educational services that treat them as arms length objects rather than key punching participants in their educations. They, along with faculty and administrators, want more control over decisions that affect their lives—a more transparent learning and working environment that is ever more accessible and responsive to their input.

Savvy presidents recognize the potential of technology to enhance mission, improve educational services, and provide flexibility to decision chains. Harnessing the high-tech pace and coordinating technology with mission and strategy require more than just a huge information technology (IT) investment. A fiscally responsible and forward thinking leadership will reorganize operations, reevaluate market position, and press their institutions to utilize technology wisely. According to George Keller, "Presidents who do not look ahead, who do not plan, become prisoners of external forces and surprises most often unpleasant."[1]

Six Conditions to High Technology Management

Condition I: Technology is a given. Whether to invest is no longer the issue.

It is the rare institution that has not made a substantial IT investment. The chart below displays the impact investments in technology have had on higher education between 1988 and 1996.

[1]Source: Keller, George. *Academic Strategy.* Johns Hopkins University Press, Baltimore: 1983.

Note that "equipment" encompasses all purchases treated as capital (depreciated), and so includes technological equipment as well as desks and furniture.

Change in Investments—Building, Equipment and Total: 1988 to 1996
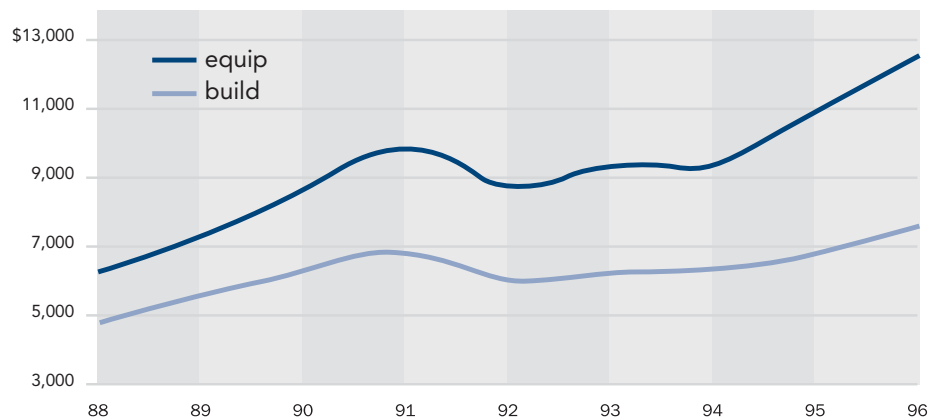
(Source: Table 356. Additions to physical plan value of degree-granting institutions, by type of addition and control of institution (millions of dollars); Digest of Education Statistics; National Center for Education Statistics: 2002; *http://nces.ed.gov/ programs/digest/d02/index.asp.*)

That the gap between equipment and building additions grew for the period (except around 1993 when the stock market declined) suggests a departure from the expected consistent growth relationship between equipment and building additions, and an increase in higher education's investment in technological equipment.

Condition II: Effectiveness and efficiency criteria must be set and met.

Efficiency can be defined as the per unit (e.g., student or some other quantifiable measure) operational costs (e.g., staff, maintenance, depreciation) associated with a technology service. *Effectiveness* refers to the fit between the technology service and strategic goals.

"IT systems cannot be deemed effective and efficient merely because the central processing unit has been plugged in."

IT systems cannot be deemed effective and efficient merely because the central processing unit has been plugged in. Recall the sweeping replacement of typewriters with word processors in the 1980s. Managers assumed a unit per unit swap, i.e., one CPU for each typewriter, and failed to anticipate the additional and ongoing cost of software, printers,

cables, monitors, surge protectors, and user training until the bills were on their desks and the typewriters already in the dumpsters.

Once the initial and ongoing monetary investment in technology is figured, leaders must ensure the IT service will support academic processes, administrative processes, and communications—each division representing a complex piece of a larger strategic puzzle. Is the technology service reducing cost per student ratios, and is it reliably delivering results that meet the strategic goals of the college?

Condition III: Technology must serve the ultimate user, the institution.

Spreading technology around campus will not automatically yield operational efficiency or strategic value. Upon its installation, a computer will not serve any purpose beyond that of its immediate user. Without a strategy guiding their purchase, implementation, and use, computers can become toys, or vehicles for empire building or day trading, or they may simply collect dust for lack of defined uses and savvy users.

An article in *Business Officer*, the official publication of the National Association of College and University Business Officers, asserts that senior leaders must be involved with the president in developing IT strategies because of their capacity to allocate resources, determine policy, and approve procedures. Without task force input—without discussion and agreement on IT purchases, implementation dates, upgrade forecasts, and monitoring strategies—the president will be the author of an uncoordinated technical strategy that will fall short of institutional goals.

Condition IV: Technology should integrate not duplicate.

High-tech gadgets and streamlined procedures are in demand by students who require immediate results and fingertip control. Leaders must support and guide IT departments in the complex task of blending various stitches of information into a seamless, instantaneous bond between student and schedule. IT departments must keep pace with student expectations by implementing technologies that bypass, not replicate, existing service capabilities.

Online registration is one example of how streamlining can go wrong. If course descriptions, class assignments, degree audits, and registration processes are not integrated, students cannot quickly develop optimum schedules. The result: students leafing through course catalogs, calling counselors to confirm degree requirements, plugging selections into computers, paying at the financial aid office—they may as well be standing in registration lines.

Condition V: Technology should improve flexibility and reduce complexity.

You can think of a high-tech system as your best friend: It is there when you need it, ever responsive to your personal needs. Or you can see it as an insidious, unfathomable, unreliable distraction that fails when you need it most. Neither perspective is always true, but the latter in even small doses could ruin the credibility of a tech system and undermine large time and money investments.

Presidents, like students, parents, alumni, staff, faculty, and administrators, have experienced the frustration of making demands on a computer ill-equipped to respond quickly, accurately,

"IT departments must keep pace with student expectations by implementing technologies that bypass, not replicate, existing service capabilities."

or at all. Increasing the flexibility of systems and minimizing complexity for users make for tedious work for the IT professional—in building a user friendly system, he must forsake basic design for a comprehensive system that anticipates various, sometimes contradictory, uses by variously able users. Regardless of the difficulty of the task, the president must set the invaluable expertise of the IT professional to designing a system for users that by its efficient nature at the user level will meet the needs and enhance the productivity of the institution.

Condition VI: Efficient and effective use of technology requires changes to structure, processes, policies, and delivery of services.

William F. Massey, in a presentation to the National Commission on the Cost of Higher Education, said that colleges and universities would not see changes in the unit cost of IT until they make a "paradigm shift" in the way they deliver services. Massey challenges presidents to increase the efficiency and effectiveness of their IT systems and bolster the strength and productivity of their institutions in an increasingly technology-savvy market of for-profit and not-for-profit competitors.

The paradigm shift in operations, delivery systems, or both (a massive undertaking) offers presidents a chance to turn traditionally structured institutions into interactive learning webs wherein each student↔student, student↔faculty, faculty↔administration link yields greater knowledge within and outside the classroom. Outside the one-way teacher↑student information flow, the institution swells with expertise gained when members of the college community inform one another.

As espoused by Michael H. Zack and others, the paradigm shift from traditional to knowledge-based enhances the "economy, innovation, and competitive positioning" of the institution and depends largely on efforts of a motivated president with support from the board, senior administrators, faculty, staff, students, and even alumni.

Conclusion

Information technology offers too many exciting and relatively inexpensive opportunities for higher education to ignore: Strategically designed IT helps students and faculty maximize academic advisement, schedule classes, plan lessons, view, and present lectures in the

"Any sufficiently advanced technology is indistinguishable from magic."
—Arthur C. Clarke.

classroom or online…. Strategically designed IT streamlines delivery of services so that students can make efficient use of their time and money…. Strategically designed IT simplifies operations so that administrators and faculty can cost-effectively monitor and provide for students as they pass from admissions to graduation to alumni status.

As the wheels of progress turn ever faster, presidents have access to near magical technologies at reasonable cost. IT represents a major expense stream that can, if managed correctly, yield significant improvements in productivity. Competition for students will challenge colleges and universities to deliver faster, more flexible, and broader services to students without driving net revenues into the red. Sensitivity to changes in the way competitors, students, faculty, administrators, and the public use technology will help proactive presidents choose and fund (and IT professionals refine and test) systems that will promote the best interplay among technology, operations, services, revenue, expenses, and strategy—for the ease of users and the good of the institution.

About the Author

Dr. Michael K. Townsley is a consultant and former President of the Pennsylvania Institute of Technology. He was Senior Vice President for Finance and Administration at Wilmington College for 20 years. He played a key role in making it one of the fastest growing private colleges in the country.

Dr. Townsley has 20 years of experience in academic services, financial systems, budgets, marketing, strategies, payment plans, IT administration, ancillary operations, and site management.

Dr. Townsley holds a Ph.D. from the University of Pennsylvania. His dissertation analyzed the impact of market share on pricing policies. He also holds degrees from the University of Delaware and Purdue University. His training also includes work with Lily Endowment and Columbia University. Dr. Townsley has published widely and conducted studies on the financial structure of colleges, universities, and for-profit institutions. NACUBO published his book *The Small College Guide to Financial Health Beating the Odds*, and they are publishing *The Financial Toolbox for Colleges and Universities*. He has also participated in several national Web casts on Financial Strategy for NACUBO.

