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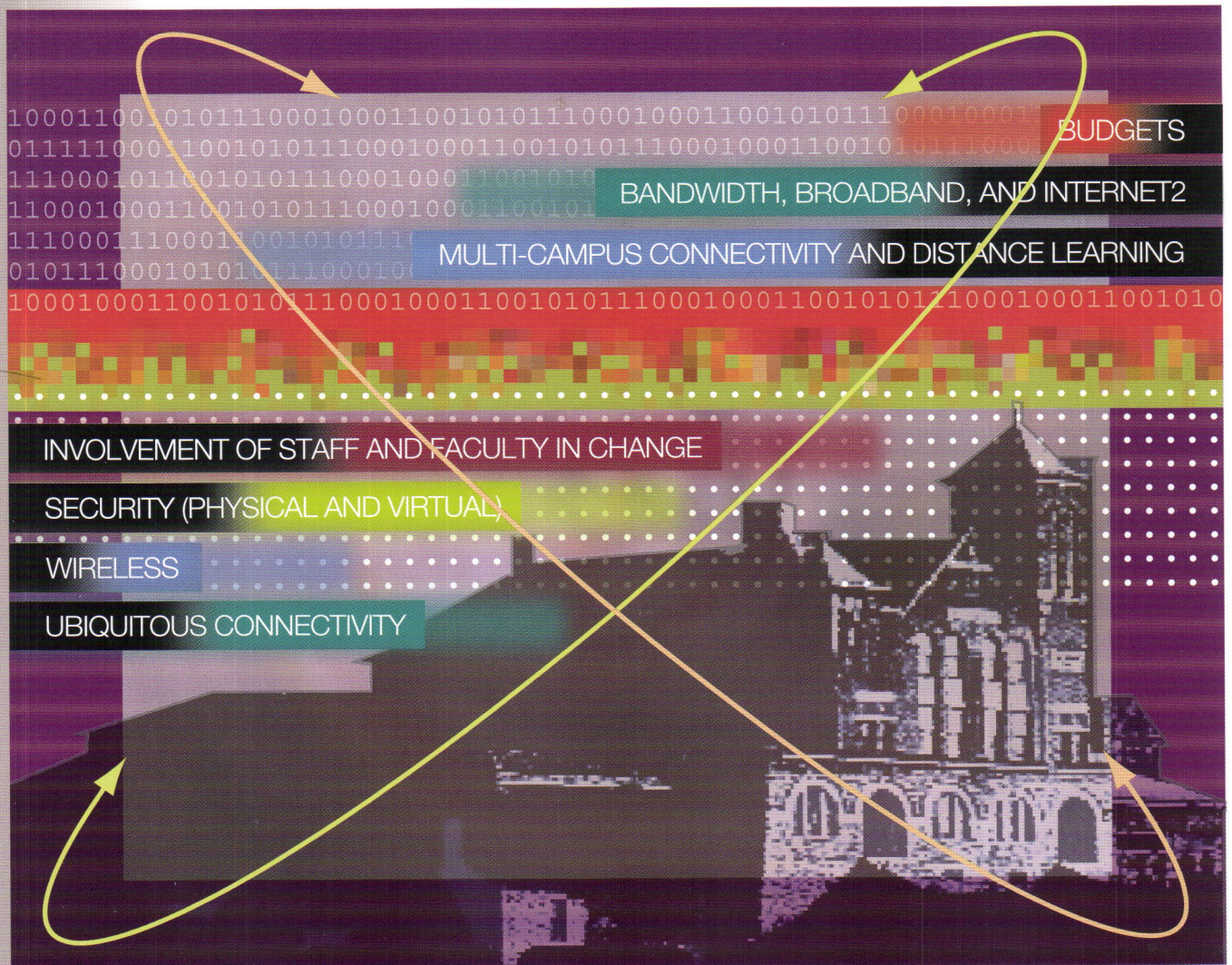
Special Issue 2004
Presidential Interviews

acuta

Journal

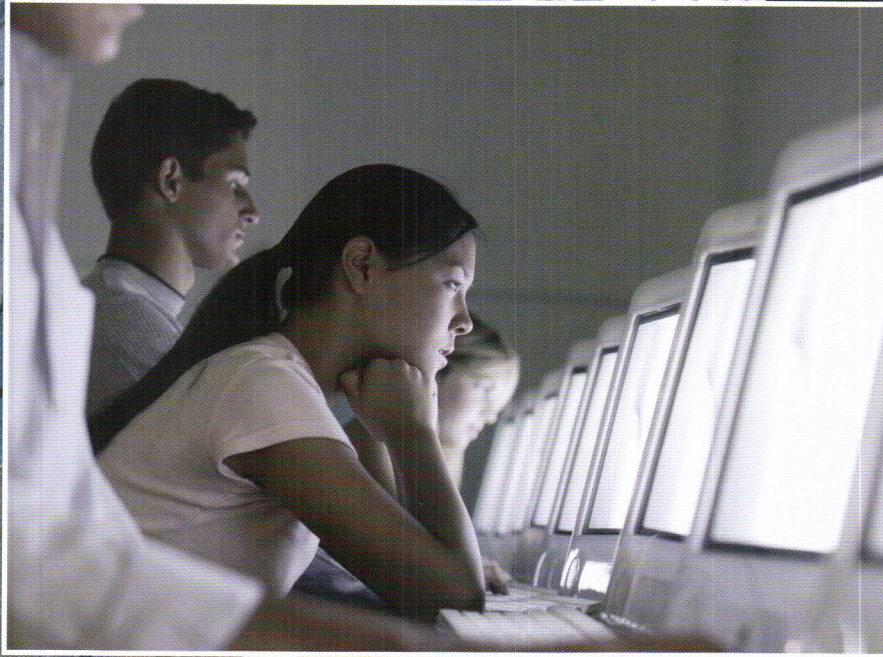
of Communications Technology in Higher Education

Published by The Association for Communications Technology Professionals in Higher Education



Special Issue: Interviews with Presidents

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An Introduction to the Special Edition of the *ACUTA Journal*

ACUTA is pleased to offer this compilation of interviews with eight college and university presidents as a resource for the ACUTA membership and the higher education community.

When we began publication of the *ACUTA Journal* in 1997, we also began the tradition in our very first issue of including interviews with recognized leaders in higher education or the communications technology industry. The majority of these quarterly interviews have been with institution presidents. We have striven to include a representative cross-section of large and small, public and private, academically and culturally diverse institutions.

We did this based on our belief that ACUTA members would gain insights from these interviews about the technology issues that are of concern to college and university presidents. While each of these leaders has different perspectives and priorities, they are all concerned about using technology in the best possible way to further the academic, research, and public-service missions of their institutions.

In these interviews, it becomes apparent that each of these presidents views communications and information technology as a strategic asset to his or her institution.

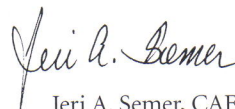
These leaders have been willing to invest time and university resources in technologies that play an important role in advancing the institution's ability to accomplish its mission and serve the campus community. They envision new possibilities based on technologies such as wireless and IP-enabled services, and they recognize the importance of both physical and virtual security of campus networks and information. They understand the need for network capacity to meet current and anticipated future needs, and they recognize that tomorrow's students will demand even greater access to technology. And they are concerned about intellectual property rights, privacy, and other regulatory issues.

These presidents also recognize and value the skills and dedication of communications technology professionals working on their campuses, and rely upon them for sound recommendations and implementation strategies.

Each of the interviews was conducted by members of the ACUTA Publications Committee and based on questions developed by the committee. The presidents received the questions in advance in order to give them time to deliberate on the issues. The interviews were recorded and transcribed by Patricia Scott, the *Journal* editor. Although some of these presidents have moved on to new assignments since these interviews were conducted, we have presented the interviews as they appeared at the time they were first published. The interviewees' biographies have been updated to reflect current information.

These presidents were generous with their time and candid in their responses, and we thank each of them for sharing their thoughts about some very important issues.

We hope that you find this compilation useful and that you will share it with members of your professional team and campus leadership. ACUTA's mission is to support higher education institutions in achieving optimal use of communications technologies. We hope that this special presidential interview issue of the *Journal* contributes to the achievement of that goal.



Jeri A. Semer, CAE
ACUTA Executive Director
September, 2004

2005 Events

Winter Seminars

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San Antonio, TX

- What's New in Telecom Technologies?
- Security, Risk Management, and Disaster Planning

Spring Seminars

April 3–6

Philadelphia, PA

- Next-Generation Billing for IT & Telecom Services
- Planning for a Converged Campus

34th Annual Conference and Forum for Strategic Leadership in Communications Technology

July 17–21

Forum Dates: July 18 & 19

Kissimmee, FL

Fall Seminars

October 30–November 2

Denver, CO

- Assessing the Value of New Technology Projects
- Supporting Student Use of Technology

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Curt Harler

A journalist who has specialized in technology for more than 15 years, Harler identifies trends and commonalities from among the 8 interviews in this special issue of the *ACUTA Journal*.

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Judith Bailey, Northern Michigan University Spring 2002

"But to look at how you, as a university president, transform the learning environment through the use of technology is daunting to some because the assumption is that the president has to understand all the inner workings of the technology. That's wrong."

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Molly Broad, University of North Carolina Winter 2001

"One of those emerging trends is wireless technology, which is developing as an increasingly important component of our infrastructure."

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Blaine Brownell, Ball State University Summer 2002

"Like so many other universities, we have identified the innovative use of technology as essential to advancing our mission, and it is a specific goal in our strategic plan."

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Patricia Cormier, Longwood University Spring 2003

"I think technology has provided us with the democratization of information. Access to technology today is unlike anything the world has ever known."

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Graham Spanier, Pennsylvania State University Fall 2003

"[T]here is no absolute right to pirate intellectual property. My advice to campus executives is to take responsibility and do the right thing—thoughtfully, legally, and defensibly."

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Shelby F. Thames, University of Southern Mississippi Summer 2003

"As VoIP and videoconferencing technologies continue to mature, the demand for fast and reliable wireless network resources will continue to increase—and at a dramatic rate."

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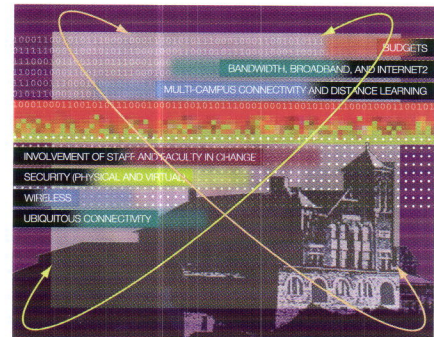
Lee T. Todd, Jr., University of Kentucky Winter 2002

"It's important to have a strategic plan, but if you don't communicate it, answer questions about it, and get people to start talking about it for you, then you're not going to be successful."

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Curtis J. Tompkins, Michigan Technological University Spring 2004

"We must continue to invest in our campus technology infrastructure. ...We recognize that much of our infrastructure development is not going to be funded by the state of Michigan, so we're asking corporations, foundations, and individuals for increasing support."



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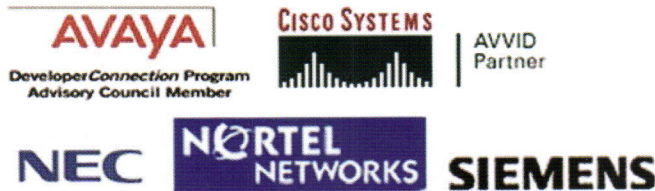
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University Presidents Note 7 Cardinal Points in Tomorrow's Technology

by Curt Harler

Curt Harler is a contributing editor of the *ACUTA Journal*. As a journalist he writes on technology topics for a variety of publications.

Across the country and a spectrum of colleges, university presidents are acutely aware of the role telecommunications and computer networking play at their schools.

Since it began in 1997, *The ACUTA Journal* has invited university presidents to participate in a colloquy on technology. In almost every issue a different president—whether from a large state university, a small technical school, or a private college—responds to questions asked in an interview about the implementation and impact of technology on their campus.

In this collection of interviews from eight recent issues of the *Journal*, all of these leaders show an impressive grasp of the current state of technology. Almost all merge the vision of their school's teaching and research direction and the roll-out of technology applications on campus. To them, technology and advancement run hand and glove.


ACUTA members would have little problem naming the top seven categories discussed by the presidents:

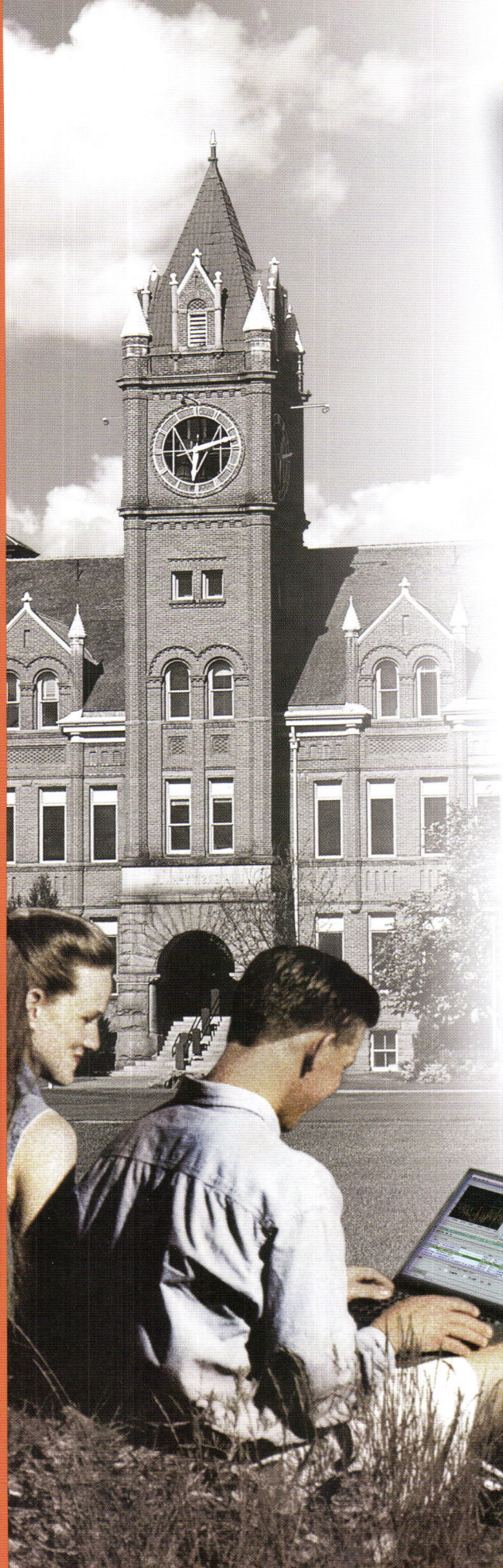
1. Multi-campus connectivity and distance learning
2. Bandwidth, broadband, and Internet2
3. Budgets
4. Ubiquitous connectivity
5. Security (physical and virtual)
6. Involvement of staff and faculty in change
7. Wireless

It might surprise some readers that budgets ranked third (by number of mentions), rather than first on the list. This simply shows that the presidents share the mindset of corporate CEOs: While acknowledging fiscal constraints, they are more interested in results than in nickels and dimes.

In fact, most of the presidents use industry-style examples in their interviews. University of Kentucky President Lee T. Todd said he looks at researchers in his Ag Extension as "a sales distribution channel." Todd says Extension "can sell the results of our research here at UK to our population. Those are trusted salespeople; they are ambassadors out there known by everyone in the county."

Some, like Curtis J. Tompkins, who recently stepped down as president of Michigan Technological University, hone in on alumni as part of their technology business plan. "Michigan Tech has alumni with almost any corporation that deals with engineering or sciences," he says, indicating that they expect to leverage that network back on campus.

All of the presidents were aware of the little things, too: They spoke of the need to answer e-mail. Todd was pleased with the calendaring and scheduling program Kentucky uses. 



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Here are some key points these leaders make about technology:

Multi-campus Connectivity, Distance Learning

"Do students want to stay nearer home or pursue their university of choice regardless of location?" asks Judith Bailey, Northern Michigan University. She says economics drives the students' decision. Multi-campus connectivity provides the solution, regardless of geography.

At the University of North Carolina, Molly C. Broad says she can't wait for the day when the diversity of UNC's campuses will spawn initiatives specific to their campus, using resources such as digital TV.

"Information technology and network connectivity are essential to all parts of our mission—instruction, research, and public service," Broad says.

Bandwidth, Broadband, Internet2

"I think the Internet and its successors and the whole concept of connectivity are still going to be preeminent in determining the shape of the future campus learning environment," says Ball State University President Blaine Brownell. "We don't know exactly what all those parameters will be, but it's going to be faster, more interactive, and more flexible."