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Technology Conveniences—21st Century Basic Needs for a Campus Community

By Dr. Rosemary E. Jeffries, RSM, President, Georgian Court University

We all expect instant communication, ease and speed in computation, constant access to information, and lighter and smaller devices to travel with us everywhere. The conveniences of technology in the 21st century are expected like hot and cold running water, electricity, heat, air conditioning, air travel, and 24-hour communication that made their way into our expectations through the 20th century. Each convenience of our modern society promised greater ease for living or greater ease for connecting people. Technology promises the same ease for living and certainly access to information and it equally promises greater availability for connecting with people near and far in consistent ways.

To attract, serve, and retain students and faculty in the technology rich culture of this first decade of the 21st century will require staying current in a rapidly changing environment.

The expectations for technology and the actual development of technological capacity are accelerating at an even faster rate than our 20th century conveniences. For example, Commercial Broadcast Television developed and marketed in the 1920's took time to catch on. Thirty years later, in 1953, still only 53% of households had televisions. Now in the 21st century about 98% of households have televisions and 70% or more households report having two or more televisions. It took 60 years or more for TV to be an expected household convenience (Source: 2004 World Almanac).

"This generation of students do not then see technology as an added value in their lives, rather they see technology as an expected convenience."

By contrast, in 1975, Apple and IBM marketed the first Personal Computer. By 2001, one billion PCs were manufactured and sold. The next billion is expected to be shipped and sold within the next five to six years. By 2001, 56% of households had a computer and 50% had an Internet connection (Source: 2004 World Almanac).

In about half the time it took television to be a major part of life, computers and the Internet are expected parts of life today. As we approach the mid-point of this first 21st century

decade, the integration and influence of technology in everyday life—and definitely in the college-campus world—is pervasive.

The accelerated inclusion of technology into household, work, and education environments increases the expectations of students and faculty coming to institutions of higher education. They expect in these centers of learning and research not only the convenience of technology they have come to expect in this 21st century, but the access to technology that supports and keeps pace with their intellectual careers and their personal lives.

The traditional aged students coming to college today grew up with technology, using computers in kindergarten, getting their own cell phones by 8th grade and watching the first and second Iraqi Conflict live in their home. This generation of students do not then see technology as an added value in their lives, rather they see technology as an expected convenience. As Howe and Strauss sum up in *Millenials Go to College*, "Millenials take digital technology for granted…. Institutions that are paleotech—not wired with powerful intranets, PowerPoint tools and the latest information retrieval systems—will face a real handicap when recruiting students, and not just in technology fields."

Though faculty and older students did not grow up with technology in the same way, they too are users with clear expectations. Today's faculty rely on technology to store and manipulate data easily, aid their research, facilitate their class management, and keep them in touch with students and colleagues. The older student, often returning to school midst balancing work and family, expects the convenience of accessing class notes online, registering online, and in general staying connected through technology.

Everyone has accepted the more accelerated pace of new technology as we watch prices of technology come down, PCs and other computing and communications devices become smaller and lighter and ever more convenient.

Beyond the campus, prospective students and faculty access their first glimpse of the campus through the Web presence available. Making Web presence and response compelling and engaging through personalization tools is as critical as providing stunning streaming video of the campus and campus activities. The use of portals facilitates the possibility of gaining immediate information about prospective students who are shopping the Web. Using email response direct to the prospect initiates an initial relationship between the institution and the student. In short, technology changes the recruitment business for students.

Technology also provides an initial view of the campus to a prospective faculty candidate well in advance of the campus visit. The 24x7 access to information and even communication for

students and faculty through enhanced technology accommodates each person's schedule. The number of hits to our Web page between 9 and 10 p.m. is, on average, 6,450 per month.

"The capacity of technology to connect and create relationships to support community might be, in reality, the most important advantage of this 21st century."

Nine o'clock in the evening is usually not the time most admissions folks answer inquiries; yet, for this generation of technology savvy prospective students, nine in the evening is the best time to shop for a college. Faculty who find the 5:30 to 6:30 morning quiet time as the best time to post class assignments or bibliography are equally serviced by technology which allows them to work when they feel most inspired to post their memos to class. Technology really enhances the exchange between faculty and students while at the same time allowing for the differences in lifestyle.

How the 21st century campus uses technology to attract and serve students and faculty is clear and compelling. History tells us the advancement of new devices for connecting and accessing information will improve at a rapid pace and will move beyond what we can even imagine. Keeping pace with the advances in this area are critical to keeping campuses current and cutting edge.

Yet, more important than the convenience technology brings to campus life, it helps to establish immediate relationships that are essential to the 21st century campus, offering an initial relationship between the prospective student and the institution; or establishing a more consistent relationship between the enrolled student and the professor. Technology also begins the relationship with the prospective faculty candidate with the campus. It is these various relationships that support the ability of a college to attract students and faculty, but ultimately it enhances relationships which serve both students and faculty and help to retain their engagement with the campus.

With so much opportunity for connecting, technology in the 21st century is as important to campus life as running water and light. We have come to expect the convenience of instant messaging, constant access to information, and ease of connecting with other members of the campus community.

Technology can be a great factor in retaining, attracting, and ultimately serving the campus; yet, the capacity of technology to connect and create relationships to support community might be, in reality, the most important advantage of this 21st century convenience. As Rosa Beth Moss Kanter concludes in her study of the virtual world, "Community might seem a

strange word to use in conjunction with the ever expanding virtual world. But one of my most robust findings about e-culture is that it centers around strong communities, online and off" (Source: Kanter, 2001, p. 16).

She outlines in *Evolve: Succeeding in the Digital Culture*, the hazards of the technology saturated culture to human relationships and ultimately to social institutions. Briefly, Kanter cautions that the Internet can connect or isolate, it can enable community or can destroy community (Source: Kanter, p. 17). As campuses depend more and more on the convenience of technology to connect students and faculty and as technology facilitates access to information and the exchange of ideas through the virtual world, the caution to be wary of the ways technology can encourage isolation or be used as a means to undermine community needs to be included in technology planning.

Institutions of higher education are places that must help people navigate the virtual world in a way that is productive in the real world. Campuses need to provide state-of-the-art technology access while maintaining focus on establishing a learning environment supporting students who will become the educators, business and government leaders, researchers, and citizens of the world. Preparing students for roles in our 21st century world requires more than knowledge of their chosen field and facility with technology, it requires a sense of community responsibility. As higher education continues to keep pace with the advances of technology to attract, serve, and retain students and faculty, may we not lose sight of a key part of our noble mission of education—to provide learning communities focused on preparing people for meaningful and productive lives for themselves and their civic and world community.

About the Author

Rosemary E. Jeffries, RSM, Ph.D., president of Georgian Court University includes in her leadership experience higher education, as well as non-profit management.

Sister Jeffries earned her doctorate in sociology and a master's degree in public communications from Fordham University. She also holds an M.A. in religious studies from Princeton Theological Seminary and a B.A. in art education from Georgian Court University.

President Jeffries currently serves as a member of the Catholic Charities Board, Diocese of Trenton, and as chair of the Tri-State Advisory Board for Thirteen, WNET, the flagship public television station in New York City.

Since her inauguration in 2001 as president of Georgian Court University, Sister Rosemary has implemented a visioning process that has yielded a 10-year Master Plan for the university.

Learning and Living with Technology: Wireless on Campus

By Dr. David R. Black, President, Eastern University

The advent of wireless has provided educational communities at all levels the speed and flexibility once thought nearly impossible without traditional hardwired Ethernet installations. This relatively new technology raises several cautions, however, that need to be examined before making the decision to integrate wireless with existing infrastructure, or deciding to build "from the ground up." We must also consider how this effort can be applied, what hardware is used in sending and receiving wireless, and finally and most importantly, how the learning process can be enhanced with its use. Eastern's Director of Academic Computing, Philip Mugridge, recently addressed the issues noted above for Eastern thus permitting the following contexted responses.

Let's first examine some of the basic terminology, standards, and hardware. Wireless involves the use of radio waves transmitted and received through access points located in strategic areas of a room or building. The access point is hardwired back to a switch or hub, which relays the data to a server or out to the Internet. Desktops or laptops are equipped with wireless network cards which send and receive data to the access points at specified frequencies within established protocols and standards. At this juncture, the 802.11a, 802.11b, and 802.11g standards are in force. 802.11b, commonly known as Wireless Fidelity, or Wi-Fi, provides data transmission in line with typical Ethernet (hardwired) connections, or 11 megabits per second (Mbps). Its range is around 300 feet, which makes it suitable for most home and small business installations and LANS (Local Area Networks). The most recent standard,

"Schools with wireless offer a certain comfort level, and project an image of providing leading, if not bleeding-edge technology."

802.11g, builds on the previous two protocols, and can transfer more than 54 Mbps up to 275 feet. The b and g standards both work on the 2.4 gigahertz frequency. 802.11g is backwards compatible with both the a and b.

Hardwired installations, utilizing Ethernet cable (Category 5, 5e, or 6), provide the safest, most dependable and secure method of sending data over long or short distances. Because the cable is shielded, installed internally in ceilings, walls, and sub floors, it is far less subject to

outside interference, and gives consistent data transmission. The cable is terminated at a jack on one end for the desktop or laptop, and back to a patch panel and switch at the other. The switches are then connected by fiber (or in older installations, copper) to central servers. Installation is labor intensive, often requiring extensive planning to overcome older building design. Costs vary, but an outlay of $125–$175 per jack is typical, in addition to costs for switches, racks, and switch closets.

Ethernet installations are essential for high-traffic, ultra-secure applications. Engineering, design, database, and other traditional "number crunching" uses require the bandwidth and stability inherent in Ethernet, which is a mature technology. Wireless, on the other hand, is an emerging process. While security is rapidly evolving to meet the needs of all administrators,

"Technology in general, and computing in particular, has a social-personal element that students easily integrate into their lives."

there are still shortcomings which allow unauthenticated users to "sniff" for wireless, access it unannounced and unknown to IT staff, with resulting loss of data, or damage to the network. Wireless speed also deteriorates somewhat with increasing numbers of users on each access point. As with technology in general, there is also the probable cost involved in upgrading backbone switches to accommodate newer security needs and improvements in desktop and laptop configurations. These expenses, however, would be necessary whether or not wireless was installed.