Shelby F. Thames, University of Southern Mississippi, foresees the day when their current 11 MB wireless will not be sufficient. He is well aware that voice and data are converging and of the demand for reliable, fast communications.

"Broadband services to provide the affordable broadband big pipes" is Tompkins's goal.

The Michigan schools are partnering on Internet2, accessing

services such as SCOLA language classes from around the world. All of the presidents are enthralled with the idea of bringing educational and research content from afar onto campus.

Budgets

"Fiscal difficulties are a current fact of life," Brownell says. Although there would be a chorus of "amens" from other presidents, Brownell treats the situation as temporary. Yet there is concern: "Even with what might be considered adequate funding, making the right choices in the areas of technology and communications is challenging because it's very difficult to envision what the next big technological breakthrough is going to be and how it will change the whole nature of our infrastructure," he says.

One way to skirt the problem is to be creative with grants. Thames used money from the Department of Education's Title IIIA to boost a PDA (personal digital assistant) initiative, allowing faculty members to expand their wireless activity.

Ubiquitous Connectivity

"We are a technology-based campus," says Longwood University's Patricia Cormier. They were one of the first schools to require all freshmen to have a laptop—a "port per pillow," as she puts it.

Cormier, a small-university president, is concerned about connectivity in rural areas. "Phone companies, Internet companies really do not want to deal with institutions...that are not located near a major Interstate highway. We are going to have to change that," she says.

Once campus coverage is saturated, presidents look to expand their technology footprint. Thames is among those who welcome expanding connec-

tivity to downtown stores and other locations. All of the presidents agree that ubiquitous access to the Internet and university networks is vital.

Security (Physical and Virtual)

ACUTA members are concerned with two areas of security—physical and virtual. Not surprisingly, the two schools that recently dealt face-to-face with problems were the most vocal about the need to be prepared.

Longwood's Cormier, recalling a disastrous fire that destroyed four buildings in April 2001, is understandably preoccupied with physical recovery. Should any administrator be undecided about the need for recovery planning, her remarks offer the perspective of first-hand experience.

Penn State was thrust into the Napster controversy, and Graham Spanier says he doubts the solution to illegal use of P2P file sharing will be purely technical.

Spanier's networking concerns go beyond unmanaged file sharing. He acknowledges that university presidents must deal with terrorism, the U.S. Patriot Act, and Homeland Security mandates. "If we handle it carefully and professionally, I don't believe that any of this needs to affect the ability of the academy to remain a forum for expression, learning, and debate," Spanier says.

Part of the solution is getting the word out to the right people in a timely fashion. "How we communicate in the midst of a crisis and how we ensure the safety of people on our campus is critical," Bailey says. She notes they have upgraded and strengthened aspects of the network at a financial cost.

"I believe academic leaders must participate in a risk assessment and in

evaluations of their campus network's vulnerability in order to make informed decisions about funding," Broad says.

Involving Faculty, Staff in Change

If staff and faculty need to be informed in times of crisis, they certainly should be involved in emerging IT and telecom upgrade or implementation decisions. Nobody blamed network staff for not trying. Most presidents agree with Bailey who points the finger the other way: "Many senior administrators are less comfortable leading change that involves technology than almost any other," Bailey says.

That mindset can create headaches for ACUTA members, but the university presidents see a way around it.

Broad says faculty involvement is crucial: "Involving the faculty is key and the primary step that IT leadership must take to overcome the cultural barriers and resistance," she says.

Penn State has embraced e-commerce in its business services. Spanier cites the move to do all basic student services online. Alumni and friends get the school's daily newsletter online, another way to ease the entire university community into technology.

Tompkins is proud of the fact that his college is very applications-oriented in its research. At a technical institution, the job of selling technology might be easier than at a liberal arts school.

Wireless

In Summer 2003, Thames said the University of Southern Mississippi had more than 500 access points in 70 buildings linked on a wireless network. That was expanding to the married-student housing and other areas. When completed, all major sections of the

Hattiesburg campus will be linked wirelessly.

He admits they first saw wireless as a way to duplicate hard-wire functionality at lower cost. Now he trumpets the ease of mobility, cost savings when physically moving computers around campus, and constant connectivity.

Other areas

While the seven major areas were cited by most of the presidents, all had technology focuses of their own. Tompkins talks about nanotechnology (studying and manipulating atomic-level structures that are one billionth of a meter in size) on campus.

It is only recently, if interview trends are to be believed, that VoIP (voice over IP) rose on presidents' radar. Perhaps the higher awareness is

because several schools are expanding VoIP offerings and it is an active, ongoing project.

Yet all of the presidents, at some level, recognize the truth in Bailey's observation: "Technology is a tremendous tool—and I want to emphasize that technology is a tool and not the end result of teaching and learning—but it certainly is a major facilitator."

This collection of interviews tells where the leaders of several major colleges see the future. It provides valuable insights for those responsible for planning the design and deployment of the network technology necessary to meet those visions.



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Judith Bailey Today

Dr. Judith I. Bailey began her tenure as the seventh president of Western Michigan University June 9, 2003. Bailey came to WMU from Northern Michigan University where she had served as president since 1997.

Bailey is a longtime higher education administrator who established a reputation at NMU both in the area of fund raising and in promoting the use of technology on campus. She is credited with success in leading that school's first comprehensive capital campaign past its goal, and she spearheaded a campus initiative in 2000 that put laptop computers in the hands of every full-time student.

Judith Bailey, Ed.D.

Northern Michigan University
Spring 2002

ACUTA: Having climbed the ladder from high school teacher to college president, what attributes, skills, or experiences do you think have made the most valuable contribution to your success?

Bailey: I believe that it is my ability to recognize that I can learn a lot from others, and I seek their input, sort through it, digest it, and then make a decision and move on. I try to remain open to new ideas and ways of doing things, and I surround myself with people who are creative, willing to look at these new ideas and take the risks necessary to put them in place. I enjoy the strategy part of leadership needed to make major change happen.

ACUTA: NMU's website states that "the Mission of Northern Michigan University is to form an academic community where the best teaching and learning are available to those in its programs." How can information technology and telecommunications professionals on campus participate more effectively in the accomplishment of this mission?

Bailey: Technology is a tremendous tool—and I want to emphasize that technology *is* a tool and not the end result of teaching and learning—but it certainly is a major facilitator. For us at Northern, technology has been used to make sure that we have closed the digital divide for our students by giving all students the same access to information and communication.

Our IT professionals have been outstanding, and one of the things I try

to do is to recognize them for the skills they bring to the table. I do not take any credit for having put in the IT infrastructure. We've used technology both to enhance our administrative services and to make them more user-friendly.

Also, technology has streamlined our efforts, freeing up staff to spend more time face-to-face helping students. Registration is now almost 90 percent online. Technology has been a tool that has allowed the faculty to reorder the learning tasks and put more time on interactive opportunities with students.

ACUTA: To survive in today's rapidly changing world, organizations and institutions must continue to innovate. Research indicates that the average corporation today earns approximately 33 percent of its revenue and 60 percent of its profit from products and services it did not sell or offer five years ago. What new and innovative projects has NMU initiated that you are most proud of, and what leadership qualities do you feel have contributed to the success of these initiatives?

Bailey: The question being discussed as I came to Northern was "How do we achieve ubiquitous computing?" We have come from that question to the Teaching, Learning, and Communication (TLC) initiative, a tool being the laptop. That has been our greatest innovation in the last five years because it has transformed the learning environment in and out of the

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classroom. With each student having access 24/7 to technology, they are able to have a very connected learning environment—one that reaches beyond the confines of campus. As you walk around campus, it's evident that there's an excitement about learning, about reaching beyond the shores of Lake Superior to the world and bringing in interesting opportunities. We've partnered with Michigan Tech on Internet2, accessing resources that we haven't had before. We are now using Internet2 to bring in SCOLA language classes from around the world.

ACUTA: Campus research initiatives involving genomics, biotechnologies, and nanotechnologies carry with them an air of controversy because they manipulate human organisms rather than machines. What guidance do you offer to campus leaders on how to decide and balance the moral, political, and ethical issues against the promise these technologies offer for efficiencies in our organizations, cures for disease, reduced human suffering, and longer life?

But to look at how you, as a university president, transform the learning environment through the use of technology is daunting to some because the assumption is that the president has to understand all the inner workings of the technology. That's wrong.

Bailey: Those really are difficult balances. Northern is not a research-intensive institution. We do occasionally get into these dilemmas. The primary criterion is Are we doing what's best for our students? Are we complying with all the research, protocols, and regulations, and particularly have we discussed the possible moral and ethical issues surrounding a controversial type of research among the faculty, administration, and then me with our governing board so that there are no surprises? Making a decision to move forward is one thing; having people surprised by the intended or unintended consequences of that decision is another.

ACUTA: At a time when customers have more choices than ever and the longest economic expansion in U.S. history comes to a close, what advice do you offer to aspiring managers and leaders on how to be successful in today's world of fierce competition and tight budgets?

Bailey: Universities have always had some sense of fierce competition and tight budgets, but it certainly has been enhanced recently. My personal advice is to focus on your core mission. Key to success is having quality academic programs, providing personal attention to the students, and using technology to enhance the learning environment and services. Budget decisions need to be based on whether or

not they are going to move the core mission and vision forward and should be evaluated against goal achievement.

The other piece of advice is not to back away from making essential investments. Rather than impose across-the-board reductions, what are those programs and initiatives that need to be held harmless? Can you use these times as an opportunity to reconfigure or redefine how you carry out that part of your mission?

ACUTA: Clearly the tragic events of 9/11 forever changed the way Americans approach work and their personal lives. What advice do you offer on how to manage and mitigate such risks at colleges and universities? What are the long-term economic implications for colleges and universities?

Bailey: My colleagues and I struggle with what those long-term consequences are because we are not sure whether the immediate reactions we saw at the end of 2001 are going to translate into different attendance patterns by college students in 2002 and beyond. The question is: Do students want to stay nearer home or pursue their university of choice regardless of location? How families are balancing these decisions is unknown; we're all just waiting to see what trends emerge. Right now we're not seeing a dramatic shift at all.

The issue of economics certainly drives student choice. I think we will see more decisions based on costs rather than on national security issues.

Universities should have crisis plans in case of terrorist attacks or other crises. How we communicate in the midst of a crisis and how we ensure the safety of people on our campus is critical. At Northern, we have reviewed our policies and have upgraded and strengthened those where necessary. Some of those require financial investment.

ACUTA: Most leaders and senior administrators consider uncertainty a major obstacle to success in today's tough economic time. How has your campus approached crafting strategy to guide it in creating value and boosting institutional success in an uncertain world? How important is creativity to the planning process, and how do you promote it?

Bailey: I would first take issue with the premise that uncertainty is a major obstacle, because I'm not sure anyone would move forward if we all waited for calm and secure environments.

The best strategy for moving forward is first to be clear about the primary goals you want to achieve and how they fit with your mission and vision statement. Have a lot of dialogue on campus, whether you use a strategic planning team or a presidential council. Go beyond that smaller circle of input we

are all comfortable with and get broad input around what the priorities are, how and where to invest, and how to move forward.

As we implemented the Teaching, Learning, and Communication initiative, we were successful only because we were able to have lots of conversation about the pros and cons, the value added, and where investments would be made. While there was not total agreement in every area, there was an opportunity to understand what was behind decisions. These actions built morale and created a focus on understanding what the key goals were we are trying to achieve in the next few years.

A colleague of mine says, "Communicate, communicate, communicate," and I would add to that make sure your communication is focused, it has a listening component, and then actions occur after communication and listening.

ACUTA: Are there any other comments you would like to make regarding leadership issues as we look to the future?

Bailey: Many senior administrators are less comfortable leading change that involves technology than almost any other. They'll lead a new construction project, they'll lead a change in an academic curriculum. But to look at how you, as a university president, transform the learning environment through the use of technology is daunting to some because the assumption is that the president has to understand all the inner workings of the technology. That's wrong.

What I do is surround myself with people who are competent and whose advice I can trust. Then we make sure that we have put in the infrastructure, invested in support mechanisms such as excellent technical staff, hardware, and software, and in the support to help faculty examine how technology can be used in the teaching/learning environment. I didn't need to know all those answers. As the leader I needed to be able to put together teams that could bring those answers to the table and then be willing to take the risk and have the confidence that they had enough knowledge to successfully carry out their responsibility within the overall plan.

ACUTA: Would you say that choosing the right people to work with is the key to success?

Bailey: Yes, and they can't always be people who will tell you what you want to hear. They have to be individuals who are strong personalities who have skills that complement your own. They should be people that you can work with very openly and honestly. The team can agree to disagree until you walk out of the room, and then everyone agrees. I have been blessed by having been mentored by such people and by having the opportunity to surround myself with outstanding people. Sometimes you have to create that team; you don't just inherit it. That's a little harder. But the dividends are worth what you go through to achieve a cohesive team.



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Molly Broad

University of North Carolina
Winter 2001

Molly Broad Today

Molly Corbett Broad has served as president of the 16-campus University of North Carolina since July 1997. The oldest public university in America, the University enrolls 163,000 students and encompasses all of the state's public institutions that grant baccalaureate degrees, along with affiliated enterprises that advance the mission of the University.

A native Pennsylvanian and the daughter of two public school teachers, Broad graduated Phi Beta Kappa from Syracuse University in 1962 with a baccalaureate degree in economics from the Maxwell School of Citizenship and Public Affairs. She holds a master's degree in the field from Ohio State University.

ACUTA: Considering the strategic importance of campus networks to teaching, learning, and research, and the dramatic increase in Internet attacks, what advice do you offer to presidents, provosts, and other senior leaders struggling with the complexities and costs inherent with providing a robust and secure campus network? How can academic leaders be involved in this deliberation process and other technology strategic planning initiatives on campus?

Broad: Academic leaders know very well that information technology and network connectivity are essential to all parts of our mission—instruction, research, and public service. While many campuses are still struggling to ensure fundamental connectivity for faculty, students, and staff, all of higher education is certainly challenged to augment the basic resources with security. I believe academic leaders must participate in a risk assessment and in evaluations of their campus network's vulnerability in order to make informed decisions about funding and where to place their investment in information technology.

ACUTA: As a result of the impact of the Web and the network on the classroom, content development, and instructional delivery, what emerging trends do you believe will have the biggest impact on UNC and other campuses? What sort of innovative applications is your institution currently exploring for using the Web

to support—whether that be teaching, planning, research, or public service?

Broad: One of those emerging trends is wireless technology, which is developing as an increasingly important component of our infrastructure. The role of wireless devices in teaching and learning is receiving a great deal of attention across every single campus of the University of North Carolina. In fact, all of our 16 campuses have implementation plans for wireless networking, and pilots for using PDAs and other kinds of wireless technologies in the classroom are underway on 10 of our 16 campuses.

We are also exploring the uses of digital television as components of the array of delivery solutions for instruction. The University of North Carolina has an 11-station network of public television, which we are well along in digitizing. Internet traffic and use continue to grow, at least doubling annually, and Internet technology is becoming steadily more fundamental to our activities.

The fact that the Internet bubble has burst presents us, however, with a number of challenges, one of which is the lack of private sector funding for exploring and deploying what we believe are rapidly emerging opportunities.

ACUTA: What are your views on the strategic importance of broadband technologies, whether they be wireless or wire technologies? What will be the impact of these technologies in the

future as they relate to research, public, service, and instructional delivery?

Broad: Bandwidth requirements will continue to grow and, therefore, will have an increasing impact on instruction and research. Initiatives such as Internet2 and the emerging K-20 state networks (which are growing rapidly), grid technologies, and advanced networking services can be expected to provide reliable and even more affordable means for faculty and students to teach and learn as well as to conduct research. So, I believe the expansion of bandwidth availability will be met with increased opportunity for its use.

At a university like [UNC] where we have a number of very diverse campuses, the uses of bandwidth will be quite different from one campus to another. We have large research universities, a small liberal arts institution, a school of the arts, a school of science and math, historically black institutions, and comprehensive universities. It is vital that the learning and research occurring across the system be responsive to the unique and special needs of each of these constituent parts of the University. So there are great differences among our campuses in the uses of bandwidth.

The University of North Carolina is working to expand participation in research and to bring bandwidth-intensive content into our classroom, making it accessible on the Web. This, I think, is central to efforts to maintain the quality of our instruction and to support the technology transfer activities on the campuses of UNC.

I want to go on to say something more about Internet2, if I may. Let me start by saying how important it is that the National Science Foundation (NSF) is now providing leadership that will promote what they call their cyber infrastructure vision as a whole new way of conducting scientific research using virtual laboratories and instruments that are networked together, creating opportunities to assemble data and other resources widely and distributing that in ways that could not have been done before. The NSF Terascale Project is going to provide important new capabilities for broad access, and the update recently announced by Internet2 of the Abilene Network into dense wave multiplexing is yet another example of important expansion in bandwidth.