This is not to say, however, that wireless cannot be effectively utilized in a university setting. Campuses with older Ethernet installations are actually in an excellent position to take advantage of wireless technology. Most universities, in the rush to become "wired" in the early 90's, installed Ethernet in each residence hall room, classroom, lab, lounge, café, and library on campus. With this install base in place, adding access points in strategic locations to service the entire student population builds upon that investment. If a residence hall room, for instance, has one or two jacks, and three to four students, wireless access points (at an approximate cost of $500 each per floor, versus $250 to $350 per room for Ethernet) would enable all students and visitors with wireless laptops or desktops to access the network without cables or in-room switches. Adding wireless to a popular gathering spot enables students to check email, send messages and files to friends or professors across campus, and allows collaboration on a scale impossible even three to four years ago.

The growing pervasiveness of this technology has some simple origins. On the consumer side, incoming students have been accustomed to this at home if their high-speed connections involve wireless routers and network cards. Very few homes have been hardwired for access. If they stop in for coffee at a local café, or venture into a well-equipped public or university library, chances are they can surf freely. In short, students do not necessarily see wireless as the deciding factor in choosing a school, but those schools with wireless offer a certain comfort level, and project an image of providing leading, if not bleeding-edge technology for potential attendees. Adequate bandwidth in the residence halls, coupled with sufficient classroom technology, including wireless, is now an essential part of providing a well-rounded education.

When was the last time you saw a college (or junior high, or high school) student without a cell phone? Again, familiarity with portable wireless devices allows most students to embrace the "unplugged" world. Add to this the proliferation of PDAs, wireless printers, keyboards, and mice, and a student could conceivably go through four years of college without tripping over a cable.

Most importantly, wireless is a facilitator on several levels. With proper authentication and encryption, student data from residence halls and public areas is safe. Students can thus collaborate on the Web, check course syllabi, instant message friends, send assignments to their professors, and check on the status of their laundry from their residence hall. Parents can access student accounts from home, deposit money in individual school debit accounts, and provide for their children dozens or hundreds of miles from home.

Pervasive computing and attendant issues follow both student and professor into the classroom. Because a laptop, tablet, or PDA in class is such a departure from traditional notebook, paper, and pencil, some professors may be wary of the inherent distraction of Web accessibility during instruction. Browsing the Web or instant messaging a friend during a lecture can be a common occurrence; taking notes can become secondary to instant entertainment. At this point, allowing laptops in class for note taking may not be the best answer to meeting student's needs for technology! It is important to recognize that technology in general, and computing in particular, has a social-personal element that students easily integrate into their lives. Collaboration is as important to today's users as the "blog," which is a highly individualized response to thoughts, opinions, and trends on the Web. Contrast this to the "first generation" of computing, which saw a much longer period of adjustment to what essentially were business tools and the occasional electronic bulletin board.

Wireless computing, whether incorporated into new construction or added to existing structures, can revitalize classroom instruction. If laptops themselves can be viewed as portals rather than note-taking word processing tools, opportunities arise for the entire class to

concentrate on the same statistical data, database, or political Website while being challenged by the professor to solve the daily dilemma. Facts can be checked instantly, curriculums viewed (MIT's Open Courseware, a revolutionary concept wherein hundreds of actual classes are offered free on the Web, is a good example), and opinions shaped and changed as the discussion develops.

All of this can be facilitated with the use of a wireless laptop cart wheeled into a standard classroom equipped with an access point. What is most exciting, perhaps, is the not-so-revolutionary idea that the Socratic Method and technology can merge seamlessly without cables. Learning can take place using tools that the students have assimilated since grade school. Wireless takes the process one step further, allowing them the freedom to take those tools to the next classroom, or dorm, or back home, to continue reaching for and responding to knowledge. Our challenge as educators is to creatively channel this integral relationship between student and technology while recognizing its potential to continually expand educational horizons.

About the Author

David Black is a 1971 graduate of Lee University who later earned the M.S. and Ph.D. degrees at the University of Tennessee and Ohio University, respectively. Now in his 7th year as President of Eastern University, David previously served for 8 years as president of Lakeland College in Wisconsin and for 10 years as vice president at the University of Rio Grande and Lincoln Memorial University, respectively.

He currently serves on the boards of Sojourners, Evangelicals for Social Action, and the Sider Center for Public Policy. Additionally, he is senior advisor to Campolo Ministries, Nueva Esperanza, the Institute for Global Engagement, and World Vision International. Accomplishments during recent years include the establishment of the Templeton Honors College, the School of International Leadership and the Campolo School for Social Change at Eastern.

David is married to Valerie, who has a distinguished record as Head of School at Cornerstone Christian Academy in Philadelphia's most economically depressed community. They have two grown children, Christopher and Justin, both of whom live in Washington, D.C.

Accountability and Institutional Effectiveness

By Dr. John L. Ewing, Jr., President, Mount Union College

Virtually every college and university today has a strategic plan. In some cases, that plan has been carefully developed, includes time-sensitive task lists for key administrators, and is updated annually based on continued relevance of the goal as well as progress toward achieving it. In many other instances, however, one or more of these steps is lacking and, therefore, the strategic plan does not achieve its intended purpose. While only a tool, technology can assist a president to develop an appropriate strategic plan, help campus personnel toward the completion of tasks necessary to accomplish it and monitor progress toward strategic institutional goals.

"It is essential to know not only where your institution stands on the most important metrics, but also to identify where your peer and aspirant institutions are."

Technology is ubiquitous on our campuses. While we would sometimes rather not be so dependent upon it, technology is here to stay, providing unparalleled access to resources that we would have not even considered a few years ago. Our computer networks put an amazing array of data at our fingertips; moreover, our challenge is to use that information to provide meaningful and easily understood information. This chapter will introduce some of these recently developed tools of immense value to presidents.

Development of the Strategic Plan

Strategic planning has traditionally used a process of assessing the current condition of the institution, working with various constituents to identify its future direction and setting goals. To do the latter, it is essential to know not only where your institution stands on the most important metrics, but also to identify where your peer and aspirant institutions are. Finding comparative data on these other institutions was formerly an arduous task. However, two new beneficial resources facilitating the establishment of appropriate targets for key performance indicators are now available.

One such tool is comparative data on 16 key indicators identified as vital to institutional strength. Organized under four broad categories including enrollment, faculty, tuition revenue and financial aid, and resources and expenditures, each of these key indicators is grouped in three ways—by geographic region, by financial resources, and by institutional size. Data are presented in both tabular and graphical formats. These indicators are:

- ▶ Enrollment

- ▶ Enrollment Change from Previous Year

- ▶ First Year Enrollment

- ▶ Graduation Rate

- ▶ Student-to-Faculty Ratio

- ▶ Part-Time Faculty as a Percentage of Faculty FTE

- ▶ Tuition

- ▶ Average Institutional Student Aid

- ▶ Net Tuition Revenue per Student

- ▶ Percentage Change in Total Net Revenue from Previous Year

- ▶ Tuition Dependency

- ▶ Percentage Change in Net Assets from Previous Year

- ▶ Net Income Ratio

- ▶ Long-Term Investments per Student

- ▶ Instructional Cost per Student

- ▶ Educational and General Expenditures per Student

This tool is particularly helpful in determining how your institution compares to median data for colleges and universities within select organizational categories. After first determining which key indicators will be included in your strategic plan, you can then use this tool to help set appropriate and reasonable targets for your metrics.

Another excellent resource for benchmarking is a new, Web-based service containing data on all institutions. This service allows you to compare your institution to others, either individually, or in groups that you define. Specifically, this powerful database allows you to create your own tables and graphs by examining either 206 preset variables or an unlimited number that you

can define, using the variables included. Below is a list of the variable categories and the number of variables available.

- ▸ Fall Enrollment (10)

- ▸ Graduation Rates (9)

- ▸ Financial Ratios (12)

- ▸ Balance Sheet (14)

- ▸ Revenues (25)

- ▸ Expenditures (28)

- ▸ Student Financial Aid (15)

- ▸ Staffing (8)

- ▸ Admissions and Test Scores (28)

- ▸ Tuition and Fees (54)

- ▸ Admissions Strategic Indicators (2)

The real power of this database comes from your ability to create and store comparison groups. For example, you can create a group of your peer institutions and a second group of aspirant institutions. When examining mean data from these groups, you can drill down and look at the individual numbers from each institution. Let's say your strategic plans calls for reducing your student to faculty ratio. Since this database does not include that variable, you would go to the tab "Custom Variables" to create a variable that calculates this important ratio. Next, you can look at your institution's history for the last six years while comparing your

"Meaningful strategic plans must contain goals both ambitious and reachable."

data to the mean of your previously defined aspirant institutions. Finally, you can click on the mean number from your comparison group and view the number for each individual institution.

Meaningful strategic plans must contain goals both ambitious and reachable; by adapting the capacities of these two new resources to the needs of your institution, you can set goals that are appropriate as well as realistic.

Development of Work Plans to Accomplish the Goals

Once appropriate goals have been set, you must next convert them into work plans that include specific tasks to be completed, timeframe for completion, and accountability so that progress toward completion of the goal can be monitored.