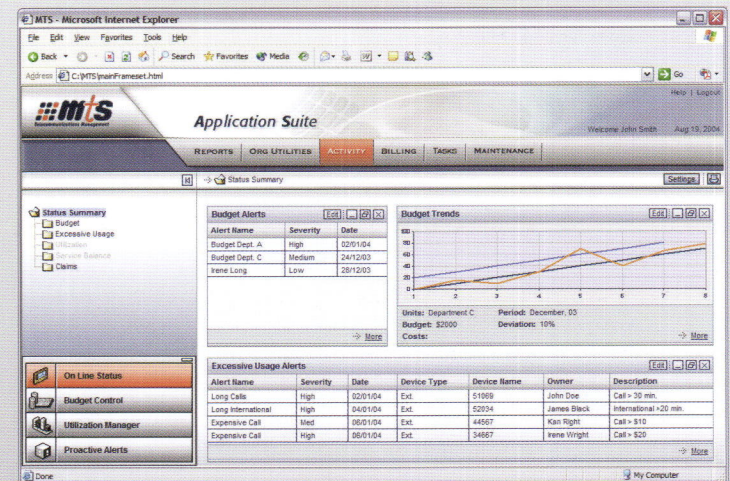
I think increasingly we must acknowledge that modern science and research uses information technology and advanced networking as the fundamental scaffolding on which it is constructed. Our visions about what is possible, given emerging bandwidth, are likely to be constrained only by a budget and by our ability to convince policy makers about the important opportunities that would flow from expanding bandwidth. ▶



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ACUTA: What challenges do chancellors, presidents, provosts, and other senior leaders have with developing an integrated strategy for dealing with e-business, e-learning, research, and public service?

Broad: I believe we face enormous challenges. Let me cite three of them. First, many of our policies and business practices are going to have to be revamped to e-enable our institutions; and universities, I believe, must continue to push inefficiencies out of our business practices and enhance the effectiveness of our relationship with

initiative on our own. The for-profit institutions and, I believe arguably, community colleges could lead the way because they respond more quickly to expressions of needs on the part of prospective students or what they might call their customers.

ACUTA: Research indicates that the toughest challenges in exploiting technology in the classroom and content development will be people and culture related. As you've alluded to earlier, changing the culture on our campuses is very important. Given this, what would you say are the key

instruction. I am thinking of organizations like the National Learning Infrastructure Initiative.

Another one that we are involved in is MERLOT, the Multimedia Educational Research for Learning and Online Technology. Those are important strategies for understanding the value proposition for e-learning. I am very interested in the Army's online initiative to see what we may learn about the vision, the strategy, and the value proposition from that significant and well-funded project.

ACUTA: Sometimes faculty have been reluctant to embrace the use of technology in teaching and learning for various reasons (intellectual property considerations, lack of reward system, technology complexity). What are some of the best practices that campuses have used to overcome this resistance?

Broad: Involving the faculty is key and the primary step that IT leadership must take to overcome the cultural barriers and resistance. At the University of North Carolina we have developed an intellectual property framework that enables each one of our campuses to develop and implement a balanced policy for intellectual property. So having a good, balanced, well-considered, and well-understood intellectual property framework is one of the key components to the efforts to secure support from faculty.

Collaboratives such as our Teaching and Learning Technology Collaborative are yet another way to interact directly with faculty through campus-based centers that provide easy access and the opportunity to engage in professional development. Academic leaders within the University of North Carolina are also working on innovative reward systems to encourage faculty to adopt instructional technologies.

ACUTA: Convergence is believed by some to be a revolutionary step in the migration and management of different communications streams:

One of those emerging trends is wireless technology, which is developing as an increasingly important component of our infrastructure.

students, faculty, and alumni in ways that e-business will make possible.

The second challenge relates to a combination of campus culture, governing structure, and resource issues, all of which present enormous challenges to higher education leaders. But I also am optimistic that universities are places where good ideas and best practices are very contagious. At the end of the day, it is more likely that the people must be transformed, not the technology.

Third, universities must remember that it's not necessary for us to handle every single aspect of content development, course administration, support services, and instructional delivery. We don't have to do all of that internally within the university. I am a great supporter of partnerships, and there are many viable models of consortia and outsource service models that we should consider. I believe consortial arrangements and partnerships have tremendous potential because none of us has access to all of the necessary risk capital to launch the e-learning

elements of an effective vision and strategy and value proposition for campuses as they grapple with a new environment that includes e-technology, e-learning, and e-commerce?

Broad: I believe that question is among the most important and one for which there are not completely clear answers. We are still experimenting with strategies and the value proposition. The University of North Carolina has established a Teaching and Learning with Technology Collaborative among all of our 16 campuses. I believe this is one important strategy. Its objectives include leveraging existing efforts on our campuses in instructional support of faculty, professional development, content creation, and course management.

One of the focus areas for our Teaching and Learning with Technology Collaborative is assessment. Seven of the campuses of UNC have been using tools to assess the effectiveness of instructional technology, and there are several ongoing efforts within higher education more broadly to evaluate the effectiveness of the use of technology in

voice, data, video, and other media. What impact will convergence have on the classroom, e-learning, content development, instructional delivery, and other innovative campus initiatives?

Broad: North Carolina had one of the very first networks for data and video in the nation. And we are deploying voice and video over IP where this technology makes sense. So we are doing some significant experimenting with IP networks.

One impact this has had is that the network has been a part of instructional delivery for some time; and as this convergence progresses, our institutions rely on a robust and secure network more than ever, which brings us back to the original topic you raised, the importance of achieving security in the network and of having access to a robust network. Again, the diversity of our campuses will spawn initiatives that are specific to their campus, but as more resources become digital, I am confident that content and new delivery options will continue to emerge.

One area that is of burning importance to me is in teacher education. In North Carolina, as in a number of other states, we are facing a daunting crisis in the gap between the demand and supply of well-prepared, high-quality teachers. I think education is the defining domestic policy issue for this nation. Collective investment and priority attention to e-learning can make a very important difference in the preparation of teachers, but also in the ongoing professional development of teachers.

Teaching in our schools can be a very intellectually isolating experience. If we want these professionals to sustain their knowledge and awareness of pedagogy and their intellectual understanding of the content they are teaching, I believe we can effectively use e-learning strategies. So it is my hope that we can find, with access to all of these new tools, the resources and commitment to try to address these important issues.

At the top of my priority list is to try to figure out how we can respond to this very strategically important issue by using some of our new capabilities in information technology. As much as I think it is important for our armed forces to advance their understanding of mathematics and science in the digital world—and increasingly the impact of that is very significant to our national security—I think it is also important that we find expanded ways to increase the pool of well-qualified teachers and then provide the means for keeping them up-to-date in their profession.



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Blaine Brownell Today

Blaine A. Brownell, president of Ball State University in Muncie, Indiana, when this interview was conducted, became the first full-time Chief Executive Officer of U21pedagogica February 1, 2004. U21pedagogica is a wholly owned subsidiary of Universitas 21, an international consortium of 17 leading research universities in 10 countries.

Prior to his service at Ball State, he held a number of academic posts at the University of Memphis, the University of North Texas in Denton, and the University of Alabama at Birmingham. He holds M.A. and Ph.D. degrees in United States history from the University of North Carolina at Chapel Hill, and a B.A. degree from Washington and Lee University in Lexington, Virginia.

Blaine Brownell, Ph.D.

President, Ball State University
Summer 2002

ACUTA: Public institutions throughout the United States are facing cutbacks in state funding that are causing some institutions to make major cuts in planned capital and operating expenditures. Do you foresee these financial constraints as long term or short term, and do you believe they will affect the institution's ability to make strategic technology investments? Do you envision ways in which the use of technology in teaching, research, or administration can improve the cost-effective delivery of services?

Brownell: In Indiana, as in most of the rest of the United States, fiscal difficulties are a current fact of life. But difficulties like these are not entirely new to those of us who have been in higher education for some time. I don't think our current fiscal circumstances are a long-term situation. I see these budgetary constraints as tied to the economic downturn, and I believe the economy will rebound. Certainly that's my hope—that we will return to more normal levels of state support for higher education.

In terms of strategic technology investment, I think it's simply going to get more and more challenging because technology is moving so rapidly. Even with what might be considered adequate funding, making the right choices in the areas of technology and communications is challenging because it's very difficult to envision what the next big technological breakthrough is going to be and how it will change the

whole nature of our infrastructure. We're always headed into an uncertain future, which makes it exciting as well as a little frustrating. Institutions of higher education are major consumers and often also producers of technology and technology-related products. The concern then is to be looking constantly at all of the pieces of the technology infrastructure—how they relate to each other and how they fit into the broader picture (which is now global)—and to try to make the best possible decisions as we move ahead, knowing all the while that we'll never have adequate resources, no matter how good the funding is, to do everything that we'd like to do.

ACUTA: That certainly seems to be one of the challenges—the candle, if you will, being burned on both ends. Students, in particular, are very demanding consumers. They want a whole lot more than the previous user group, and they want it for a whole lot less. It's almost impossible to satisfy both sides of that candle.

Brownell: There's an irony here in that technological innovations are truly labor-saving devices that can enhance productivity, and they also create many new possibilities and demands. Let's look at processing power. As the first personal computers saved us time and made us more productive, prices began to drop. But people created new ways to use this computing power that they simply wouldn't have attempted before they had the new capacity. This

spawned greater expectations, with demands for more powerful processors and even higher productivity. Every amazing solution seems to create new challenges and higher expectations. You always feel like you're just behind the last curve and trying to get into the next one.

ACUTA: What challenges do chancellors, presidents, and other senior leaders face in developing and selling campus constituents on the strategic importance of campus networks to teaching, learning, and research? What is your vision of the future campus environment at Ball State? If we want to take the Internet, and ultimately, the U.S. economy, to the next level as it relates to e-business, e-learning, e-government, e-health, etc., what are the major hurdles to be overcome?

Brownell: I don't really have any difficulty communicating to any of our principal constituencies the importance of technology and our connection to the Internet as it relates to teaching, learning, and research. Ball State was one of the first universities to wire the entire campus with fiber optics and connect classrooms to central multimedia sources so that faculty members could call up these teaching enhancements for their courses. It was a remarkable project and resulted in some national recognition for Ball State. As a result of that, our constituencies, though they may not understand all the details, clearly understand that technology and communications networks are vitally important to the university's future.

Like so many other universities, we have identified the innovative use of technology as essential to advancing our mission and it is a specific goal in our strategic plan—and we are constantly talking about it.

To be successful, the future campus environment at Ball State must be rich in technology. One important point I try to make, one that I find many

people have not thought much about, is that there is not a pecking order of institutions where you're supposed to have this much bandwidth at a research university and this much bandwidth at a comprehensive university. Although we are not MIT or Cal Tech or even Purdue, the fact of the matter is that all universities are under similar pressure to provide effective and flexible technology infrastructure and networks, at a high level of sophistication, to students and faculty, whatever our mission or size.

All institutions are affected by our migration into the digital age, and we're often finding that our structures and our definitions don't accommodate the new realities. Distance education, for example, used to mean something delivered to specific, identifiable sites. The Web has changed the paradigm and put us all into one huge network. Even our governing bodies—the regional accrediting associations and state commissions of higher education—are simply trying to cope with all the changes that have occurred in distance education and in even defining what constitutes distance education. Ball State has not made a major commitment to distance education, yet we have a nursing degree that is offered entirely online, and we're moving several other degree programs in that direction. And a very large number of our courses make significant use of the Internet even though they are primarily on-campus courses.

I think the biggest hurdle for all of us is maintaining the energy to constantly look forward. No one seems to be skeptical about why we need technology in order to do a good job as an educational institution; however, I do struggle somewhat to get people to think about the next challenge rather than the previous one.

ACUTA: Do you have a vision of the future campus at Ball State? Looking down the road ten years, what do you see happening?

Brownell: I learned long ago that when it comes to technology, ten years is like the next century. I think three or four years is as far as we can look ahead. We are in the process of creating an entirely wireless networked environment and making it available to people on campus. I suppose that the burden of proof would be on anybody who would suggest that wireless is not the wave of the future based on what we can see now. But it is just another form of connectivity, albeit perhaps the most flexible form.

I think the Internet and its successors and the whole concept of connectivity are still going to be preeminent in determining the shape of the future campus learning environment. We don't know exactly what all those parameters will be, but it's going to be faster, more interactive, and more flexible. We plan to be part of that. We want our academic programs to be actively involved in contributing to this revolution, and we want all of our programs to take full advantage of opportunities that these innovations will provide.

ACUTA: Although broadband services are estimated to be available to over 70 percent of U.S. households and are said to be redefining how we work and play, usage rates continue to be relatively low at less than 12 percent. What are your views on the strategic importance of broadband services? What are the major reasons for this lack of consumer demand and what "killer applications" would spur greater usage rates?

Brownell: Very good question, and it is a little curious that we have all this capacity and a relatively small percentage of people taking advantage of it. I was taken aback to learn what a low percentage of people filed their tax returns electronically given how easy it is with all the software packages that are out there, and given the fact that you get your refund back more quickly. ▶

In any case, like many other universities, we are working with our local community to try to create a much richer broadband environment all around the institution with the notion that this will enhance our ability to do things as well as to deliver services and programs to the community. I believe entertainment-related products will play a major role in increasing broadband usage because they will interest more people. When a

Like so many other universities, we have identified the innovative use of technology as essential to advancing our mission, and it is a specific goal in our strategic plan.

medium is developed where television, streaming video, educational products, and other forms of mass entertainment are controlled from one source, I believe usage will rise dramatically.

Ball State received a \$20 million grant from The Lilly Endowment for what we call "The iCommunication Project." The "i" has many meanings, including "individual," "interactive," and "international." The project is dedicated to exploring the content elements of the new digital universe and the possibilities created by Disney, TimeWarner, AOL, Microsoft and, in general, the confluence of entertainment and information. One of the underlying assumptions is that when entertainment and information become even more entwined, there will be synergies that we don't yet envision. Our iCommunication project is designed to foster ideas in the anticipation that those unrealized synergies will become reality through our research.

ACUTA: The Cyber Security Research and Development Act authorized over

\$800 million over the next five years for cyber security research and development to improve homeland security and vulnerability assessment. What programs and areas of research at Ball State may be supportive of this new funding initiative to improve homeland security and vulnerability assessment?

Brownell: There are aspects of the iCommunication project that would have some bearing on these issues, but

it is not primarily directed at them. Any time you talk about content and delivering products in this new environment, you also have to be concerned about intellectual property rights and other related issues. We have faculty who are working on software reliability, which is, at one level, simply making sure that the software operates correctly by working out all the bugs. But it also relates to issues of vulnerability to outside interference. This is going to be a huge industry in the future because it's almost a mirror of our society as a whole. Our society is benefiting from the enormous creative spark that you get from having an open, transparent, connected, and flexible system. But all those characteristics taken together also make us vulnerable to people who have bad motives and wish to bring the system down. I don't want to make an unnecessary comparison to the 9/11 attacks and the insights we've derived from them, but I think our communications and technology networks are

now being examined in light of those events.

ACUTA: Certainly considering the creation of viruses and people sending these things out just because they can, we have to use some common sense. You're absolutely right when you say that other things come along with the good things.

Brownell: That's true. I would like to think that we would reach a point in time when all of these problems will be solved. But I'm afraid that all we do when we solve one problem is create challenges with others, so this will be an ongoing struggle for all of us.

ACUTA: Passage of the U.S. Patriot Act expanding law enforcement powers will likely have an impact on colleges' and universities' ability to access and use information content.

What policy issues will this impact at Ball State? As a public university, how do we balance the dilemma of being a good citizen while ensuring that the academy remains a forum for expression, debate, and learning?

Brownell: I think we have tried not to directly confront all of the issues and implications of this question, and for good reason. There are some gray areas here that are very difficult to penetrate and sort out even at the most prosaic level, such as the expectation that employees at a state university will use their state-owned communications equipment and computers only for state business. It's very difficult to say that that's not a reasonable expectation or that we don't really care whether they do or not. On the other hand, we all realize that one of the characteristics of the new communications environment is that the lines are blurred between one's working life and private life since networking and friendships and far-flung communication is very much connected to the conduct of business, particularly to creative work.

Like most institutions, we have a basic policy in place; but we are not applying this policy with a heavy hand. However, it's clear that if someone engages in illegal activity, if they are using University equipment for gambling or for operating a private business, this should not be sanctioned. But to expect the university to create a system of surveillance to ensure that nothing ever goes wrong would unquestionably have a chilling effect on the kind of free expression, interaction, and interchange that are critical elements of the university environment. These are questions that we are going to have to confront when specific cases arise. I would hope that people in law enforcement and those who are trying to seek information from universities will work with us to ensure that we can target those needs and interests and not undermine the academic integrity of the institution.

ACUTA: The higher education community and society have witnessed significant gain in leveraging IT over the last 25 years. What new and innovative projects and endeavors has Ball State implemented that you are most proud of?

Brownell: As a consequence of the fiber-optic wiring of the campus at a relatively early date and the development of this infrastructure specifically for the support of instruction, we developed a fairly large number of faculty who are comfortable using technology and who have now been involved for some time in using technology to enhance teaching and learning. While some of the early uses were probably fairly basic, this experience has had a profound and lasting impact on the way technology is regarded at Ball State. What has emerged is a campus culture in which

technology is respected and welcomed, but in which it is regarded as a tool rather than an end in itself. So while we strive to keep up with the latest technology tools and techniques, I truly believe the best thing we have in our technological infrastructure is the awareness among our faculty of how important it is and how it can best be used.

When you're dealing with challenges and opportunities at this level, you are constantly aware that you have many peers out there who are going through these same experiences in one way or another, and we can all learn from each other. No matter what decisions we make, we are going to be inevitably linked in terms of our capacities and opportunities. And that's a very good thing.



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Patricia P. Cormier Today

Patricia P. Cormier has served as president of Longwood University since 1996. Under her leadership, the institution has reaffirmed its time-honored commitment to preparing citizen leaders to serve the common good, while at the same time positioning itself as a high-tech, learning-centered environment that is second to none in the Commonwealth of Virginia. Known for her personal warmth, enthusiasm, and strong commitment to learning, Dr. Cormier has been a vital force in workforce preparation and economic development in Southside Virginia and throughout the state. She has been actively involved in higher education for many years, serving in leadership positions on the American Council on Education Fellows Board, the American Association of Higher Education, the American Association of State Colleges & Universities, the Southern Association of College & Schools, and the National Collegiate Athletic Association.

Dr. Cormier has master's and doctoral degrees in education from the University of Virginia and a bachelor's degree in health education from Boston University.

Patricia Cormier, EdD

President, Longwood University
Spring 2003

ACUTA: Briefly profile Longwood for our readership. Describe the disastrous fire that occurred including such things as its probable cause, extent of damage to campus buildings, and significant events leading up to and following the tragedy.

Cormier: Longwood is one of the 15 public institutions in the Commonwealth of Virginia. We are a public institution, and we are the 5th most selective institution in the state. We have 4,200 students, and nearly 90 percent of those students are full-time, and almost that number live on or around the campus. That means we are a highly residential institution.

Longwood began in 1839 as a women's institution; that was fairly typical of the South after the Civil War. Many male teachers died, and so women were brought into the field to teach, and Longwood was part of that. We were one of the institutions that used to be a feeder into the University of Virginia; but when the University of Virginia finally admitted women in 1970, many of these feeder institutions, such as James Madison, Radford, Mary Washington, and Longwood, became coeducational as well, and we've been coeducational since 1976.

We have three colleges: a College of Arts and Sciences, a College of Business and Economics, and a College

of Education and Human Services. We are nationally accredited in every program for which accreditation is granted. We have a very significant position within the state in terms of the number of Virginians we serve. And, for the 5th year in a row, we have been ranked by *U.S. News & World Report* as one of the top 10 public comprehensive universities in the South.

The fire: The good news is that I did check with higher beings, God included, and asked how many of these do you get per presidency, and the answer was "one" if it's really big. So this was mine.

The fire began on April 24, 2001, at about 8:30 in the evening. After an extensive investigation, the Virginia State Police did not determine an exact cause, and the fire has been ruled "accidental." The fire involved four major academic buildings, three of which were our signature buildings, the oldest buildings on campus. The buildings, which were constructed in the 1890s, were under renovation at the time when the fire broke out. It was a rainy night, the wind was blowing, and the blaze grew like wildfire. Those buildings were interconnected by roofs, so the fire traveled rapidly and extensively as it found its way into this old wood.

The fire was absolutely enormous and consumed 200,000 square feet. We had 175 firefighters and 13 fire companies, and we literally drained the water supply of the town. We used 2.2 million gallons of water from roughly 8:30 in the evening until about 5:00 the next morning, and still the fire wasn't out completely. There were residence halls that were adjacent to those buildings, and of course, our first thought was the students. The 350 students who were in the adjacent residence halls were evacuated within eight minutes. There was no loss of life, there was not one injury—not even a sprained ankle. And it's because, I believe, the staff understood and took very seriously the safety and security of our students.

It was a pretty horrendous situation. There were three buildings that were under renovation, so faculty were not in them and their belongings were not there; but one building did have faculty offices. Thirty faculty lost nearly everything they owned in those buildings: their diplomas, their pictures, their books, their files. It was such a devastating fire, and there was so much smoke and water damage that we were not able to salvage a great deal of what was in those faculty offices. Our entire math department practically lost everything but their hard drives. We were able to save the hard drives.

ACUTA: What happened after the fire?

Cormier: I knew that we were going to have to do some things right away. When I realized we were going to lose those buildings, by 10:00 that night, I had called every member of our Board, the Governor, and the Secretary of Education for the Commonwealth of Virginia. I then began to plan what we were going to do the next morning.

At 8:00 the next morning—we didn't get home until 5:00 and came back at 8:00—I met with my entire executive management team and my

deans, and we assessed the situation. What had happened was that the 2.2 million gallons of water had gone into the steam tunnels underground, which meant that we had no toilets and no showers anywhere on campus. In addition, we had 30 faculty who were teaching four courses each who had lost everything—grades, exams, and papers—that had been in their offices. So we knew we had to decide whether or not we were going to continue classes or close school early.

The one positive thing was that the fire occurred two days before the end of the grading period, so we were able to close out those classes and not do final exams except for those students who felt that they could improve their grades and who wanted to take finals (I can assure you that our students were not unhappy about not having to do finals). But we needed to make that decision right away.

We also had to find lodging for all 350 students, so we were getting ready to set up things in our gymnasium, and as it turned out, every one of those 350 students was taken in by other students. So we didn't even have to do that. But I needed to get those students home. They could not go back into their rooms because, even though those residence halls had not been destroyed by fire, they were partially damaged by fire, lots of smoke, and massive amounts of water—not a healthy environment. It was an absolute mess. Ceilings had collapsed, and there was stuff all over the place. You know, students are not terrific about hanging up their clothes, so we had pools of water and clothes floating everywhere. It was just unbelievable. There was no way students could go back into those residence halls.

Once we decided that we were going to close the college and what actions we had to take, I called a meeting of the entire campus at 11:00 the next morning and explained to

everyone what had transpired and what we were going to do. We then began the process of having students leave campus, handling all the last-minute details that had to be done.

Almost right away our insurance company brought a recovery operation to the campus, a company called Inrecon. They began the process of recovery within 24 hours. About a day after that I had 50 people from their company living in Farmville in motels during the huge cleanup process.

ACUTA: One of the key goals of contingency, disaster, and emergency plans is to ensure an orderly transition and recovery if an emergency occurs. In retrospect, if you could do things differently in the planning prior to the fire, what changes would you make? What is your assessment of the plan that was in place and the execution of that plan? What communications media were used to keep the campus community informed (e-mail, voice mail, TV, campus meeting, etc.), and which was most effective?

Cormier: I don't want to sound like you can't learn anything from an event, but I would probably not have done anything differently. Please don't misinterpret that. It sounds kind of pompous, but it's not.

We had been concerned about safety and security on this campus for sometime. When I arrived in 1996, I was not here for more than one month when a reporter from the Associated Press did an expose on the lack of fire-suppression systems and sprinklers in high-rise dormitories in Virginia. I found out about this the day before Thanksgiving in 1996 with pictures of our high rises on the front page. I did not know when I came here that we did not have sprinkler systems in our high-rise dormitories. Apparently, the Commonwealth of Virginia applied a grandfather clause to these older high-rise dormitories. When I looked at our pictures in the paper, a major state

paper, I asked my staff, "If I have a student on the 10th floor of my high-rise dormitory, how am I going to get her down?" When nobody could answer that, I knew we had a problem.

So from 1996 until the year 2001 this president has been very concerned about safety and security on the campus, and I have been vigilant—not only vigilant, but vociferous—and frankly uncompromising about what I expected in terms of the safety and security of our students. That's our number one concern; it's not just education.

So we had been going through fire drills. We had been working as a team. We had developed a communications plan not only for this event but for all

working diligently with folks throughout this process.

So when I look at the way this campus responded, we were reacting as we said we would if such a situation should occur. You never know that you're going to lose four buildings, that they're going to explode in front of you, that you're going to have a fire that's 2,000 degrees—so hot it melted steel beams. Nobody prepares you for that. But we were prepared for what do in a crisis situation, and we already had a chain of command outlined that we followed diligently. So I would not do things differently. The crisis management plan that was in place and the execution of that plan, in my view, were very well done. In

have to deal with just the natural or accidental disasters. We now have the element of terrorism. What I believe is a big challenge for leaders today is learning how to deal with the whole spectrum of disasters that your campus can encounter. Yes, there are natural disasters, but there are also other disasters. We had a situation in Virginia recently where a person came in and killed a dean, a faculty member, and a student. And then there was the sniper incident. And 9/11. These are things that you don't normally think about. But the world has changed a lot in the past few years.

It's not going to be an easy scenario as we look to the future. Our challenge is to be prepared for just about any eventuality. We recently completed a campus emergency preparedness plan for the Governor. One of the things we discovered is that you cannot put a plan together for every conceivable emergency. The way you react to a hurricane or a flood may not be quite the same reaction you're going to have to a fire or a terrorist attack. There are certain elements you can pull together for your communications plan: Who's the first person informed? Who speaks for the institution? What role does the board play? For example, we put together an emergency communications team that managed the whole recovery operation about a day after all that happened. But you have to have all of those pieces in place; you have to have that outline, that plan. Those things you can do. What is not going to be easy is preparing for every single possible situation that may occur.

ACUTA: Public institutions throughout the United States are facing cutbacks in state funding that are causing some institutions to make major cuts in capital and operating expenditures. A review of Longwood's website indicates it has not been immune to these reductions, having

I think technology has provided us with the democratization of information. Access to technology today is unlike anything the world has ever known.

kinds of situations about how we were going to react and who was going to be there. I have a communications/public relations division that is absolutely second to none. The night of the fire every single staff person in that public relations office was with me through the night. They immediately understood what to do when we found our switchboards were overloaded and we couldn't handle all the incoming calls. We got on our website right away and started posting information and sending e-mail to various constituents.

We set up a communications center not far from the fire where people—especially the media—could call. We held a press conference. We informed every member of our Board, and the Governor and the Secretary of Education about what was occurring. We let townspeople know; we were

retrospect, we did lose some contact in one of our telephone trunk lines because we didn't have an emergency generator, but that was the only thing that happened that evening that I felt we could have done differently. We now have an emergency generator.

ACUTA: What challenges do chancellors, presidents, and other senior leaders face in advocating for investments in disaster planning and recovery, its strategic importance, and developing sustainable funding models? On your campus, how have perceptions and attitudes changed as a result of the tragedy?

Cormier: I think that the challenge we all face is probably twofold. First of all, you don't know what life is going to bring. It is pretty unpredictable. The other challenge is that we no longer

experienced a 24 percent plus cut in state funding. What are the long- and short-term impacts of these cuts at Longwood? What has been the effect on tuition increases, contingency planning, and technology investment on campus?

Cormier: We are not going to cut safety and security. When we entered the budget process this year, we established two principles: One, we were not going to cut anything that involved the safety and security of our students; and two, we were not going to cut anything that would interfere with our core academic mission, which is teaching. Principles should guide the process. You have to know which principles are going to be sustained as you enter that process. You have to cut a budget in the same way you build a budget. When you build a budget, you say what's our core mission and how do we support that core mission?

When we faced these budget cuts, we said no interference with safety and security, no cuts in academic programs, no cuts in faculty. Now what that meant, however, was a reduction in some of the services we provide. And not only student but faculty and parent and staff services. Let me give you some examples. We had to make major cuts in housecleaning, in grounds, in several other areas within the institution, but it didn't interfere with our core academic mission. We're not having our trash emptied every day; it's emptied every other day. We've had to reduce some of what we do in terms of grounds upkeep. We've had to reduce some of what we do in our library. We had to cut back our library staff at a fairly significant level. Now you may say, isn't that partially cutting your core academic mission? Not really. Because of our campus-wide integration of technology, students still

have significant access to our library collections through the Internet. It doesn't really impact significantly on what we're doing with students in the classroom. It does mean that people are going to have longer waiting times; it does mean that they're not going to get quite the services that they've had in the past.

ACUTA: Broadband services are estimated to be available to more than 70 percent of American households and purported by some to be capable of redefining how we work and play. What is your vision of Longwood's campus environment involving broadband services in the future? What are the *killer apps* that will spur growth at Longwood? What are the current major impediments to widespread usage in southern Virginia?

Cormier: As you probably know, we are a technology-based campus. You have to have a laptop computer to be a student here. In fact, we were one of



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the first institutions to require all incoming freshmen to have a laptop computer. We like to think of it as a port per pillow. That means that every student has a computer, and we're servicing about 6,000 to 7,000 computers on the campus right now. We still have some high-end user labs, and our students are fully engaged in technology. Likewise, 96 percent of our faculty are fully engaged in using technology in the classroom. In my view, technology will be essential to education in the future. I'm not convinced that technology is going to replace face-to-face teaching. I think it's going to be a tremendous enhancement to teaching, but I think there is no way that we're going to get away from the notion that people want immediate services and immediate results when they're doing their work.

Let's take the library, for example. You no longer have to go to the stacks to get what you need; you can get that from your residence hall room via the Internet. That's a very, very powerful tool. Student papers are online; we built systems here so that as you're doing your expository writing courses you can have direct access to your faculty member. You can communicate with your faculty member and your faculty member can communicate with you anytime of the night or day. Those amenities—and they're not really amenities, they're just a new way of doing our work—are going to be absolutely vital to the future. Technology will continue to progress. I believe that we're going to have to play a part in that.

I will tell you that there is a major problem in the United States when it comes to rural communities. Phone companies, Internet companies really do not want to deal with institutions or agencies or businesses that are not located near a major interstate highway. We're going to have to change that.

Another problem that we're seeing is that there's not quite the readiness

for the wireless environment that we thought. We've got the wireless umbrella over the campus right now, but what we've learned, and we've tried to tell companies this, is that these firewalls can be penetrated when you're in a wireless environment. We're now trying to grapple with some of these issues. So they're not easy. Technology still has a long way to go, but we've got to understand in America that everybody has to be connected, not just those who are in major metropolitan areas.

ACUTA: What policy issues will the war on terrorism, expansion of law enforcement powers by the U.S. Patriot Act, and the creation of the U.S. Department of Homeland Security have on the higher-education community? As public universities, how do we balance the challenges and dilemmas of vulnerability assessment and being a good citizen while ensuring that the academy remains a forum for expression, debate, and learning?

Cormier: Really good questions. Well, the war on terrorism and the law enforcement powers of the U.S. Patriot Act and Homeland Security are already having an impact on our campuses. As you know, the new Student and Exchange Visitor Information System program that they're putting into place for people who want to study in the United States is not functioning, and yet we're being forced to use these new systems for admitting foreign students on our campuses.

In addition, we just finished a major document for the Governor on emergency preparedness, and a lot of that involved terrorism. We know that these things are going to be affecting our campuses—they are already in many different ways. But you have to be careful that your basic values are not compromised. If there's anyplace in America or the world, actually, where freedom of expression can be sustained, it should be on a college

campus. That means that we're going to have to be much more open about what we accept.

We all have experiences with students who have misunderstandings. We had a particular situation on our campus where some students misunderstood a website that was up that was, they felt, pro-Muslim and anti-Jewish. We had to have a fair number of debates on campus about that. Fortunately, we were able to resolve those, but there are all kinds of issues that are now rising up.

Our moral stance at Longwood is that this is where freedom of expression must be sustained, where we have to understand that there are going to be differences of opinion, but we have to respect those differences. It is not going to be easy to do this. We need to be cooperative, certainly, and our position as a public institution in the United States has been that we want to support homeland security; we want to support the Patriot Act; we want to support the new systems for the control of foreign students coming into the country; but that doesn't mean that we have to abandon people's freedoms as well. It is not something that is easily solved. It is going to be a campus-by-campus debate. We can learn from each other about how to get people to express themselves without being mean-spirited. But it is not going to be easy.

I am a product of World War II, and I can tell you that during WWII some pretty terrible things were said about Japanese Americans. Some pretty terrible things were said of people of German origin. I grew up on a street in New York where 17 different languages were spoken. It was not an easy time.