New, readily available software can be very effective for organizing and monitoring your plan. This software, for example, walks you through the process of defining the project, establishing an appropriate timeline, creating a list of tasks to be accomplished, and organizing the tasks into phases. Each person who has responsibility for a goal/project will also play a part in

"While presidents should monitor progress on all goals, certain variables most critical to both the short-term and long-term success of the institution must take priority."

keeping this "database" up to date, allowing you, as president, to quickly monitor the progress. In addition, it would be helpful to provide training for your entire leadership team in using such software to its full advantage.

Monitoring the Progress of Key Performance Indicators

While presidents should monitor progress on all goals, certain variables most critical to both the short-term and long-term success of the institution must take priority. The for-profit sector, which has long used these various tracking systems, refers to them as key performance indicators or "KPIs." One popular system encourages businesses to monitor lead indicators rather than lag indicators. A lead indicator is one indicative of what is going to happen rather than what has already happened (lag indicator). For example, in the area of enrollment, the number of inquiries, applications received, applications completed, and paid deposits are all lead indicators, while the number of students who registered for class is a lag indicator. The underlying concept is for presidents to proactively monitor those indicators that will allow us to change our actions before it is too late to achieve our goal.

Within the last year or so a number of products have emerged for monitoring KPIs within the higher education community. Some are Web-based, some server-based, and some PC-based. The most sophisticated are server-based and pull data from the institution's administrative software system(s). What makes these monitoring systems so helpful is the use of a digital "dashboard" allowing you to determine at a glance if you are on target to reach your goals. Typically, a

dashboard will include three to five dials or gauges that you have chosen to reflect your KPIs. More sophisticated systems allow you to click on the dial/gauge to drill down to see the data.

For example, many presidents choose to select growth of the annual fund as a KPI. The dashboard, then, might display a gauge showing a needle pointing to a red, yellow, or green area. If the needle is in the green, you know that you are on target to reach your annual fund goal for the year, and so forth. You, along with your staff, set the exact parameters determining the criteria for the colors. In addition, you can build in more detail, such as the amount you need to raise each week to reach your annual fund total and what was raised during comparable weeks last year. Various relatively inexpensive, flexible options are available and although not all are specifically designed for higher education, most can easily be adapted.

Conclusion

Used to its full capacity, technology can make our work lives not only efficient, but more proactive, and therefore, more effective. The application of modern technology to the strategic planning process can be very beneficial. Technology is available today to set appropriate goals, to create sophisticated plans and to monitor how well our institutions are doing on KPIs. May it make your work even more enjoyable and rewarding!

About the Author

Dr. John L. (Jack) Ewing, Jr. became the 10th president of Mount Union College in 2000. He had previously served as president of Dakota Wesleyan University since 1994. Prior to his presidency at Dakota Wesleyan, he served 11 years as a professor and assistant dean at South Dakota State University. He also served on the faculty at Asbury College in Wilmore, Kentucky, his alma mater, for five years.

A native of Bridgeton, New Jersey, Dr. Ewing earned his B.A. degree in physical education from Asbury College in 1974. He later earned his M.S. degree in physical education specializing in exercise physiology from the University of Kentucky in 1975 and his Ph.D. degree in the same discipline at the University of Minnesota in 1982.

The Ewings are the parents of two adult daughters. Sara, a graduate of Nebraska Wesleyan University and a graduate of Wesley Theological Seminary in Washington, D.C., is currently serving as pastor of the United Methodist Churches in Old Orchard Beach and Saco, Maine. Elizabeth is a graduate of Concordia College in Moorhead, Minnesota.

The Role of Portals in Higher Education

By Dr. Jake B. Schrum, President, Southwestern University

In August of 2004, a mythical university president, Archibald Jones, became intrigued with the concept of a campus portal. Knowing that portals are personalized views of information, he decided to garner input from Superior University's various constituencies including alumni, different types of students, faculty, and staff. The chief information officer was aware of the president's interest in portals and his desire for input. Consequently President Jones also received a letter from the ITS department.

President Jones has graciously (and magically) shared his letters with us. His thoughts and reflections on the letters are presented for your consideration.

Letter from a Current Student

> *Dear President Jones,*
>
> *I'm excited about the portal being designed for the University. I hope it can pull together the many services that we students want—and expect in the 21st century. Now we have to go from office to office to transact business with the University. It's a real pain although I do like chatting with Ms. Garcia in the Registrar's office. While I want to use the Web for many of my transactions, maybe there is a way that the new portal can preserve some of the human interaction? That would be fantastic.*
>
> *Another feature I'd like to see in the portal is a way to follow our sports teams, especially when they are on the road. Video and audio would be really cool, but I can live with a simple game recap, some stats, and maybe a picture or two. With today's digital technology that should not be too hard to do.*
>
> *The ability to login once, from anywhere, and have access to services such as email, campus notices, course syllabi, billing, and financial aid is vital. I have been told that having a single user ID is one of the better features of a portal. It certainly sounds like a good idea to me. I have so many user IDs and passwords that I can hardly keep them straight.*

Our portal needs to be customizable as well. There is so much content and so little screen space that I'd like the ability to select the content that I want displayed when I login. I think these different sources for content are called channels and the concept makes a lot of sense.

Thank you for the opportunity to express my opinions about the forthcoming portal.

—Phil Fields, Class of 2006

Phil's letter is telling. He expects that services will be available via the Web. Interestingly he wants to preserve the human interaction that is characteristic of our traditional processes. I wonder if there is a way to have the best of both worlds. We have always had a strong sense of community at Superior University and we would hate to lose that.

His idea about sports information is a good one. I get many requests from our alumni and parents for more sports information. The portal certainly would be a good place to present the information, but from where will it come? Somebody has to take those pictures and get them loaded into the portal.

Letter from a Faculty Member

President Jones:

Thank you for soliciting my input on the University's portal project. I am not sure that I'm the right person to ask, as technology is not my forte. I do have opinions, as you know, and am glad to share them.

First, let me express my overall concern about implementing a portal. We're a small school that prides itself on personal interaction with our students. What might this portal do to those interactions? I'm also concerned that a portal is one of those immense IT projects with a sizeable price tag. Couldn't this money be used to enhance one of our academic programs?

That said, if we do build a portal, it should be constructed to minimize the amount of work required on the user's part. If the portal doesn't make life easier, I don't see the purpose. The portal should aggregate important information about my students and especially my advisees who are so difficult to track. The ability to review degree plans prior to registration is a must!

Other "musts" include access to class rosters and student email addresses. Access to my teaching schedule would also be nice.

There is much institutional information that could be shared via the portal. I am thinking beyond schedules of events and sports scores to information such as

policy and procedure, committee and council minutes, effectiveness measures, and planning documents. I assume that a portal can provide controlled access to such materials while at the same time making it more convenient for the community.

We talk often of our core values. Our portal should, to the extent possible, reflect and encourage these core values. The portal should contain information about our core values and should reinforce their meaning. We need to be reminded of who we are and what we represent.

—Elise Cosgrove, Ph.D.

An unusually brief letter from Dr. Cosgrove! It appears that community is also important to her. She speaks also of core values. She is saying, I think, that our core values should be promoted through the portal. It definitely is a challenge to keep the core values "in front" of people. Perhaps the portal could be used to remind people of our values. It absolutely must be constructed with our core values in mind.

I wonder how much institutional information she expects to see.

Letter from an Alumnus

Dear Archie,

Greetings from Fredericksburg. Jodi sends her best wishes. It was wonderful to see you and Karen at homecoming. Either we are getting old or college students are a lot younger these days.

As you know, I am always interested in what transpires on campus. Superior is an excellent school and I'm eager for a simple way to learn about current happenings at my alma mater. I'm not a "techie" and will never be one, but I like to follow the men's and women's basketball teams and the fine arts events. Jodi and I try to attend four or five events a year but there are so many other fine events. If there were a way to see film clips of sports events or stage productions, I'd be happy as a clam. I have a new DSL line and my access to the Internet is great!

While you are designing the portal, could you include a way for me to see my giving history? That sure would help as I make plans for my charitable contributions. It would also be nice if the portal allowed me to find old classmates. Wasn't it great to see Harry at homecoming? Such a wonderful person and I haven't seen or talked with him in 20 years! Anything that would help us connect with each other would be appreciated.

Remember. I am not a computer whiz so this portal has to be simple.

Warm regards,
Bob Connelly

What a nice letter from my classmate Bob. He is non-technical! He couldn't work a typewriter back in the day! It's understandable that he wants the portal to be simple to navigate. It's good to remember that the portal can be different things to different people. That's one of its advantages. Bob does have something in common with today's students, however. He wants video. I can't imagine watching an entire basketball game or play on the computer, but video "highlights" make sense. Those clips might help us recruit students as well.

Letter from a Prospective Student

Dear President Jones:

My name is Amber Waves and I am a senior at Washington High School. I have been looking at different colleges, including yours, over the past year. I don't know much about a Web portal but I can share with you what it is like to be a prospective student.

The World Wide Web is tremendously important in researching colleges. Current high school students are much more likely to access a school's Web site than to consult the university's view book or other print literature. Unfortunately, it can be difficult to find information on the Web while that same information is elegantly presented in the view book. An online view book with all of the great pictures and video combined with some interactive features would be very useful and would be considered "cool" by me and my classmates. Is this the kind of feature that could be included in a portal?

I would also like to know more specific information about the courses that are offered. I can usually find the course catalog even though it's often in some other section of the Web site. (It seems as though one has to know how universities are organized to find information on a college Web site.) The course catalog doesn't convey what really happens in a course. I'd like to have access to a Web page that tells me what topics are covered, what book is used, and how many tests are given. Your site might even keep track of which courses I had viewed and then present additional, relevant information—kind of like Amazon does when one shops for books.

Finally, I would like to interact with current students through Instant Messenger, a Web forum, or email. It's helpful to get information from people who have lived the student experience.