But this is not the first time that America has been challenged by such issues. We've been challenged from the founding of this nation. We've always had to make adjustments to the way in which we interact with other people and how we preserve our freedoms. I think we're wiser than we were during WWI and WWII. There is more tolerance in

America even though one doesn't always see that. But we're going to have to work really hard at it for some time to come.

ACUTA: The higher-education community and society have witnessed significant gains in leveraging IT over the last 25 years. How has your campus approached crafting strategy to guide it in creating value and boosting institutional success in an uncertain world? What new and innovative projects and endeavors has Longwood implemented?

Cormier: I'm trying to frame this in the context of leveraging IT. I think technology has provided us with the democratization of information. Access to technology today is unlike anything the world has ever known. The ability of a student to communicate directly with this president, the ability of a parent to communicate directly with this president, I think, is an absolutely positive sensational opportunity for

enhancing communication if it's used wisely and well.

I believe that the strategy we've crafted for Longwood is one that embraces technology without making technology a goal. Technology is a means to the end, not the end itself. That's where I think people sometimes get confused. Technology is a tool that helps us communicate in ways we could not communicate before. I've been in education for over thirty years, and I can say that this has been the most powerful, exciting time of my career. And a great deal of that is due to technology and the access we have for communicating with each other and because of the way in which we present material that we are teaching. I used to teach histology—and when I'm able to show a three-dimensional growth of a bone that I could never do on slides, that I could never do in the technology of the past, it is an absolutely marvelous opportunity. We can teach differently and better than

we ever have, and I believe that we've tried to say that on our own campus.

We believe that we've been very successful and continue to be successful (if you look at our applicant pool—it's up 19 percent from the previous fall) because we're integrating technology and new forms of communication throughout the learning process. Learning is better today because of technology.

What we're most proud of is our implementation of technology within every classroom and for every student throughout the campus, and we're going to continue to work on that. We're going to try to adopt the new technologies that are emerging today into everything that we do on this campus. Our faculty and staff are very tuned in to what's happening. We're not quite the Industrial Light and Magic Company yet, but we'd like to be. It's a great time for higher education.



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Graham Spanier Today

A magician, musician, and racquet-ball champion, Graham Spanier has often been described as an "unconventional" university president. He loves spending time with students, but most of his time is spent overseeing one of the nation's largest and most comprehensive universities, with 25,000 employees on 24 campuses, an annual budget of \$2.5 billion, and a physical plant of 1,300 buildings.

Since he was appointed Penn State's 16th president in 1995, Dr. Spanier has been the guiding force behind several historic academic initiatives, including the creation of The Schreyer Honors College, the Penn State World Campus, and the School of Information Sciences and Technology.

A national leader in higher education, Dr. Spanier served as chair of the Board of Directors of the National Association of State Universities and Land-Grant Colleges, chair of the Big Ten Conference Council of Presidents/Chancellors, and vice chair of the Worldwide Universities Network.

Graham Spanier, Ph.D.

President, Pennsylvania State University
Fall, 2003

ACUTA: According to a recent report released by the FTC, identity theft was the most common complaint reported by American consumers last year, accounting for more than 40 percent of all complaints to the FTC. What are the responsibilities of colleges and universities in this arena if we are to stem the rising tide of identity theft and other privacy abuses? How will the proposed legislation setting a national standard for the protection of personal information impact colleges and universities?

Spanier: Universities have become increasingly concerned about identity theft and privacy, although I don't believe it has been a special problem at universities. Nevertheless, we are increasingly vulnerable, as is the rest of our society. At Penn State, we have taken a number of steps to anticipate this growing concern. In addition to providing greater security on our networks, including higher standards of authentication, we are in the midst of a conversion that will eliminate the use of social security numbers for student identification. I do, however, caution against legislation that would be unduly burdensome for higher education.

ACUTA: A new generation of peer-to-peer (P2P) technologies such as Filetopia, eDonkey, and BitTorrent has upped the ante for those seeking to enforce the DMCA by hiding a user's identity and encrypting information about the types of files (e-mail, general Internet, and rich media traffic) from detection. What are the basic problems and challenges involved in policing and enforcing the DMCA for colleges and universities?

Spanier: I doubt that the ultimate solution to the illegal use of P2P file sharing will be in purely technical solutions. As you point out, there is a new wave of technology evolving to thwart efforts at restricting piracy. This is occurring at the same time that yet other evolving technologies are being designed to discover the fingerprints of such copyright infringement. I support the deployment of technical solutions by universities to protect our networks from piracy, although it goes without saying that such use must be narrowly tailored in ways that do not constrain academic freedom, restrict openness in the legal uses of our networks, impede fair use, or cross certain boundaries of privacy.

ACUTA: A recent poll of attitudes and perceptions on file sharing by the New Jersey Institute of Technology indicates that most people believe that file sharing is stealing but should not be restricted. Given this dichotomy, what are the best educational strategies and legislative approaches for minimizing illegal file sharing at colleges and universities? What advice do you offer to campus leaders struggling with the challenges and dilemmas of vulnerability assessment and being a good citizen?

Spanier: Ultimately, the solution must rely on education of our users, an appeal to the moral and ethical issues involved, and heightened enforcement. Many universities have developed excellent educational programs around the issue, and some university websites are excellent models. Such educational efforts will grow. The Committee on Higher Education and the Entertainment Industry, which I co-chair with the President of the Recording Industry Association of America, is providing such educational materials to colleges and universities this fall.

As to long-range solutions, I liken this to speeding. Most everyone will do it unless they fear a ticket or even receive a ticket. So lots of tickets will have to be issued before we see a lot of progress. Expect a substantially increased enforcement effort this coming academic year. I also see some merit in universities paying a fee to on-line providers on behalf of our students so that they can legally listen to or download music. Several universities will likely launch pilot studies of this approach this coming

year in cooperation with several music providers.

ACUTA: When colleges and universities filter content, limit student access, or take other actions to prevent DMCA violations, some say they violate students' academic freedom and the actions amount to censorship. What advice do you offer to campus leaders struggling with this dilemma? What have been the key issues raised at Penn State in this area?

Spanier: Of course we must protect academic freedom and avoid censorship. But we must also recognize that absolutes usually don't stand constitutional tests. If there were an absolute right to privacy, there would be no security cameras in retail stores. If there were an absolute right to freedom of expression, you could yell "fire" in a movie theater. There is no absolute right to hide the contents of your personal belongings, or else airport screeners wouldn't be able to look inside your luggage.

Similarly, there is no absolute right to pirate intellectual property. My advice to campus executives is to take responsibility and do the right thing—thoughtfully, legally, and defensibly. Don't hide behind false rights. "See no evil, hear no evil, and speak no evil" doesn't cut it anymore. If we don't fix this, Congress will, and we might not like the way they go about it.

ACUTA: Various public forums and hearings continue to debate the state of American higher education and what we are getting for our money in light of recent major tuition increases

announced by public institutions. What are your views on how we should hold higher education institutions accountable for how well they do their job? Are more federal controls and standardized federal tests the answer? What advice do you offer to other campus leaders struggling with this issue?

Spanier: Few American institutions are as transparently accountable as universities. I am a great believer in internally imposed approaches to foster improvement. But I do not support the calls for increased regulation or accountability. We turn ourselves inside out giving exams; accrediting our departments, schools, and colleges; evaluating faculty; benchmarking ourselves in academic and business services; looking for ways to cut costs; and ranking ourselves in every category we can dream up. More federal controls and standardized federal tests are not the answer. They represent unfunded mandates at best and threats to the quality of our institutions at their worst.

There are good reasons why American higher education is the envy the world over. I just can't see how more externally-imposed accountability will help.

ACUTA: Although great strides are being made, information technology security continues to be a thorny area for campus leaders. What policy issues at Penn State have been affected by vulnerability issues, the war on terrorism, U.S. Patriot Act, and homeland security mandates? As a public university, how might higher education balance the dilemmas and

challenges of vulnerability while ensuring the academy remains a forum of expression, debate, and learning?

Spanier: None of our policies have been affected in any profound ways, as far as I know. Rather, what we have seen is an increase in compliance and monitoring measures (such as SEVIS), increased challenges with visas, a new layer of challenges for our student affairs and foreign student advisor professionals, and a greater level of interaction with government agencies (e.g., FBI), especially in top research universities where much of the nation's most advanced technical

Spanier: While academic health centers account for a very small portion of the hospitals in the country, we provide a major share of unreimbursed health care. Moreover, many academic health centers are in fiscal jeopardy because of the collective burdens of the federal Balanced Budget Act of 1997, the evolution of managed care, declining reimbursements, the migration of the most expensive and complex procedures to our hospitals, skyrocketing medical malpractice costs, the super-inflationary costs of pharmaceuticals, the costs of the most advanced equipment, and the

technology. How has your campus approached crafting information technology strategy to guide it in creating value and boosting institutional success? What new and innovative endeavors has Penn State implemented that you are most proud of?

Spanier: Most everything has changed, and there will be further evolution. At Penn State, we have embraced e-commerce in our business services. We do virtually all basic student services online, from registration to drop/add to degree audits to modeling grade point averages. Many of our alumni services are provided electronically. More than 100,000 alumni, friends, and members of the news media receive our daily Newswire with the latest university news.

At Penn State, our central file servers process more than 4 million e-mail messages each day. I estimate that I conduct well over 90 percent of my administrative business electronically now, with paper transactions being very rare.

I'm especially proud of the Penn State World Campus, our online distance-education program, which already enrolls about 10,000 students. We launched the successful School of Information Sciences and Technology with more than 2,000 students enrolled in undergraduate and graduate programs. Our eLion student information system is one of the best in the country. And we have a grants and contracts management system that serves our researchers and business officers well.



[T]here is no absolute right to pirate intellectual property. My advice to campus executives is to take responsibility and do the right thing—thoughtfully, legally, and defensibly.

research occurs. If we handle it carefully and professionally, I don't believe that any of this needs to affect the ability of the academy to remain a forum for expression, learning, and debate.

ACUTA: Affordable health care access continues to be a difficult issue for many in this country with the decline of the economy and budget cutbacks. Public university medical centers have historically played a major role in ensuring access to the underserved. What are the key issues, challenges, and dilemmas in supporting outreach and telemedicine programs? What have been the major challenges encountered in the Penn State service area? What advice do you offer to campus and community leaders?

competitive nature of medical research and clinical advances. In such a climate, one wonders if we can afford our historic commitment to outreach and to reaching out to underserved areas.

In Pennsylvania, to cite but one example, the state has made dramatic cuts in its support of our poison control centers. Our desire to reach the underserved remains great, but our ability to do so is clearly being eroded. Telemedicine is an important part of the solution, and we need to make our case for funding it.

ACUTA: Over the last 30 years, the higher-education community and society have witnessed significant gains in leveraging information

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Professional development

- 2005 Seminars: Winter: *What's New in Telecom Technologies?* and *Security, Risk Management & Disaster Planning*
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► Of Special Interest to Senior Administrators: ACUTA Forum for Strategic Leadership in Communications Technology

For two days during each of the last 8 ACUTA Annual Conferences, senior leaders from college and university campuses have met in special sessions to hear presentations from experts in the field and share experiences from their own campuses. In 2004, this event focused on *The Mobile Campus*; in 2003, participants looked at *Strategies for Management in a Difficult Economy*. Visit the ACUTA website in January for the announcement of our focus for July, 2005.

Networking

Time after time ACUTA members tell us that networking with their peers from other campuses is the single most valuable benefit of ACUTA membership. Our events are structured in such a way as to encourage high quality interaction among attendees, and the listserv sustains and develops these relationships between meetings. As one ACUTA member told us recently:

“ With the pace of technological change increasing so dramatically, staying current is far more challenging than ever before. I have come to depend on ACUTA to help me stay abreast of new technologies and sound strategies. Our institutions may compete for students, but ACUTA members from campuses coast to coast collaborate for everyone's success.

—James S. Cross, PhD
Vice Provost for Information Technology
Michigan Technological University

Information sharing

- **ACUTA Listserv:** Hundreds of ACUTA members actively participate in the listserv, posting questions and sharing solutions. It's up-to-the-minute, from-the-trenches advice from one professional to another.
- **ACUTA Journal:** ACUTA publishes a quarterly journal that includes case studies, interviews, regular columns, and articles of interest written by ACUTA members as well as consultants and other communications technology professionals.
- **ACUTA eNews:** Our monthly newsletter is delivered electronically then archived as a searchable document on the website. It contains association news, a new-technology column, an update on legislative and regulatory affairs, and a variety of other short articles of importance to campus communications.
- **ACUTA Legislative and Regulatory Update:** Once a month ACUTA members receive an update prepared by the Washington law firm of Wiley, Rein and Fielding with details about what's happening in Washington of relevance to campus technology professionals.



The Association for Communications Technology Professionals in Higher Education

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Shelby F. Thames Today

Shelby Thames is the eighth President of the University of Southern Mississippi in Hattiesburg, Mississippi. He took office on May 1, 2002, continuing an illustrious career of 38 years at Southern Miss.

His previous administrative positions at Southern Miss were Chair of the Department of Polymer Science, Dean of the College of Science and Technology, Vice President for Administration and Regional Campuses, and Executive Vice President. In 1970 he was the founder of the Department of Polymer Science and in 1973 cofounder of the Waterborne and High-Solids Coatings Symposium.

Dr. Thames earned his B.S. and M.S. degrees from the University of Southern Mississippi in chemistry and organic chemistry and his Ph.D. degree from the University of Tennessee in organic chemistry.

Shelby F. Thames, Ph.D.

President, University of Southern Mississippi
Summer 2003

ACUTA: For the benefit of our readers, briefly profile the University of Southern Mississippi in terms of enrollment, academic programs, research, service area, and relationship to the other public universities in the State of Mississippi system.

Thames: Southern Miss is an institution of about 15,300 students. It's a public, state university. Our principle functions are teaching, research, service, and economic development. We offer 90 Bachelor's degree programs, 80 grad programs, and our Polymer Science program was ranked among the top 10 programs in the country.

Our psychology program is one of the few worldwide accredited programs in clinical, school, and counseling psychology.

According to the Association of Education and Journalism in Mass Communications, our School of Communications ranks among the top 10 programs in the nation.

Our Special Education program is one of the largest in the U. S. Along with Harvard, Stanford, Arizona, and Colgate, we are a charter member of the Calculus Consortium.

Our Medical Technology Department is the largest in the state, and in 1998 it ranked in the top ten nationally in terms of a passing rate on the national certification exam.

The College of the Arts is one of only 20 programs in the whole nation

to hold accreditation in four areas: art, dance, theater, and music.

Southern Miss has been ranked among the top doctoral institutions nationally in the International Studies program.

The Chemical and Engineering News ranked Southern Miss Chemical Sciences program among the top 50 in the nation.

Our Center of Marine Sciences offers students opportunities in marine-related sciences that are unparalleled in the Gulf Coast region.

And our University Center for Writers has received national recognition for fiction and poetry.

In terms of how good an institution we are, we are a Carnegie 1 research-intensive university. We are one of 150 institutions with that ranking out of a total of 1,500 universities in America. That puts us in the top 10 percent of universities in this country. We're also ranked number one as an SREB university. We're a Division 1 NCAA Athletic school. We're in Conference USA, and right now doing quite well with our baseball season. We're ranked in the top 25 and above, depending on which forecast you look at.

So, we are a vibrant institution. We were very strong in research this past year. Well, in 1995 we had \$20 million in external funds from outside sources coming into the campus. In the year 2002 we had \$62 million. Our goal for 2005 is \$100 million. And our goal in

enrollment for 2007 is 20,000 students. So we have a lot of work ahead of us. We have a tremendously good group of faculty members, and we think that we will be successful.

So you can see from that little backdrop, we came from being a teacher's college—our first name was Mississippi Normal College—where we taught teachers to teach. We are the only dual campus in the state of Mississippi, and by that I mean we have a main campus in Hattiesburg where the majority of the enrollment is currently located, and then we have educational operations along the Mississippi Gulf Coast starting with Stennis Space Center on the west side moving over to Long Beach at our Gulf Park Campus, then going to Keesler Air Force Base. We have an operation at the Jackson County Junior College System, and finally over in Ocean Springs our Gulf Coast Research Laboratory has a very fine program. So we pervade south Mississippi as far as the university is concerned. We are the only university in south Mississippi. There are seven other universities in our state that are in mid to north Mississippi. The demographics are in our favor—the majority of people who live in Mississippi live in south Mississippi. That's a little bit of a backdrop.

ACUTA: In planning and engineering a campus wireless LAN, most experts indicate that the three most important steps for success are designing the network, managing the network, and security. What was the experience at USM in implementing "Eagle Air"? Briefly profile Eagle Air at USM from conception to the production system today.

Thames: In 1997 when we began looking in earnest at this process, we identified more than 100 campus

buildings that needed network connectivity. When you think about the expense that would be involved in going non-wireless to those 100 campus buildings, it's somewhat astronomical. This innovative technology allowed us to provide network connectivity at about one tenth of the time and the cost for a comparable hardwired system. We partnered with Avaya to utilize their Orinoco technology that provides Radius authentication for increased security.

Today we have more than 500 access points in more than 70 buildings at the core of the Hattiesburg campus. Several outlying areas of campus are still awaiting wireless implementation; the largest of these is our married-student housing complex where we are currently in the process of installing 85 access points. When this project is complete, all major sections of the Hattiesburg campus will have wireless connectivity.

We've had great success and have been able to do this at an insignificant cost compared to what hardwiring would have cost in terms of dollars, and as a result we are the first wireless campus in the state of Mississippi, and we're kind of proud of that. We like leading the pack.

ACUTA: One of the key challenges of wireless technologies is designing a grid of access points to maximize coverage and minimize costs in providing coverage to the service area. What have been the unexpected benefits and disappointments of the access grid designed at USM? What criteria are used to add or delete access points? What have been the important lessons learned from the initiative?

Thames: I hope you can appreciate the analogy I'm going to use. If you've ever

tried to install a sprinkler system in your yard, then you can understand some of the challenges my colleagues have had with this system. You might think that in a particular area of the campus you'd get excellent coverage and in another you might not get coverage, and in some cases that has been true. We've had to experiment with that and move those sprinkler heads from one place to another so we can maximize coverage and get overlap that we need; but in the main, that has not been what we would consider a major impediment to the use of this technology. It's just something we've had to experiment with and learn, and I'm not sure anybody would have been able to select the perfect sites the first time. I think we've done a good job of that.

One of the benefits we've seen is that we've been able to use wireless for special events and functions. For example, Athletics has been using wireless for student entrance to athletic events.

The most beneficial opportunity has been the ability to use the wireless network during student registration and for previewing functions for new students who come on campus. We're able to set up wireless laptops over in the Student Union for students to register for their classes. We have reorganized the university from nine colleges to five colleges. I'm looking forward to setting up registration areas in those five colleges. One of the reasons for going to five colleges was so that we could provide more of the support that a student needed in that one area rather than running them all over campus from building to building to building. Wireless gives us the ability to provide more of the resources that a student needs in a particular locality. ►

There might be four or five of those localities scattered over the campus. We're excited about that. This is what I would consider student-friendly technology, and we're going to use it to its fullest extent.

ACUTA: Students are carrying more and more electronic gadgets these days, such as PDAs, PDSs, phones, laptops, pagers, MP3 players, etc. Do you envision these being integrated at the

the future will hold. But at this point, I don't know that that's in the cards.

What is the future for broadband wireless? As we move forward with planned upgrades to our infrastructure, we anticipate continuous performance increases and security enhancements for our wireless network. Eventually we'll reach a point where our current 11 Mb implementation is no longer sufficient to meet the expectations of

businesses that are providing wireless network access to their customers, but we think this low demand for this type of connectivity will make it economically unfeasible to establish a widespread wireless network at this time. You can always do it, but we don't see that right now.

ACUTA: Although great strides are being made to resolve the security issues with wireless technologies, this area continues to be the main problem holding back widespread deployment for many applications. What are the key security features of Eagle Air? What major problems have been encountered, and how have they been solved?

Thames: Much of our concern about our security issues related to wireless networking arises from the weak authentication and encryption provided by WEP [wireless equivalent privacy]. There is a misconception that it should be possible to fully secure a wireless network using WEP. In actuality, WEP was designed to provide the same protection against casual eavesdropping that we have come to expect from switched hardwired networks. In order to ensure security, it is necessary to implement additional layers of encryption and authentication in either hardwired or wireless environments.

Access to the Eagle Air network is limited to registered users via the use of MAC address-based authentication using RADIUS. This authentication requirement was implemented with the expectation that it would prevent unauthorized users from gaining access to the wireless network while not requiring any additional action of the part of legitimate users. There are now tools available in the hacking community that allow the masking of

As VoIP and videoconferencing technologies continue to mature, the demand for fast and reliable wireless network resources will continue to increase—and at a dramatic rate.

University and will the University ever fulfill the role of being an ISP or common carrier for these "local" devices? What is your vision of the future broadband wireless network at USM? What are the killer apps that will spur growth? What are the major impediments to widespread deployment in the Hattiesburg area?

Thames: In terms of the local devices, those suckers are coming out at such a fast pace right now that I can't keep up with them. There's a tremendous amount of technology coming out all the time, as you well know. And what we have to do is sit back, look at our basic technology, and evaluate the technology that we think is going to have some utility for our campus. Whenever we find one of those technologies that we feel will be useful and not just faddish, then, if it is cost-effective, we're going to implement it.

I don't anticipate us being a common carrier for these local devices. That may change. No one knows what

our wireless users. That seems to happen. And with that in mind we will continue to explore possible strategies for implementing next-generation wireless technologies as they become available because we are sold on wireless.

You asked what are the killer applications that will spur our growth. Well, it will typically arise from what my colleagues have told me is the convergence of voice and data networks. As VoIP and videoconferencing technologies continue to mature, the demand for fast and reliable wireless network resources will continue to increase—and at a dramatic rate.

What do we think are the major impediments to widespread deployment in Hattiesburg? Well, there is little demand for mobile computing outside the university environment. We're sort of a small town—Hattiesburg is not like New Orleans or larger cities, and there are several local

wireless card MAC addresses, so this authentication method is no longer entirely sufficient, and we are exploring several possibilities for adding additional authentication requirements to access Eagle Air.

As mentioned earlier, a second perceived shortcoming of the WEP is its weak encryption. We strongly discourage our Eagle Air users from relying on WEP for encryption. Any network traffic that is of such a nature as to require encryption should be transferred using appropriate encryption (SSL, SSH, PGP, etc.).

ACUTA: The critical issue for colleges and universities is not whether new and innovative wireless technologies will change business processes and practices, but what aspect will change and how quickly. What key business processes and practices have changed at USM since Eagle Air was introduced? How have these changes been perceived by various constituents? Were these changes anticipated in the business case and value proposition developed in planning the project?

Thames: Our student registration has been the most beneficial business process that has changed. Student registration is a bear. It's something you want to be efficient—you don't want students standing in a line. You want to make sure they get registered appropriately, they pay the right amount of fees, not too many and not too few. That's very important. And this wireless has provided a more convenient, more efficient avenue of providing registration services to university students in different localities.

The universal connectivity provided to the campus for major events that require some type of network connectivity has been substantial

allowing for dynamic reallocation of networking sources. We'll see more and more of this in our student life center that we're building—about \$40 million when it's complete. And we're renovating our stadium, and, of course, all our athletic events will use the technology.

How have these changes been perceived by the various constituents? We did not anticipate all of these business process changes, but they were benefits inherent to the implementation of wireless. The original plan was to duplicate the functionality of hard-wire at a reduced cost. We weren't aware at the time of just how valuable it would be to move a computer from one side of the campus to the other by just simply walking

across campus. The ease of mobility is a tremendous benefit, and it's a resource. It's a cost-saving resource that's allowed us to take advantage of our network in more ways than we had originally anticipated.

ACUTA: So you've got some added benefits that you hadn't even bargained for and that's been nice.

Thames: I guess if we had sat down and thought about it in the most simplistic terms, we would have. But you know, we were too concerned about the technologies and the depth of technology to realize just how nice it's going to be to just walk to the other side of the campus and turn your computer on, or just don't even turn it off. Walk from one side of the campus to the other with it still on.

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ACUTA: P2P (peer-to-peer) technologies, in their evolution, have become harder and harder to detect. A new generation of file-sharing technologies such as Filetopia and Kazaa has upped the ante for those seeking to enforce the Digital Millennium Copyright Act by hiding the user's identity and encrypting information about the types of files (e-mail, general Internet and rich media traffic) to avoid detection. Checking any of the general download sites on the Internet consistently shows P2P client programs rank as the 1st and 2nd most downloaded files. What advice do you offer to campus leaders struggling with the challenges and dilemmas of vulnerability assessment and being a good citizen?

Thames: I would encourage campus leaders to discourage the use of P2P file sharing. An education program should be initiated to make the constituents aware of the harm that's being caused to their network traffic through these P2P channels. The Internet is an evolving technology and thus must be constantly monitored for security threats. A valid security policy must be in place and enforced by not only the security administrator but by all the leaders of the university. There must be a top-down implementation for a successful program.

ACUTA: The higher-education community and society have witnessed significant gains in leveraging the information technologies over the last 30 years. How has your campus crafted strategy to create and expand value for institutional success? What other new and innovative endeavors has USM implemented that you are especially proud of?

Thames: We've been able to obtain seed money from the Department of

Education's Title IIIA. That's a strengthening-institutions grant from the Office of Technology Resources. It's a PDA initiative which has been provided to faculty members across campus to maximize the utility of the university's wireless technology and makes the promise of mobility a reality for student and faculty. As a matter of fact, just about a year ago we were out here in the administration building giving computers away to faculty members who had competed for them, and I believe they were the recipients of some of the Title III dollars.

A lady by the name of Thelma Roberson has a project where a set of PDAs was purchased and used in the Master's program in Educational Administration. That's Title III dollars. And students in the national cohort are allowed to check these out and are using them in their administrative internships. In particular, these future principals are using the PDAs and software for classroom observations, for teaching supervision, for planning, and for time management. When the students return to the Southern Miss campus this summer, they will use the data they collected and will further use their PDAs to present that data in a Power Point format.

Then we've got Dr. Steve Yuen's project. The purpose of this project is to integrate the PDA technology to foster active and collaborative learning experiences in the classroom. Students will access and interact with IT 645 "Computers in Education," a course required for the Master of Science program in Instructional Technology, on their PDA to synchronization with a desktop computer or wireless through their device infrared port and 802.11b connection to the classroom. Students will be able to check class schedules,

study instructor-prepared materials, and download the weekly lecture notes, assignments, and other instructional materials to their PDA while they are in class. In addition, they will have immediate communication with their instructors, turn in electronic assignments, and share other information with their classmates and the instructor. By regularly synchronizing their PDAs they receive up-to-date class information and instruction materials or they may learn that a test has been postponed or a class schedule changed. This particular PDA-integrated course will be offered in the fall of 2003.

And then Dr. Jim Siders has a project. It's a Palm initiative which is intended to recruit and orient a cadre of faculty to infuse PDA applications into the learning activities. Ultimately, as project administrator, Dr. Siders envisions PDA media will provide the most flexible, cost-effective method of technology infusion into the general lay community as well as the university classroom. Palm devices will enhance learning through problem-solving, learning by (1) promoting data sharing or beaming files; (2) anywhere-anytime operation—in other words, portability takes the university classroom out of the classroom; (3) with encouraging through displays of data and presentation projection. Learners will better engage with the introduction of Palm devices and a shift in instruction will be realized by moving traditional direct instruction to constructionist, flexible concept development.

We think wireless is pretty neat. We appreciate what it's done for us, and we appreciate the opportunity to talk with you about what's going on at Southern Miss.



Lee T. Todd Jr., PhD

President, University of Kentucky
Winter 2002

ACUTA: Business intelligence and strategic visioning continue to evolve as the new mantra in today's competitive environment as a process and tool to see where an organization has been, where it stands, and where it can go. How is strategic visioning being used to formulate strategy at the University of Kentucky and other colleges and universities? How do you formulate technology-enabled strategies to communicate and differentiate academic and business value in a campus environment?

Todd: I left my job at IBM three months early so I could be on campus to talk with the faculty and staff about a common vision. On July 5 [2001], my fifth day in office, I shared a vision that the University of Kentucky's campus should be the entire commonwealth of Kentucky because we are a land grant institution. So I had that vision. The university is mandated by the state to become a top-20 university by the year 2020. The legislature granted some "bucks for brains" money, as we call it, \$67 million two sessions in a row, and we've got another one coming whenever we pass the budget. If we match that money, we can use it for endowed professorships and graduate fellowships to expand our research agenda. We've created 150 endowed positions at this point in time thanks to that legislative support.

My challenge was to figure out what this top-20 goal meant, because too many people were ascribing that to just research dollars. Let's climb the ladder, let's knock out the number 20 person on the list, and let's become a top-20 research university. I took the position during my interviews for this job that that wasn't enough. We could accomplish all our strategies toward improving our research, but we could fail the state of Kentucky. If you just base your strategy on research dollars, you leave out the arts, leave out the law school, you leave out business and the liberal arts, and that wasn't what I thought the legislators meant.

My contribution to this vision is that we must drive our research agenda with strategic planning. I declared peace with the University of Louisville because it used to be a combative, competitive relationship. We've jointly opened an office in Washington, D.C., along with the governor, and hired a lobbying firm to help us look for funding sources in the D.C. area. So when you align some of our strategies with the goal of driving our research dollars, the result was \$212 million in research funding this year, which is up 22 percent from last year and the largest total in the university's history. I feel good about that.



Lee T. Todd Jr. Today

Lee Todd officially began his term as UK's 11th president on July 1, 2001. Prior to his UK presidency, Dr. Todd was senior vice president of Lotus Development.

Dr. Todd received his B.S.E.E. from the University of Kentucky and his Masters and PhD degrees in electrical engineering from the MIT. While a graduate student at MIT, he received six U.S. patents in the area of high-resolution display technology. It was during that time that he began proposing the application of telecommunications and high-resolution displays for data conferencing.

Dr. Todd founded Projectron, Inc., in 1981, and incorporated DataBeam Corporation in 1976. DataBeam has been the world's leading provider of real-time collaboration and real-time distant learning software and development platforms.

I came up with what I call our higher-purpose mission, and that is to solve problems that have eaten away at Kentucky for many years. I refer to them as the Kentucky uglies. One thing I've found is that when it comes to vision, you've got to give people word hooks that they will remember and think about. I make the point that we're the leaders in diabetes, the leaders in lung cancer, and the leaders in the birth defect spina bifida. We are not the leaders in literacy, and we're not the leaders in the economy.

So I put a committee together called our "Top 20 Committee," and I asked them to determine how we will measure ourselves. The committee developed parameters to compare us with our peers around the country—things like our research funding, endowments, faculty awards, student awards, and other types of measurements that can't be doubted. They're quantifiable. Other institutions give us their numbers and we see where we stand. We're going to do that.

In addition, the committee defined what they call their commonwealth measures. These are going to be the things that we're actually going to discuss with the public. We're going to take the competitive juices of Kentuckians—the same spirit we show in our sports arenas—and say we're going to whip some of those problems that make us look bad. We have chosen those specifically; we have people working on them. As an example, we can choose to get off the top-10 list of diabetes, and let's use some of our best researchers to work on that problem. Let's use our communications and our educational skills to work on that problem.

From my business experiences, when I looked at the Cooperative Extension network, Ag Extension, I

saw employees in all 120 counties of Kentucky. I look at that as a sales distribution channel. It can sell the results of our research here at UK to our population. Those are trusted salespeople; they are ambassadors out there known by everyone in the county. We actually already had some funding, so we implemented some of that vision. Senator Mitch McConnell helped UK obtain an \$800,000 grant to form what we call the Health Education Through Extension Leadership program. Our School of Public Health takes data from our new research efforts, and let's say it's in diabetes for instance, and communicates that to our extension agents who then communicate it to the population of Kentucky. Part of this higher-purpose vision is to choose some measures that are specific to Kentucky; we are the University of Kentucky, we should be solving some of the problems that are in Kentucky. That's part of our vision and has become part of our plan.

I also had a Futures Committee formed for this vision to decide our areas of focus. These are areas where we are on the verge of excellence. For example, our opera program is very strong, and in healthcare—cancer, neurosciences, and cardiac care—these are our strong areas, so we've actually focused on those, and we're going to have to invest in those differentially to make them better. I've had those task forces out there working.

The other piece of this visioning and strategy for Kentucky that's unique is that with House Bill 1 that Governor Patton put in place, the Council on Postsecondary Education was formed to set an agenda for higher education. I served on that council from its beginning, until I took this position at UK. They selected benchmarks for each college and university

in Kentucky. All of the universities have different benchmarks. The comprehensive universities have different ones. The University of Louisville has different ones because it's an urban university. UK has different ones because we are a land grant university. We actually have 19 benchmarks.

That, to me, is a great way to do it because it lets us tell our legislators, if they expect us to be a top-20 institution, this is what our benchmarks do—these are the salaries they pay, these are the tuitions they charge, and so on. We can then turn to our faculty and say in the top 20 universities this is the research productivity per faculty member. For an analytical way to guide yourself, the benchmarking process I think was very important here in Kentucky. I use it on a regular basis to decide how to talk to our faculty and our legislators about what we should be doing to look at the best practices out there.