I am very interested in your school and hope that my ideas are helpful.

Sincerely,
Amber Waves

Amber has some outstanding ideas. I particularly like the concept of presenting information that is relevant to her interests. Her comment about the view book is a bit disconcerting given the amount of money that we spend to produce them. Perhaps some of that money should be directed to our Web efforts. The inability to find information on the Web site is a concern even though it doesn't seem directly relevant to the portal question. We should not be frustrating our prospective students or anyone else.

Letter from a Staff Member

Dear President Jones:

I think that building a portal is an excellent idea!

As a staff member, I spend much time trying to find information that I need to do my job. Much information is buried in people's offices, making it nearly impossible to retrieve. If all that information were available through this portal, it would make my job much easier. Some of the information is confidential, however, so we'd need a way to protect it probably through passwords of some kind.

Access to event schedules is also important, as I am responsible for scheduling people and departmental events. If the portal were the place for event information then all of us on campus would be working with the same information. That would be a first!

Another needed feature is a listing of job opportunities. All relevant information about the jobs could be presented through the portal every time a staff member logs in. This would ensure that all employees are aware of the job opportunities.

Lastly, I think the portal would be a great place to display not only campus news, but also information such as our progress on the strategic plan and current challenges in managing budgets or in recruiting a freshman class. Informed employees are better employees.

Thank your for the opportunity to provide input.

Sincerely,
Hallie Smith

Like Dr. Cosgrove, this staff member is asking for more internal information. Perhaps there are ways that a portal could help us share information. Security and privacy are major concerns, however. We need to control those people accessing the portal. Once a person has been granted access to the portal, his/her access must be further managed to ensure that internal information is appropriately protected.

Letter from a Deposited Student

Dear President Jones,

Wow! I am so psyched to be headed to Superior University. We mailed my deposit yesterday and I can't wait until August to start my college experience.

I am pleased to offer some suggestions for the Web portal that the University is designing. I look forward to using the portal when I get to campus.

As a student who has decided to attend Superior, there are many things that I want to know. Where will I live? Who is my roommate and what is he like? Are there others from my hometown that are going to Superior? How can I meet them? What courses can I take? How big are the dorm rooms?

If I understand correctly, a portal is designed to make information readily available to students in an easy-to-use format. It would be awesome if the portal could help a prospective student like me answer these questions. A chat service for just admitted students would be very nice. For example, I'm interested in service opportunities and would like to meet other students with the same interest. Maybe new students could get their Superior University email addresses and start communicating with each other and the rest of the university community.

Cordially,
Juan Rodriguez

Juan is excited and rightfully so. He appears to be the kind of student we seek: energetic, inquisitive, and creative. Chatting via the computer is something I've never done and may never do, but it is amazingly popular with our students. Connecting the incoming students with each other is another good idea. It is a way to build community before the students arrive.

If incoming students were issued their email addresses early in the summer, university staff and faculty could easily reach students over the summer months. And we would avoid the hassles and expense of mailing information.

More good ideas for consideration!

Letter from Information Technology Services

Dear President Jones:

Information Technology Services is excited about the prospects for a portal at Superior University. I agree that delivery of services via the Web is essential and stand ready to design and implement the university's first portal.

The portal will provide user-friendly access to data stored in our legacy databases. It will also allow us to bring together data from disparate sources, improving productivity. Our students, who naturally gravitate to online services, will be especially pleased.

A portal can be built from scratch or can be purchased with varying degrees of customization supported. A purchased solution that allows considerable customization would probably be the best approach for us given our current project list, the size of our Administrative Computing staff, and the presumed need to have the portal available as quickly as possible.

The construction, maintenance, and operation of a portal are complicated and time-consuming processes. One must first define the information architecture,[1] understand existing workflows, write or acquire middleware that sits between the Web interface and the legacy databases, and carefully address issues of authentication[2] and authorization[3]. In short, a portal is a complex, dynamic system that requires significant resources to create and significant resources to maintain.

I would appreciate the opportunity to discuss the portal concept with you at the earliest possible date that is convenient for you.

Sincerely,
Katherine Mooney

It appears that I've got the attention of the IT folks. Katherine is a levelheaded CIO with a good track record. She is likely aware of some technical and operational challenges.

These few letters show that people want more and more information accessible through the Web. Someone has to generate that information and someone has to maintain it. I hate it when I visit a site and they are presenting last year's information.

I had better schedule a meeting with Katherine.

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[1] The art and science of organizing and labeling information in Web sites, intranets, online communities, and software to support usability and findability.
[2] Knowing who the user is.
[3] Determining the access rights of a user.

Conclusion

President Jones received useful feedback from his constituents. He learned that a portal is:

▸ Exciting to the community

▸ Expected by students

▸ Problematic if it creates more work than value

▸ Supportive of community building

▸ Universally seen as a source of information

▸ Complex to create and maintain

Additionally he surmised that:

▸ Significant IT challenges are involved

▸ Web content must be generated and maintained

▸ The portal does not replace the institutional Web site

▸ Privacy and security are major issues

▸ The cost of a portal is substantial and ongoing

President Jones has a tough decision to make. He must decide if a portal will enhance university life or detract from it. He must determine costs and weigh them against the expected benefits. These decisions are the inescapable challenges of the presidency.

This president is fortunate to have talented people in the affected departments on campus. These people combined with the input received from the University constituents can provide valuable guidance. The next step is to bring them together.

Author's note: I, too, have been fortunate to have the assistance of Southwestern University's chief information technology officer, Robert C. Paver, as this chapter has developed from conceptualization to completion.

About the Author

Jake B. Schrum, a native Texan who grew up in Sugar Land, near Houston, has served as a college and university administrator for more than 27 years. Having lived in Texas, Georgia, Connecticut, and Pennsylvania, Schrum has been an administrator at two major research universities and three liberal arts colleges. He is widely recognized as an author and speaker in the field of educational advancement. He is currently a leading proponent of moral leadership in higher education and recently edited a book entitled *Justice for All*. In addition, he has

written *Democracy's Last Stand: The Role of the New Urban University.* In February 2000, the Association of Governing Boards in Washington, D.C., published a book, edited by Schrum, entitled *A Board's Guide to Comprehensive Campaigns.*

Educated at Southwestern University and Yale, he is the 14th President of Texas' oldest university, Southwestern. The innovative Paideia Program, which blends several of the most transformational experiences of college life, was created and has been developed at Southwestern during Schrum's tenure.

Information Technology Security

By Dr. Thomas Keith Meier, President, Elmira College

Some college presidents are well-versed in many of the internal aspects of information technology, while others, like me, merely admire the many benefits it offers. However, recent widespread and well-publicized security threats, as well as the opportunity to contribute this chapter, have raised my own level of awareness of information technology (IT), and I wish to thank two of my tutors in the field who are the principal authors of this paper: Scott Lowe, director of information technology, and Michael Rogers, director of communications, both at Elmira College.

There was once a day when a college could connect its campus—along with every student—to the Internet and not have to worry much about security. The primary threat was from students who attempted to hack the college administrative systems in an effort to boost their perhaps lackluster grades.

Those days are gone.

Of course, a college still needs to worry about the occasional computer-savvy underachiever, but today's threats to campus information security are much more serious and sophisticated. Among the threats to college campuses today are:

▸ Identity theft: a crime in which an imposter gains access to someone's personal information and uses it to impersonate the innocent victim. This crime is of particular concern to college campuses, either due to historically lax policies or the use of unprotected social security numbers as student identification numbers.[1]

▸ Hacking and data theft: a crime in which a person gains unauthorized access to key systems and steals sensitive data. This is sometimes followed up by actual identity theft.

▸ Viruses and spyware: Viruses have been around for a long time, but spyware—generally tracking software that watches what users do and reports activity to a home base—is a relatively new phenomenon that can have serious security consequences if left unchecked.

Because of these issues and the explosion of all things Internet, IT security has quickly moved from a back-burner, "would-be-nice-if" task to a critical and ongoing investment for any campus that relies on technology for its services.

"Information security often is compared to a war in which the allies need to stay one step ahead of the enemy."

Information security often is compared to a war in which the allies need to stay one step ahead of the enemy. Presidents and other senior leaders must take steps to ensure that the college is always one step ahead. What are some ways to achieve this ever more elusive goal?

Probably the most important security goal is identifying the campus risk areas. Most college administrators have read about the unfortunate situation at George Mason University in early 2005. In short, attackers gained access to sensitive campus systems and may have snatched as many as 30,000 personal student and employee records, including social security numbers.[2] This is not the kind of publicity that any institution seeks. In this case, one major risk area for George Mason was its administrative system's use of the social security number as a student identifier. Ironically, the university was in the process of converting to an unrelated student identifier at the time of the security breach.

Key areas that need to go through a risk analysis include administrative servers, e-mail systems, institutional desktops, and the student residential network, for a start. The simple truth: every area on campus that has stored electronic information needs to be secure. Even the office computer in the Department of Buildings and Grounds could be a risk. How? Consider this: suppose a student submits a request to Buildings and Grounds and that department uses the student ID number to track the request. Further suppose that the institution still is using social security numbers as a student identifier—the conclusion is obvious.

Second, institutions need to make sure they have the appropriate policies in place and that those policies are enforced. For example, does the campus have an acceptable use policy as well as an enforced password policy? If not, they should be in place, and IT must have the means and the authority to enforce these policies. For help creating or revising such policies, EDUCAUSE and the Cornell Institute for Computer Policy and Law have compiled hundreds of information policies from dozens of campuses and made them available on the EDUCAUSE Web site.[3]

Make sure policies target both student and employee threats. A study conducted by the U.S. Secret Service and the Carnegie Mellon Software Engineering Institute found that 78 percent of computer crimes carried out at financial institutions were accomplished by authorized users[4]—that is, users who had the right to access the affected systems. While not operating a financial institution, colleges and universities do house information that is compelling for data thieves, including social security and credit card numbers.

An information security policy should limit access to key systems for only those who require access in order to perform their jobs. Too often, campuses provide access to almost every

"An information security policy should limit access to key systems for only those who require access in order to perform their jobs."

system to every employee without determining who has a "need to know." Unfortunately, every person with access to a key system becomes a potential threat to the institution's information security.

Some universities provide inappropriately wide access in the mistaken belief that to limit access is to communicate that the institution distrusts its own employees. With today's high stakes in IT, common sense dictates restricting access. After all, colleges do not make explosive laboratory chemicals or the institution's checking accounts available to everyone on campus.

Another part of an information security policy should detail exactly what kind of data is stored and why. For example, colleges may need to store social security numbers for financial aid reporting, but is there other information that leaves the institution at greater risk? For example, instead of storing student credit card numbers for tuition payment, one might consider outsourcing this activity to a competent third party with a security infrastructure designed to handle this kind of activity, thus avoiding the liability of storing credit card numbers.

A further feature of a security practice lies in the technology the college uses. In order to implement effective security policies, the technical environment must, of course, be conducive to security. Not very long ago, this meant placing a firewall—a device that blocks unwanted and uninvited visitors from the Internet—between the campus network and the Internet. With this firewall in place, the theory went, unauthorized visitors could not gain access to critical information systems and cause damage.

Today, while a firewall is still critical, it is but one cog in the security wheel. There are additional hardware and software components that are required to protect systems. The first technical

solution relates back to the point made earlier about the judicious control of access to key systems. One should make sure this is enforced through a technical solution as well. For example, on some campuses, student computers can "see" key administrative servers, but the students do not have accounts to access these systems, so they may be deemed "safe" when in fact they are not. For every key system on campus, ask the question, "who needs to access this service?" and make sure that IT takes the technical steps necessary to lock others out. In the example above, no student computer should even be able to see an administrative system.

The seemingly mundane task of keeping virus scanners current also is important to preventing problems. Some viruses take advantage of vulnerabilities on the computer to allow access by a third party. By keeping the virus away, one also keeps the third party away, so institutions should insist on a current virus scanner across the board—on all institutional machines, as well as on all student computers, without exception.

The final areas on which to concentrate security efforts lie in education and oversight. Educate users about the risks of lax practices, such as writing passwords on sticky notes and posting them on their monitors and about sharing passwords with others. A password shared with the wrong person can lead to data theft that could make the institution a case study in systems security mismanagement. Make sure the IT staff has the skills necessary to keep the university's

"After all, the college is most assuredly not the last place in which students will need to be armed with knowledge they can use to protect themselves from fraud."

information safe. One might even consider having an IT staffer whose responsibility it is to question, learn, and advise the campus community about potential security threats. After all, the college is most assuredly not the last place in which students will need to be armed with knowledge they can use to protect themselves from fraud.

On the oversight front, consider contracting with a third-party company that performs information security audits. The results of such an audit can help quickly identify weak areas in information security infrastructure and may avoid serious problems.

IT has become a strategic component for many campuses. Along with the benefits of IT inevitably come the dangers, including the security threats outlined in this paper. Using some

[1] source: *http://www.cr80news.com/news/2005/01/11/george-mason-universitys-id-database-hacked*

[2] source: *http://news.zdnet.co.uk/communications/networks/0,39020345,39183592,00.htm*

[3] source: *http://www.educause.edu/EDUCAUSECornellInstituteforComputerPolicyandLawHome/863*

[4] source: *http://reviews.cnet.com/4520-3513_7-5504189-1.html*

of the information provided here, college leaders could reduce the risk of succumbing to security threats and keep their institutions out of the headlines.

About the Author

Dr. Thomas Keith Meier has served as the 12th president of Elmira College since 1987. Prior to that, he was the 17th president of Castleton State College for eight years. In the more than quarter century that he has been a chief executive officer, information technology has made dramatic changes on college campuses.

In addition to six dozen scholarly articles and book reviews, he has published a book on Daniel Defoe, the author of *Robinson Crusoe*. A former U.S. Army officer and executive of Exxon Corporation, he was an intercollegiate athlete and member of Phi Beta Kappa at the University of Texas at Austin.

Dr. Meier earned a Ph.D. in English literature from Columbia University and an MBA from Harvard Business School. Active on boards of community organizations that support youth, the underprivileged, and the arts, he encourages faculty and administrators to support student clubs and organizations and leads by example as co-advisor of the college ski club.

# Unify Your Digital Campus: Integrate Disparate Systems

by Dr. Earl D. Brooks, II, President, Tri-State University

Regardless of the size, location, or academic focus of our institutions, we all share the goal of delivering the best educational experience possible for our students. Because the average college or secondary student today is not only highly computer literate, but also very comfortable in seeking information and conducting independent research online, it is essential that all administrative support systems be available online and student-centric. This is especially critical if your campus seeks to enroll better-prepared students, as this is the very population characterized by the highest expectations for on-demand computing and information capability.

Thus, the digital campus has emerged to better serve and connect key constituents including, but by no means limited to, students, prospective students and their families with your institution. The extent to which you can effectively use technology to convey your institution's distinctive culture and personality, and to personalize your communications and anticipate your users' needs, will ultimately determine whether you have an ongoing relationship with these audiences.

Current generation systems dramatically impact the way in which your current and future stakeholders gain information, accomplish tasks, and communicate on a daily basis. While we are making it possible to do more and more online, at many institutions the digital campus is an organically grown, disconnected amalgamation of disparate systems and services.

What we need to do is bring this mix together in a way that feels organized and seamless to the user. To facilitate these connections to individuals and among services, a paradigm shift is occurring on many campuses. Institutional systems are, by necessity, moving away from being

System
Chaos
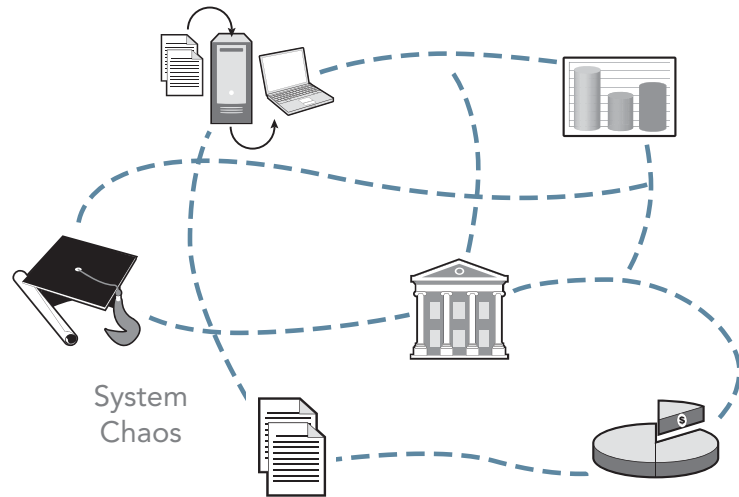
merely line-item expenditures to execute needed tasks such as online registration and grading. Instead, they are expanding their function to become the recognized catalyst for cultural change.

A "unified" digital campus is, ultimately, the gateway to the total life experience of the campus, a wholly integrated, interactive network of academic, financial, and communication systems; portals; and other applications, personalized to meet each individual's needs. However, the baseline must evolve from that student-centric mission and life cycle, and the systems must be vigilant, in accord with stringent industry standards.

Prospect   Applicant   Student   Graduate   Alum

Student Timeline
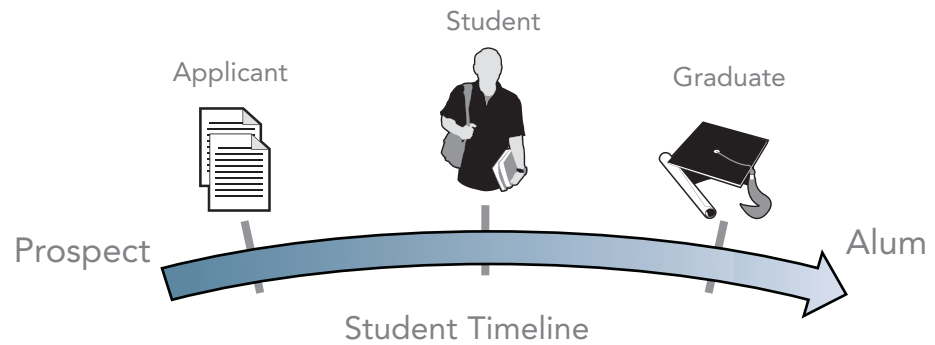
The baseline administrative applications emanate from the "student" and include:

- Recruiting and Admissions

- Registration, Student Accounts Receivable, Grading—Degree Audit and Graduation

- Financial Aid

- Finance

- HR/Payroll

- Advancement

In addition, the institution must have an Internet portal to present a single, attractive, managed, and accurate image and graphic identity to the national or even international community.

A campus baseline system, then, has the student-centric applications operating on industry-standard technology, providing 24-hour information and enabling any constituent to consistently meet at least 90 percent of his or her needs from any terminal, using any browser.

"A Unified Digital Campus is both cost-effective and user-friendly, enabling constituents to move fluidly from academic systems to community portals to financial systems without logging on and off."

A Unified Digital Campus is both cost-effective and user-friendly, enabling constituents to move fluidly from academic systems to community portals to financial systems without logging on and off. It enhances constituent service and responsiveness while encouraging increased staff productivity. Self-service is the hallmark of the integrated, online, real-time administrative system. Prospective donors, referral sources such as secondary guidance counselors, and applicants may

log on at any time of the day or night, even on weekends and holidays, receiving information at the time convenient to them.