If I could talk some about the technology that I'm using to push this strategy, one of the clear things that I've always believed is that communication is really your most important vehicle, and I do use e-mail significantly. I probably get 75 to 100 a day and deal with many of them myself. What I've found interesting is that while we've been going through this visioning process, I broadcast e-mails out to the faculty and staff to give them updates on where we are in the process.

We had a major healthcare benefits problem at the university because of the way healthcare costs were going up and the fact that we weren't paying much for a family's health insurance. As a matter of fact, we were paying 32 percent while our benchmarks were paying 89 percent. That hadn't really

been disclosed to our faculty and staff before. I put a healthcare task force together, and they came back to me with those percentages. So we put that information on the Web. We had a Web site that tracked every meeting that task force had. It's what I call transparency. You use technology to create transparency. You let the people know how you're getting to a decision by providing the intermediate information to them. We finally came down to their recommendations, and I decided what I was going to implement. We are now paying 54 percent of the healthcare cost for our families because I made it a real priority to solve that problem. When I sent that e-mail out one night to faculty and staff, and we've got about 12,000 faculty and staff, the first reply that I got was from

a staff member who just thanked me for the communications process. He didn't thank me for the money; he just thanked me for staying in touch with the employees and letting them know how I made the decision and what actions I was taking. So I think that as you try to move any organization forward, openness and the use of technology to create that openness is very important.

The other thing I've done to try to encourage this vision is the use of videoconferencing. For example, I went over to the medical center last week to welcome the new residents to our medical center. When I got there, the room was packed, and we had a video connection to the Center for Rural Health in Hazard, Kentucky, in the Appalachian region of our state to

the east of Lexington, and to our clinic in western Kentucky. Not only was I there to welcome people from one end of the state to the other, but we also had presenters, one from Hazard and one from Lexington, to talk about what I call the Kentucky uglies. So their program was based on determining the things that we can clearly measure that we think we can impact and the actions we are going to take to achieve our goals.

Kentucky is pretty well wired as a state. We have a lot of video teleconferencing sites (300+) around the state. So we had presentations from remote sites that were broadcast to everybody. There may have been more than two sites on at a time because we can tie in quite a few. It's important to have a strategic plan, but if you don't



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communicate it, answer questions about it, and get people to start talking about it for you, then you're not going to be successful. I have found that the videoconferencing links are helpful.

I have spoken to over 7,000 high school students since I've been at this job, and I was asked to speak to a group in Appalachia. Our congressman Hal Rogers has started a program called Roger's Scholars for kids in Appalachian counties to learn entrepreneurship. It's a two-and-a-half-hour drive there and back. I went to our Center for Advanced Manufacturing, cranked up their video

student center. I'd like to see kids collaborating sitting under the trees and surfing the Net and things like that. We've actually run power out to some of the areas so they can keep their batteries charged.

Two weeks before I took office our administration building burned. We're planning to rebuild it. But at this time, we've got administrators strung out all over campus. We're using Lotus Sametime Connect instant messaging. It has application sharing, and it also has IP audio/video built in as well. It's got what I call business-quality instant messaging, and we are using it

call someone and say that she's going to schedule a meeting with the president and asks if she can just send an invite and they're like, "What do you mean?" And she says, "Oh, you don't have calendaring?" And next thing you know, they have calendaring. It's growing. We'd like to get the students tied into that system, too. They're not yet, but that is part of our technology plan. We want to put as much information on the network as we can about schedules and classes. They do now e-mail their professors a lot—that's already happening. But just having the uniform calendars across the university is important.

ACUTA: Standards are a critical part of any strategic direction.

Todd: I agree, standards are very important. The way that Data Beam really got a break was when we applied for the Star Wars contract. We had never shipped a product before. But I went to the NSA [National Security Agency] and other government people making decisions and told them that we were going to publish our protocol and that we were going to do data conferencing so they could transmit documents and interact on them and so forth. At that time Compression Labs was the only video vendor out there. PictureTel was trying to break in, but CLI had a proprietary standard, and if people wanted to talk to a military video teleconferencing facility they had to buy CLI. I knew the government didn't like it. So I kind of got my best break with the Star Wars contract. We delivered the first product that Data Beam ever made to the Star Wars contract without ever having had another sale. That was our very first sale. It was largely because we were saying we were going to develop a standard. They then invited us to chair the T120 Committee at the CCITT

It's important to have a strategic plan, but if you don't communicate it, answer questions about it, and get people to start talking about it for you, then you're not going to be successful.

teleconferencing facility and connected to the video teleconferencing room at a center in Somerset, and I just talked to the kids using that technology. I'm very comfortable with that approach.

The last thing I'll mention about technology on our campus is that we're wired pretty thoroughly. We've got a lot of wireless around the campus. We've put in a cyber Starbucks cafe in our student center. The whole student center is wireless, so students can go in and check out laptops and sit wherever they want to in the student center to check their e-mail or work on their term papers or whatever they want to do. Our outdoor areas around the dorms and central part of campus are wireless as well. It hasn't caught on as fast as I'd like for it to there, but it has at the

internally right now within my administrative staff. Right now while I'm sitting here talking to you, Linda can pop up messages to tell me that someone's sitting outside, or I need to sign something or whatever. You don't have to use the phone as much. You find people, and you get things done much faster.

ACUTA: What are you seeing as new and emerging technologies? How are you incorporating them within the university environment?

Todd: There's more, to just get away from the strategic piece of it. Just getting campuswide calendaring is important. We were so used to it at Data Beam. Here on campus, there were just pockets of people on calendar systems. Judy, my secretary who's been with me for 15 years, will

[International Telephone and Telegraph Consultative Committee], which is the ITU [International Telecommunication Union] now. I believe strongly in standards. With instant messaging, the Lotus product can actually talk to AOL's product; at least they could when I was still there, because they both used the same protocol. It's just so much more powerful when everyone uses the same standard. That's a big issue with me.

We're doing a new ERP [enterprise resource planning] system. I've hired a consulting firm for that project. When they tried to do it here some years ago it got to be very personal and somewhat political. They finally just ended up backing off and didn't do anything. We really need much, much stronger administrative computing. I'm a data hound. I like to see data. I reconstituted our institutional effectiveness office at UK because you've got to measure yourself. If you don't, then you won't make improvements. We're looking at an ERP purchase now. There are so many horror stories out there from the early days, so I needed someone as a third party to come in. This is part of my strategy in making this decision. I needed an independent third party to cut through all the stories that were just flying all over campus about the different potential implementations, so they could give us professional answers and not emotional answers. They're doing their work right now. I have a campuswide committee that I put together to make sure we know all the input we need, from student records to all the other issues we have on campus that we need to take care of. So we're in the middle of that. I'm going to be looking very heavily at standards because if you are roped into one vendor, then any expansion or modifications you want

to make can only be supplied by the proprietary vendor and you cannot control cost. Additionally, standards are very important, they allow the customer to participate in setting directions.

In our medical center, we're spending about \$70 million to put in a system we are purchasing from Eclipses. It's really an information management, patient electronic records system. We're calling it ISIS. It's a way for the doctors to enter their data and information in a much more systematic way. With all the HIPAA [Health Insurance Portability and Accountability Act] regulations, they're going to be broad based. We had the actor Jason Priestly in our hospital after his car wreck this summer, and our Web site had updates on Jason Priestly's condition. Well, in a few months you won't be able to do that; it will be prohibited. You really have to be able to maintain medical records and assure privacy. Again, as we go through that system and we're putting some of our own development into that, I'm trying to ensure that we don't get locked in and that we can at least have document standards so that we can interchange documents with other providers.

I know how you can play the nonstandard game and survive. It's interesting in our case. When we were developing the so-called T120 protocol, we had a product called Farsight, which we sold for about \$100. It used the standard protocol. Microsoft called and wanted to license the protocol. We knew that when they did license it, they would give away a product very similar to Farsight, which they did. Their NetMeeting basically does what our Farsight product did. But we also knew that if Microsoft didn't adopt the T120 standard, then it

wasn't going to be implemented throughout the industry. So we licensed them, and they were very kind. We had about 10 press conferences, and they really supported the press conferences and getting the word out. That helped us sell the infrastructure people and other people that technology because they knew that Microsoft was going to put it in their operating system, and they needed to support it. But it kind of shot down our Farsight product. We had a net server called the Net120 server, which eventually was changed to Meeting Server, and we knew we had to move quickly because if that standard got out there and everybody could do it, then we had to have another product that could hook on that standard. So it puts a lot of pressure on [standards-based] vendors to stay ahead with innovation because they can't maintain product development cycles or have the total product control they had when products were based on their proprietary standard. Their innovation cycle has to go faster, so I believe a lot in openness and standards.

ACUTA: Dr. Todd, you mentioned learning and distance learning. How did you assess the readiness of UK to support this distance-learning structure? What do you consider to be the top challenges and issues in this field?

Todd: I chaired the Distance Learning Advisory Committee in Kentucky that formed the virtual university for the state, the Kentucky Commonwealth Virtual University. The last time I checked we had more than 4,000 students on that network. I chaired it before I ever thought I'd have this position. But if you want to get any input on that, Daniel Rabuzzi at the CP office in Frankfort is a good source. That's going awfully well. It grew very

quickly. What I found when I was on that committee, which is made up of all the university presidents, is that this is not a technology issue. There are so many policy issues that you run into with distance learning at universities, such as who gets the tuition dollars, how do you charge—per course or a flat fee—and what about intellectual property.

To me, there are two limitations to the spread of distance learning. One is the policies that need to be developed so that people can clearly know how to charge for it, how to make money from it, and how to protect the intellectual property. The other is just a behavioral change. What we found is that the people who were placebound, such as a librarian who had to be in a library every day in a small rural setting, could never come back to the university and get a master's degree, but they could certainly click online and take Web-based courses. So the people who had no other choice were your early adopters. Trying to get the faculty to change their courses and put together courses for e-learning was a bit of a stumbling block here at UK and throughout the state. To entice them, we put in some grant proposals and encouraged faculty to come together from different universities to form courses that we offered throughout the state, but we gave grants in order to initiate course development and get courses on the network earlier. It does take time to develop e-learning courses—it's almost like writing a textbook—so we thought that we had to give that incentive.

One thing I'd say about standards, I also chaired the committee that put in the virtual library for the state of Kentucky, and the librarians had already advanced quite a bit, so we did what I call financially induced cooperation. A lady named Miko Pattie

is the head of the Kentucky Virtual Library, and we just basically said that this is the library software we're going to go with, and anybody who wants to go to the Virtual Library should have the same experience no matter where they are in the state or what institution they're with. Then, we said that we've got the money to buy this for you. If you want to do something else, that's fine, but we're not going to pay for it. There are drivers. These are the nontechnology things you have to do to get adoption. One of the big assets, the access we've had to databases and articles for rural libraries, and the things that they can get now that they could never have afforded in the past, has really been super.

We have the number one endowment for a public library in the United States. Our William T. Young Library has about a \$70 million endowment, second only to Harvard. When we buy databases for the library, we make them accessible to everybody in the state. When I looked around, the state of Kentucky was pretty well braced for two-way availability from an infrastructure point of view. During the Governor Jones administration, we put in a backbone network, and we wrote a job description for the chief technology officer for the state. We were pretty well positioned for two-way video, and we do quite a bit of that in the medical center and between institutions in this state. We don't do as much Web-based work as I want to. In my first year at UK I have not been as involved in that, but I do plan to become more involved in my second year. I think people felt, with me being an engineer and coming out of the software business, that I'd spend a lot of time dealing with things that were technical, but I just didn't my first year. I do intend to do a review of our distance-learning program. What I think I will find is that it's not the

technology—again we're a pretty wired campus and we have access to bandwidth throughout the state—but our shortcoming is in our aggressiveness to put online courses together. Some are doing it, but we're not doing it in the unified way I'd like to see in the future.

ACUTA: Do you see that as a bigger service to Kentucky residents or nationally?

Todd: I think it's national. When I interviewed, one of the faculty asked me, "How do you think your business background is going to help you be president of UK?" And I have to tell you that some of the faculty were not thrilled with that concept, one, with an engineer being president and, secondly, with an engineer from business, even though I had taught here for nine years. I was on the faculty here and had tenure when I was younger.

My comment to them was that I think one place where my business background will help me is that I think higher education is the next industry to be deregulated. And it's going to be deregulated based on technology and telecommunications. Stanford could offer a free MBA in our backyard for a year if they wanted to just get market share, and that's pretty attractive.

So what we've got to do as an institution is identify our strongest strengths, find what we have that is appealing to people throughout the world, and offer it. We need to be positioned to be able to offer those courses at a distance to a population who will come to us because we have the expertise in that field. So I think that part of our obligation initially is to give access to education to our residents who are placebound in the state, but at the same time our audience can be far flung. I know we've done some work in the past with Kuwait through our dental program.

We've actually flown some faculty members over there; we're doing some now in Dubai with the business college. And in each of the cases where we have a relationship, we should have a strong distance-learning component that we can offer on a regular basis. I think that's where universities are different. In the past we were kind of a regulated environment—we controlled our area, and people had to come to us. But just like telecommunications tore down the Berlin Wall, it also tore down that fence that used to protect us. Now, we have to go wider to bring in the customers.

Distance learning not only plays a key role in the courses you sell or whatever, it's the uniqueness that you can bring into a classroom. So we've got smart classrooms on campus that are wired like many universities do, and you can bring in guest speakers such as John Chambers or Bill Gates to talk to your class. I think that technology broadens the educational field, not just in selling the distant classes but also from enriching that experience inside the classroom.

ACUTA: Regarding e-commerce and its projected rise in corporate America, do you see that same impact on higher education with e-commerce? You're not selling just the courses, but you're selling your other strengths whether that be library resources, smart classrooms, and so on.

Todd: We are not as advanced in e-commerce as we could be. I think the healthcare industry is where the service has grown. Student-based population could certainly benefit by allowing people to pay electronically, to look at their healthcare electronically, and to deal with all their internal bills for employees. I'd like to see us get onto an electronic travel system within this university. We still fill out paper.

When I was at IBM we had, you might not call it e-commerce because it was for internal use, but it was a commerce-based application. I think that's going to be the natural evolution so people can come to you and do everything electronically. Some universities are doing that now. It's a natural move as you get away from the paper process, but we have not been as involved in it yet as we will be.

ACUTA: Security always becomes a big issue with universities, that they're doing a balancing act. They want to be free and open with information, but there are also regulations. How do you handle security issues? Do you farm them out or do you take care of them internally?

Todd: We take care of it internally right now, and I know this whole "hosted service business" is picking up. Of course IBM has recognized this. IBM is offering managed security services from its Global Services Division. Other managed services companies like WebX offer applications to individual users from their location (ASP). I looked at putting in a hosted service for Lotus's collaboration products where we let people use the application on Lotus servers managed by Lotus personnel; we'd host the meetings. I do know companies are hosting people's software. That whole ASP market is going to happen, but it sure was slow to get going. And I think some of it was a concern about security. We haven't taken that step outward. We would probably evolve some processes that we will outsource in the lower-risk applications. Again, just in running an institution of this magnitude, if you can outsource a capability and get it done effectively with security and at a low price, then that's going to happen. That's just a natural piece that's going to move

forward. I haven't tracked the ASP market previously.

At Lotus, we did a packaging to provide our products to ASPs so that they would take them on and start to sell them for us. It was slower to take off than any of us wanted it to be. We were relying on them to provide the secure links. There's big business in that, so that will happen. There's a general caution, I think, on all fronts to turn it over to somebody until you test it with some kind of starter area and then see how that works and then sort of let more of it go. That's one of the things that was beneficial about being associated when IBM acquired my small company. We were selling conferencing products that allowed you to share data over the Internet, and people were somewhat skeptical about whether they wanted to do it or not. Just having the power of an IBM behind you who could take their global services and put you on secure networks and do some of those things helped us sell products to corporations that just wouldn't buy from us before. Security is a big issue. It will happen.

We talked to quite a few companies who were very interested in outsourcing their whole network, everything. They got down to the point where they were talking about just good enough mail. They didn't have to have all of the whistles and great features that software companies want to put in it. They just wanted something simple that was secure. They didn't want to have a whole staff of IT professionals, because IT professionals are hard to retain now in the marketplace. There's an interest in companies outsourcing it. Security probably was the lead question in the discussions that I had when I was trying to sell software. It's definitely a concern.





Curtis J. Tompkins Today

Curtis J. Tompkins, PhD, president of Michigan Tech from 1991 until stepping down in spring 2004, served previously as dean of the College of Engineering at West Virginia University and as a faculty member at the University of Virginia and the Georgia Institute of Technology. He earned his PhD degree in industrial and systems engineering from Georgia Tech.