A key part of this integrated administrative systems package, the institutional portal provides an individualized, "branded" look and feel. It also ties the administrative systems together with a common technology stack and support envelope, all of which enable your college or university to accomplish more with fewer human and financial resources.

Initially, using the Unified Digital Campus, an institution may strive to improve baseline services for its students by integrating academic and finance systems and offering access to online registration, grades, financial aid applications, and awards. The immediate return includes the elimination of long lines of frustrated students gathered in front of registration and financial aid offices. Long-term gains include improved efficiencies of time and staffing, and increased constituent satisfaction.

Successes with self-service access to information and library, bookstore, housing, and other applications may, in turn, spawn waves of new ideas and needs for advanced applications and personalized information relevant to students' academic goals.

Portal, Collaboration, & Community Solutions
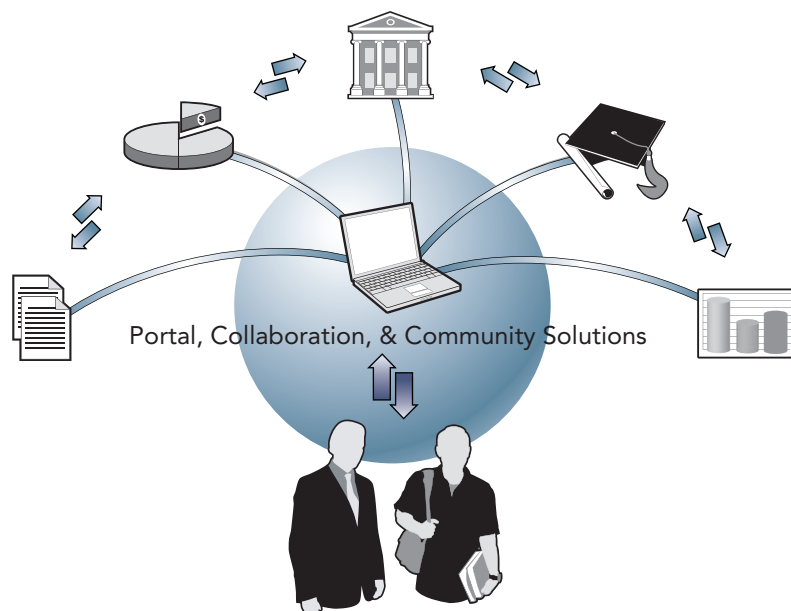
It may be helpful to think of this critical information technology investment in the same way you would think about a new building: both represent multi-million-dollar investments, and both will be an integral part of campus, visible to your entire constituency and symbolic of your college or university for a very long time. Continuing this analogy, a new building would have a fixed and pre-determined cornerstone; thus, you might consider that the absolute "cornerstone" of an information technology investment would have four corners of:

- ▸ Operating System

- ▸ Hardware

- ▸ Database

- ▸ Programming Language

Your insistence that these system characteristics be rooted in widely accepted standards is the only insurance you can count on to protect your investment. The long-term future of any application system is only as viable as the baseline systems on which it sits. The best application in the world will not work if the underlying technology is discontinued or fails to evolve.

When your investment is optimized, the long-term investment is protected, and the delivery of information is timely and accurate.

"A dedicated focus on technology to facilitate integration, service, and information accessibility will ultimately secure the future competitive advantage of an institution by improving the level of connectedness it offers to its constituents."

It is also important to note that while your service and business goals will drive the progression of the Unified Digital Campus, the technology with which you build the foundation for your Unified Digital Campus will determine its ability to expand and adapt to your college's evolving needs. When combined with an astute choice of a technology vendor, wise technological strategies can render virtually limitless possibilities for cultural change, increased efficiencies, and valuable, enduring constituent relationships.

Finally, it is important to view a Unified Digital Campus initiative not as a finite project but as an ongoing process. To this end, it is imperative that presidents become the champions of integrated systems for their institutions. A dedicated focus on technology to facilitate integration, service, and information accessibility will secure your college or university's competitive advantage by improving the level of connectedness it offers to its constituents.

Summary

Institutions today must wisely and continuously invest in campus-wide administrative systems to protect and enhance their investment in technology. This includes the implementation of integrated systems that operate on industry-standard computers, operating systems, and databases. Institutions should view these investments as long-term, with a life cycle of 18–20 years. An integrated system assures an institution that the needed applications will be maintained in sync with one another, thereby avoiding the need to maintain different systems. Thus, a single technology stack results in controlled managed costs.

About the Author

Dr. Earl D. Brooks, II, has served as the 16th president of Tri-State University in Angola, Indiana, since 2000. He previously served as executive vice president at Wesley College, Delaware, and as senior vice president at Lincoln Memorial University, Tennessee.

Since his inauguration, Dr. Brooks has led the aggressive master plan "A Vision for the Future," which has resulted in enhanced enrollment management, expanded academic offerings, significant physical plant additions and enhancements, and a record capital campaign for the institution.

An accomplished strategic planner and fund raiser, Dr. Brooks is an active member of a number of professional organizations, including the Council of Independent Colleges (CIC), the National Association of Independent Colleges and Universities (NAICU), Council for the Advancement and Support of Education (CASE) and the National Association of College and University Business Officers (NACUBO). Dr. Brooks earned Ph.D., M.S., and B.S. degrees from the University of Tennessee.

The New Learning Age and the Management of Online Curricula

By Dr. Walter D. Broadnax, President, Clark Atlanta University

As college and university presidents, we are charged with the responsibility of continuously advancing our campuses, molding them into dynamic educational environments. We owe our students nothing less than a transformational learning experience. However, with respect to integrating technology into the curriculum, the road has not been easy. As I have learned at Clark Atlanta University, a digital campus can prove to be either the Holy Grail or a Pandora's Box, depending upon the perspective of the end user. In this chapter, I aim to share some of our experiences as well as opportunities for improvement.

To address the changing roles and responsibilities that occur with integrating technology into the curriculum, a good start is the establishment of an academic technology center. The areas covered under such an umbrella could include, but not necessarily be limited to, academic instructional technology support, digital media services, technology and training services, technology infusion collaborations, and open-access computer lab support.

Instructional Technology Support

Instructional technology support helps faculty to develop and offer Web-enhanced courses and to increase the number of courses that utilize at least one of several instructional technology enhancements, such as course management software, audio/video conferencing, streaming audio/video clips, and videotaped lectures. New course management software enables instructors to provide centralized access for all students to any course in which they are enrolled. Content includes online syllabi, lecture notes, homework assignments, quizzes, video clips, and much more.

Digital Media Services

Digital media services assist faculty with live videoconferencing sessions, instructional technology equipment requests, and management of instructional media services. These technologies offer a cost-effective way for faculty to participate in professional conferences and seminars without ever leaving the campus.

Technology Training Services

Technology training services offer a comprehensive professional development training program, actively orienting and advising faculty, staff, and students in general systems, equipment, and software use. Levels of such workshops range from introductory to advanced, using tools such as quizzing, student grade book management, file management, and development of Web pages.

The academic technology center routinely seeks technology infusion collaboration opportunities with other centers and departments on campus. The goal of this collaborative effort is to recruit faculty members to serve as instructional technology mentors and to show other centers how to use technology to enhance their day-to-day activities. Individual consultations allow departments to receive information on database development, electronic forms creation and more. Faculty members then offer training on technology, while helping their colleagues to incorporate technology into the curriculum.

The academic technology center also provides classroom and open-access computing lab support. Throughout the semester, faculty members may reserve the labs to expose their students to technology during the regular class period. Students may also use the labs outside of class and receive assistance on any technology loaded on the systems.

"While these and other leading technology initiatives show great promise, they also present significant new challenges."

While these and other leading technology initiatives show great promise, they also present significant new challenges. Implementing the technical requisites of the new learning age requires tact and patience with some faculty and staff as they become comfortable with the unfamiliar process of integrating online curricula into their classrooms. However, in our

experience, once most faculty members have overcome the initial resistance to change, they wholeheartedly embrace technology as a challenging new learning tool, to students' great benefit. Indeed, many former skeptics are now trailblazers in the classroom, serving as models to their peers.

"Many former skeptics are now trailblazers in the classroom, serving as models to their peers."

Today's students, on the other hand, need no such persuasion. Having grown up with computers in their homes and schools, they are not only intimately acquainted with online technology, but have come to expect it in the learning process. By using new technology to increase the number of learning options available to these savvy consumers of technology, we not only meet their expectations, but also remain competitive within our national applicant pool as a result of upgrading our infrastructure.

While these examples represent the upside to implementing new technology initiatives, such actions also introduce a host of challenges. Providing adequate user support is one of the most formidable. In my experience, staffing shortages in the Infrastructure Technology (IT) area diminish its ability to keep the infrastructure up and running during the inevitable service interruptions. User support levels at many small- and mid-sized universities are well below those found in organizations and corporations of similar size and technological complexity. Along with other colleges and universities, we are finding it increasingly difficult to recruit and retain IT staff, in part because many, if not most, institutions without large endowments lack the resources to pay the market rate for IT professionals in business and industry.

Another serious challenge is how to ensure 100 percent student accessibility to the network. A great deal of thought and effort goes into maintaining the server in the first place. However, while it is one thing to provide access, it is something entirely different to facilitate it for all students. Although Web-based educational programs presuppose that participants can log on from their computers, in fact, on many campuses, a significant percentage may not own PCs. Computer labs on campus are typically in short supply relative to the demands of students needing access.

For those who do bring computers to college with them, another serious problem exists. Unfortunately, students today utilize many different types of computers and/or operating systems that are either incompatible with, or incapable of meeting, the system requirements for these new educational technologies. Simply having a CPU and a monitor is no longer

enough. A machine must have sufficient operational technology to receive, process, and disseminate countless bytes of information. This is compounded by the fact that a lack of uniformity in operating systems prevents some IT offices from implementing adequate anti-virus protection. Running these programs through the network will cause some students' computers to shut down altogether, while on others it simply will not work. In either case, without the standardization of operating systems and the virus protection it could bring, the fear of a catastrophic system crash is an ever-present concern.

Unfortunately, on many campuses with a high percentage of students on need-based financial aid, the onus for upgrades falls not upon the institution, but upon the very students who could most benefit from online learning. While most universities have made a significant investment in their servers and even in network upgrades, there is little in the way of technology available to offer access for students with antiquated operating systems. This means that students and their families must purchase computers and software capable of meeting the required specifications. Tuition, room, and board expenses rarely leave money available for "discretionary" purchases as substantial as a new computer.

As administrators, we must be mindful of such considerations. We want our students to stay abreast of the most contemporary technologies in education. At the same time, we do not want to move forward haphazardly, creating a digital divide on our campus. Doing so would unfairly penalize countless students while diminishing the quality of the educational environment by preventing full participation of all who desire to learn. While we are committed to blazing new trails, we must constantly seek inventive ways to prevent technology from becoming a divisive force.

Keeping abreast of technology, with all its tremendous potential and promise for the future of learning at all levels of education, will continue to demand our best efforts and a high degree of both creativity and flexibility.

About the Author

Dr. Walter D. Broadnax is president of Clark Atlanta University. He served as deputy secretary and chief operating officer of the U.S. Department of Health and Human Services and as principal deputy assistant secretary for planning and evaluation of the U.S. Department of Health, Education and Welfare. He was director of Children, Youth and Adult Services for the State of Kansas, and president of the New York State Civil Service Commission. He is a

member of the Return To Flight Task Group for NASA; member of the Governance and Guidelines Committee of the Southern Association of Colleges and Schools; immediate past president of the American Society for Public Administration; member of the comptroller general's advisory board for the U.S. Government Accounting Office; member of the Advisory Committee on Leadership and Management of the U.S. Department of State; and member of the board of trustees of Syracuse University. He was director and lecturer of the Innovations in State and Local Government Programs in the Kennedy School of Government at Harvard University, senior staff member at the Brookings Institution, and dean of the School of Public Affairs at American University. He also served as professor of public policy and management in the School of Public Affairs at the University of Maryland. Dr. Broadnax received his Ph.D. from the Maxwell School at Syracuse University, M.P.A. from the University of Kansas, and B.A. from Washburn University.

CHAPTER 10

Deploy Comprehensive Administrative Solutions

By Dr. William T. Luckey, President, Lindsey Wilson College

To remain competitive with other providers, compliant with regulatory organizations, and responsive to our constituents, we must gather, manage, and analyze massive amounts of data. As a constituent moves through our institutions of higher education, first as a prospective student, then as a student, and as an alumnus and donor, we collect and process data from admissions, student services, financial aid, business affairs, academic affairs, alumni affairs, and institutional advancement. With the ever-increasing complexity of higher education administration, we must use a comprehensive solution to manage these tasks seamlessly, efficiently, and accurately.

Departmentalization has become one of the greater strengths of the traditional organizational model of higher education administration. To manage the complexity in our organizations, we have found it necessary to develop teams with advanced, specific knowledge in each administrative area. However, it could also be said that departmentalizing, or in the worst of cases "compartmentalizing," has become one of the lesser strengths of higher education administration. The various departments must work together in a concerted, cohesive, and intelligent manner if we are to be successful in fulfilling the missions of our institutions.

The single most powerful IT tool available to unify the campus is ERP (enterprise resource planning) software. With a thoughtfully selected, diligently implemented, well-integrated, and passionately maintained ERP system, an institution can expect electronic data to flow seamlessly through our specialized yet inter-connected departments. Designed and operated correctly, ERP can be the vehicle that brings the campus together by providing the necessary administrative tools along with access to data managed and analyzed by several areas throughout the college.

According to the 2003 EDUCAUSE survey, administrative systems ranked overall as the number two issue facing colleges, surpassed only by IT funding challenges. The four areas of the survey were 1) importance for strategic success, 2) potential to become more significant, 3) time requirement, and 4) expenditure. Administrative systems ranked among the top three in all four categories. The nearly 500 institutions participating in the survey ranged from associate

level to doctoral level, small to large, private to public. This unified voice coming from diverse institutions shows that we are all making efforts to meet the expectations of our students and constituents while providing secure access to data both on and off campus.

Our prospective students have grown up in a world much different than the one most professional educators remember. Today's student has grown accustomed to instant access, remote capability, and immediate response. Gone are the days of long registration lines, waiting to see a professor for permission to enter their class, and physically walking from one office to another to clear all the hurdles on the registration track. Prospective students expect to be contacted immediately after expressing interest in our college. Students want to see their grades as soon as they are posted, not three days later when the mail arrives. Students demand to view and manage their student accounts online. Responding to these needs is no simple task and requires a comprehensive solution.

As challenging as collecting, processing, and analyzing student data has become, we must also remember that we have many other types of constituents and partners. Reporting requirements for government grants, foundations, and accrediting agencies have certainly raised the bar for our administrative effort. Donors now expect a level of responsiveness that places additional challenges on our staff. Alumni want to be able to stay connected to the campus through its Internet presence, and the college certainly wants to provide this connection. All of these constituents expect access on their timetable and on demand.

Successful selection, design, implementation, and maintenance of the ERP system can provide consistency and continuity across departments in their efforts to respond to the constituents' demands. The ERP utilizes a central database to collect and compare the information that is

"Successful selection, design, implementation, and maintenance of the ERP system can provide consistency and continuity across departments in their efforts to respond to the constituents' demands."

entered by each department. The application can cross-reference records, allowing each department to use the most up-to-date information without having to collect it. This ensures accuracy and improves efficiency. The database must be scalable, dependable, and able to support data mining and reporting features.

Commonality among data-entry routines allows cross-training opportunities and reduced training curves as staff members move from one department to another. A structured approach

to data collection, storage, and output allows each department to have a better understanding of the capabilities and possibilities throughout the various departments on campus.

It is extremely important that we deploy comprehensive administration solutions and avoid at all costs fragmented, redundant, and stand-alone systems across our campus. The greatest single strength of our enterprise software is its ability to process all the data and eliminate the

"It is extremely important that we deploy comprehensive administration solutions and avoid at all costs fragmented, redundant, and stand-alone systems across our campus."

need for fragmented record-keeping approaches. In the absence of a comprehensive solution, these stand-alone processes do not allow access to the data by other departments, do not provide consistent reporting capabilities, require redundant data collection, and are ripe with the possibility of error. In those rare and decreasing cases where a record-keeping system outside of the ERP is justified, care should be taken to ensure that common data is "passed" to the subsidiary record system and that the output is verified.

While "paperless administration" is a worthy goal, we must admit that an administration with "less paper" would also be a victory worth celebration. A comprehensive administrative solution through the ERP software provides for electronic data flow across departments. For instance, students are applying for financial aid online, authorizations are increased, and cash is transferred to the institution without a single piece of paper being printed. This is in stark contrast to the mountain of paper that would have been necessary to complete those transactions a few short years ago. The procurement cycle, historically requiring exorbitant amounts of hard copy documentation, is now performed electronically in most ERP systems. While the amount of paper output has been decreased significantly, the increases in efficiency and accuracy are arguably the most important improvements brought about by the new technology.

Budgets are commonly managed electronically with little or no paper output. Many ERP systems provide online budget collection processes that simplify this huge task. Budget management has been improved with the seamless integration within the procurement, payroll, cash receipts, and various other business cycles. The ERP provides the comprehensive administrative solution, allowing the data to flow seamlessly between departments.

Only a few years ago, technology integration may have merely involved having a few core applications that communicated well enough to minimize duplication of data-entry efforts. Now, colleges and their technology vendors are stretching to create a level of integration far beyond that. Driven partially by student demands for a "self-service" environment, systems

must now be more user-friendly, since staff members are not always present to assist users should they encounter bumps in the technology highway.

Today, unifying the digital campus involves making all functions of college administration available to our constituents immediately and on demand. According to Susan LaCour, senior VP, solutions development at SunGard Higher Education, "Integration will look very different on every campus. It's not a case of simply using a workbook or pulling a solution out of the box." While we must respond to the needs and demands of our constituents, we must set our goals even higher by striving to exceed those expectations. In higher education's effort to remain at the forefront of technological innovation, unifying the digital campus will be a prerequisite to meeting the needs of our constituents.

Whatever the technological challenges we may currently face, we know there is a vendor that offers the "perfect administrative solution" for our campuses. But remember, no matter how sophisticated the software, it is ultimately dependent on people to make it work. Our employees are responsible for entering data correctly and our people perform system maintenance and backup. Without the appropriate number of trained employees to adequately support the right administrative solution, the institution will only receive a fraction of the potential benefit.

About the Author

William Luckey is 1982 graduate of Wabash College in Crawfordsville, Indiana. He later earned his Executive M.B.A. and Ed.D. from Vanderbilt University. Now in his eighth year as president of Lindsey Wilson College in Columbia, Kentucky, Dr. Luckey has spent over half of his life in higher education administration—all at Lindsey Wilson.

He learned about his college from the ground up starting as an admissions counselor, before moving to vice president for enrollment management, vice president for development, and

vice president for administration and finance. His research interests include Ernest Boyer's Four Domains of Scholarship and how they are institutionalized at baccalaureate liberal arts colleges.

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