Curtis J. Tompkins, Ph.D.

President, Michigan Technological University
Spring 2004

ACUTA: For the benefit of our readers, briefly profile MTU.

Tompkins: Michigan Tech is one of 15 public universities in Michigan and the only public technological university in the upper Midwest. We're located in Houghton in the pristine Upper Peninsula, which is one of the most beautiful places in the world, near the shores of Lake Superior. Started as the Michigan Mining School in 1885 and known since then primarily as an engineering school, Michigan Tech's teaching, research, and outreach, all of which goes through the doctoral level, encompasses a much broader range of subject matter.

Michigan Tech is a technological university, and essentially most of what we do is related to science and technology. For example, in what many would call an English department (we call it our Scientific and Technical Communications area), the skills one gains in a good English program are focused on technical communications. In social sciences we focus on history of technology. We do have the broader courses in humanities, social sciences, and fine arts, but virtually everything we do ties back to technology, and our strategic areas of focus include biotechnology, environmental sciences, nanotechnology, engineered materials, information technology, and the natural resource development area, which includes not only forest resources and environmental science but also very strong aquatic ecology, terrestrial ecology, and biological sciences.

ACUTA: What is the relationship of Michigan Tech with the other 14 public university campuses in Michigan, and how is this controlled?

Tompkins: There is not now and never has been a state body of higher education in Michigan. Three of the boards—Michigan, Michigan State, and Wayne State—are elected in statewide elections. The other universities' boards are appointed by the governor. So it's an unusual system with a great deal of autonomy, which gives us flexibility.

ACUTA: Many campuses are facing cutbacks in funding. What has been the impact of these reductions on MTU?

Tompkins: Other than to give me gray hair and ulcers? Times are tough in Michigan, but they are for almost every state in the country in terms of state support for public higher education.

One of our mantras across the country is that public higher education is not treated as much as a public good as it was in earlier times. Public higher education has increasingly been seen as more of a private good, and

the financial burden falls more on students and the students' parents to pay a larger share. In 1965, more than 75 percent of Michigan Tech's budget came from the state. Now about 45 percent of our budget comes from state appropriations, so we've been losing about a point per year in terms of state support, and that's not peculiar to Michigan; that's true of many states.

We have been tightening our belts and have done a significant amount of expense reduction, but it's not that simple. We want to be strategic in terms of the way we handle this. We've been revamping our business processes and trying to leverage technology to be more efficient; for example, to enable Web-based self-service customer relationships with campus constituents.

One reason I point out that we're the only public technological university in the upper Midwest is to indicate that Michigan Tech is the most expensive type of institution in the nation. Our programs are very high cost because of the heavy concentration in engineering, science, and technology. We're working hard to focus on our priorities, realizing we'll have to continue to make tough decisions, but we think in doing that we'll maintain quality and remain strategic and focused.

ACUTA: You mentioned leveraging technology. Broadband services are purported by some to be capable of redefining how we work and play. What is your vision of the future of broadband services as it relates to Michigan Tech?

Tompkins: High-speed access is something I'm sure all universities have been working on and need to have for access to our websites and streaming

video and using movies and games and other graphical information. That has become the norm. Students come here accustomed to high-speed access and a wide variety of services. The benefit of adding e-commerce is just a fact of life now.

More than 20 percent of U.S. households have high-speed Internet access, and many people are experiencing what I consider a huge effect on how we interact among ourselves. I mean, even among family members, it's totally different now than it was a few years ago. This communication capability with alumni, corporations, the governor and legislature, and the rest of the world is much different than it was when I became president 12 years ago. The way we work, the way we play, the way we assimilate information, and the way students learn through inquiry and discovery are amazingly different today. As a result, the way we view the world is different. We can correspond with people all over the world now in real time, compared to taking days and weeks a few years ago.

From a university point of view, for Michigan Tech, the research initiatives and collaborative activities and access to online databases, instrumentation, and on-demand computing are very much affecting us. Broadband services have helped Michigan Tech by leveling the playing field in terms of distance. We're geographically a rather remote place, and yet I think distance is going down in the equation in terms of its importance. Information technology has made distance and location much less critical.

Impediments include affordability. Availability of what some call "big

pipes" in this rural area has been a major impediment that we're working to overcome.

ACUTA: The concept of nanotechnology continues to be hyped. Why is it generating so much excitement in the research area?

Tompkins: Nanotechnology—broadly defined as the science of studying, manipulating, and creating atomic-level structures that are less than a thousand nanometers or one billionth of a meter—has had a lot of hype, and I think there's a good basis for some excitement. There are all kinds of potential uses for nanotechnology for the benefit of humankind through science and engineering, ranging from creating new materials and faster computer chips to improving product durability and reliability.

Research initiatives include nanoparticles in plastics, nanomaterials in automotive parts, nanopigments in imaging, nanotubes in computer monitors, nanowires in molecular electronics, and nano pixie dust in magnetic disk surface coding. I don't think there was any NSF money going into nanotechnology when I was chair of the Plans and Planning Committee for the Engineering Directorate back in the late '80s. I don't remember even talking about nanotechnology very much, but I think this past year NSF put around \$700 million into nanotechnology-related research. I expect NSF to continue to increase funding for nanotechnology. So when you talk about hype, you know sometimes there's hype and it just sort of goes away. I don't think this is going away. ▶

ACUTA: Biotechnology continues to be a thorny issue for campus leaders as we grapple with the war on terrorism. Biotechnologists are facing restrictions similar to those imposed on physicists during the cold war. What advice do you offer to campus leaders struggling with this challenge and the dilemmas of being a good citizen while continuing to promote strategic research in this area on their campuses?

that, so it's not a new thing; we're just facing a new version of that challenge. We're trying to see the larger picture and how Michigan Tech can fit into that.

In terms of campus issues, we need good policies and procedures that assure compliance with the law. Those are mandatory, essential things; but we have to be vigilant to make sure that

What role has technology played in this transformation?

Tompkins: When I came here 12 years ago, Michigan Tech was ranked as a regional, not a national, university. Michigan Tech became recognized as a national university because of significant growth in research activities. Continuing to make progress in the face of tough economic conditions means that we have to work hard on our business processes and practices to become more efficient and productive.

We must continue to invest in our campus technology infrastructure. I am on the road more than 50 percent of the time doing external fund raising. Our recent capital campaign raised \$146 million against a \$100 million goal and finished the campaign 18 months ahead of schedule. About 25 percent of the funding we received from private sources was invested in our campus infrastructure. Now we're planning a \$500 million campaign. We recognize that much of our infrastructure development is not going to be funded by the state of Michigan, so we're asking corporations, foundations, and individuals for increasing support.

As an eternal optimist, I'm optimistic that Michigan Tech is a place where good ideas and best practices are contagious. There are a lot of examples of that, and so we work together to have a shared vision of being an international university of choice (which we already are—we have students from 80 countries), good communication, and shared governance.

I have found that shared governance is not easy, but we've been working hard to have faculty and staff

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Tompkins: That's a tough one, and a topic of discussion among university presidents. Tradeoffs involved not only in biotechnology but in a wide array of university research, who's involved in it, and homeland security are not as simple as perhaps some of the congressional leaders thought when they passed homeland security legislation after 9/11. There's a concern among university presidents that we may have gone almost too far already in terms of restricting research and who's going to be involved in it to the point that there's a danger of the United States losing ground—if not supremacy, at least our leadership—in basic research. And so research universities are being challenged to find balance. I think it's true that developments in science and technology can be used for good or for evil. There are hundreds of examples of

America remains competitive through strong basic research and is not hurt by too many controls that would diminish the pace of discovery and development. We're being told by the federal government that we should not have people from foreign countries involved in research that deals with things that would be sensitive to national security. The problem lies in the definition of "sensitive to national security." It's too vague. Some of the best brains in the world come to the United States to get their doctoral degrees and be involved in research, and if we cut that off, we're giving up a lot of intellectual potential.

ACUTA: MTU was recently highlighted in *U.S. News & World Report* as one of the top 50 public universities in the country. What attributes, skills, and experience do you think have been most valuable in leading the transformation of the institution?

involved in continuous improvement of the university. We have demonstrated a willingness and ability to make tough but necessary decisions, some of which have not been popular. Nevertheless, the key word is teamwork, I think. Teamwork is essential and includes not only those on campus but also many alumni and other supporters. Michigan Tech should be in a perpetual state of transition.

ACUTA: Michigan Tech has placed an emphasis on its corporate connections, through such activities as corporate partnerships, collaborations on technology research and development, and specialized education and training programs to meet the needs of private industry. In many ways, the campus has been on the leading edge of forging mutually beneficial relationships with the corporate sector. How have these relationships affected the campus community? What has been their impact on communications and information technology services in particular?

Tompkins: I believe that you build solid, ongoing relationships with corporations selectively focusing on one corporation at a time to establish and nourish partnerships that will stand the test of time.

For example, Michigan Tech did that with Ford Motor Company. When I arrived in 1991, we had about 850 alumni with Ford. The company understood us, we understood them, and we had a good relationship, but we really didn't have a true partnership. Our methodology for the past 12 years has been to understand the needs and the strategic directions of a corporation

well enough that we can determine how the university can help fill some of those needs. We do not go to any corporation with a tin cup asking for donations. We want to partner with selected corporations and have an ongoing, sustainable relationship, which means that we will continuously work with them to determine how the university can help the company achieve corporate goals and objectives. And, in the spirit of partnership, there is reciprocity in that relationship.

In the case of Ford, for example, we developed a rolling five-year plan that had 24 different elements—specific projects—that we would work on. Through that approach, Ford's satisfaction with Michigan Tech increased, and as a result funding from Ford increased. Additionally, Ford gave \$1 million for the Environmental Sciences and Engineering Building, and in the face of their very tough economic situation, they just gave us \$1.1 million dollars for our Advanced Technology Development Center.

One of the things I learned a long time ago is not to over-promise or over-commit. If we can't do something, we admit that. The integrity of the relationship is really key to long-term partnership success.

Our corporate partners like to invest in Michigan Tech because they want us to have cutting-edge capabilities in areas that are important to the company, so it's almost like an automatic fund-raising method. They know us so well through the partnership that, for example, when we were talking about the Advanced Technology Development Center, Ford said that was something that they

would like to put their name on because they wanted to be identified with the things that will be going on in that facility, particularly our student enterprise program.

Part of the magnetism of Michigan Tech is that we have been very applications-oriented in much of our research, developing things that are commercializable, that companies can carry forward to the marketplace. As a result of that, during the last several years we have had invention disclosures at a rate of about 1.5 times the national average for research universities and 3 times the national average in terms of licensing of intellectual properties. I like to brag that almost one third of our intellectual property disclosures and inventions are being developed by our undergraduate students. The graduate students also produce a big share, but the undergraduate students are involved in generating about 30 percent of our invention disclosures. That is, I think, off the charts relative to most other schools. And the reason for that is the way we get students involved in real problem solving and real product development and involved directly with the faculty on research. Our mission is to prepare our students to create the future, and our faculty have increasingly emphasized creative skill development.

ACUTA: What are some of the other major corporations that Michigan Tech has partnerships with other than Ford?

Tompkins: One of our most successful is with Kimberly Clark, but actually the companies range all over the map. Even though we're in the Midwest, we have more than 250 alumni working for Boeing, for example, in Seattle. ►

Michigan Tech has alumni with almost any corporation that deals with engineering or sciences. We have been the largest provider of distance learning to General Motors in the world. We have about 1,200 alumni working for GM. Dow Chemical Company and Dow Corning have been large employers of Michigan Tech talent.

Our marketplace and our alumni are scattered into more than 100 countries. As I visit alumni in other countries, I have found that many of the international students have gone back home and become presidents, CEOs, managing directors, and owners of corporations. We have been developing partnerships with companies in other countries. One of those is Norse Hydro, the second largest corporation in Norway. We're partnered with Norse Hydro and the Norwegian University of Science and Technology in Trondheim with research, faculty exchanges, and graduate student exchanges being supported by the corporation. We work with a significant number of companies based in other countries. And we recently established a program in New Delhi, India, where people will be getting Michigan Tech degrees. That initiative is sponsored by some corporate interests in India.

ACUTA: The higher education community has witnessed significant gains in leveraging networks and information technology over the last 25 years. What new project has MTU implemented that you are most proud of? What are some of the emerging leading edge technological developments that will have significance for the higher education marketplace?

Tompkins: We talk about rapid pace of change in society, but I think the rapid pace of change in a technological university is even greater. It has been said that 80 percent of the science, technology, and engineering that will exist in 2025 does not exist today. That's just mind-boggling. Never an "ivory tower," Michigan Tech has always had hands-on involvement with the real world. That's one of Michigan Tech's great competitive strengths. We will continue to embrace and help develop new technological approaches and to leverage their enabling capabilities to do things like reduce costs, improve productivity, enhance customer self-service options, and manage communication overload.

Some of the emerging technologies that I think hold great promise for the academic world enable location transparency, so that it doesn't make a lot of difference where an institution is geographically. Security, to protect the privacy of strategic resources, and that's security from a variety of points of view including homeland security. Broadband services to provide the affordable broadband big pipes, the wireless and the mobile computing services area. We're very much involved in work on that to enable anywhere access. Nanotechnology we talked about, enabling things like molecular manufacturing and machinery and computation. And one we haven't talked about yet voice and video over IP that, as I understand it, will be driving the economies of scale and efficiency.

I am most proud of our converged campus network where IT has implemented a VoIP campus backbone with high-speed Internet mobile access,

and our great relationship with Mitel Networks and the Mitel Networks Center of Excellence with their new VoIP-based PBX telephone system for which we're very proud to have been a beta test site.

The Michigan Tech admissions portal that IT developed in conjunction with our admissions office provides a customer relationship portal system with our prospective students.

The NSF middleware grant supports our participation in a national Internet2 and EDUCAUSE initiative to help scientists and researchers use Internet2 for inter-institutional collaboration and sharing of instruments and information resources.

There's remote microscopy, which I find really interesting. Michigan Tech's civil engineering department and IT worked together to implement a new online electron microscope that could be accessed via Internet2.

And then we've had the Sun Microsystems Center of Excellence for the Sun-Ray technology for a number of years.

Those are just some of the value-added information technology initiatives.

ACUTA: Michigan Tech has been highlighted as one of the institutions in the country running a unique program to provide applied and hands-on experience as an integral part of the science and engineering degree programs. Briefly describe your engineering enterprise program.

Tompkins: The student enterprise program is basically our answer to private industry's need for graduates

who not only have technical expertise and competence but also understand the practical applications of their skills and knowledge and understand how a business runs. This program was started with substantial funding from NSF and industry, particularly Ford Motor Company. Our students and faculty create companies (we call them "enterprises") made up of 30 to 70 students each, focusing on engineering product development or processes, whatever the sponsoring corporation might need. One of the reasons that one-third of the intellectual properties coming out of Michigan Tech are coming from undergraduate students is because our students learn how to protect their intellectual properties as they develop new products and how to move them forward to commercialization. It's really an integrated approach with industry where industry people and faculty work with the students as the enterprises go forward. The students are sophomores, juniors, and seniors, so the typical Michigan Tech student would have three years in an enterprise.

The enterprises are interdisciplinary, and the composition changes depending on what they're doing. Basically it's like setting up your own company. To do something you need various types of expertise, so you typically have two or three or four engineering and science departments represented, but always the business school represented so the business students are part of it as well. A typical Michigan Tech student would have three years of experience starting and running a business on campus and having real products come out, protecting them and worrying about

prices and costs and all the things that you really do have to worry about when you start your own company. Then, in most cases, the students work during the summers after their sophomore and junior years for the sponsoring companies, so when they graduate they have a tremendous background. They take all of the regular courses they would normally take; the enterprise program is basically an elective series. It's not something we require. But we have students lined up outside the door wanting to get into this exciting approach to learning.

We've been doing this now for four years, rolling it out gradually. We have 17 of these enterprises involving about 500 students, and each semester we're adding a couple of new enterprises. We'll just keep doing that until, I think, virtually every student at Michigan Tech will be part of it. There are more companies wanting to sponsor enterprises. Currently, a sponsoring company puts up \$35,000 per year as a base fee, and the company owns the resulting intellectual properties, which is fine because it's really valuable for our students.

Michigan Tech continues to be involved in the Future Track project (formerly known as Future Car) that the U.S. Department of Energy has been sponsoring with the Big Three to come up with ultimately, I think, a fuel-cell-based vehicle. Michigan Tech's Future Truck teams have been consistently highly ranked in annual national competitions.

Our students are also involved in the clean snowmobile challenge aimed at coming up with a snowmobile that is very quiet and has low emissions—

something that Yellowstone National Park, for example, thinks would be okay for their environment.

We have a very large wireless communications enterprise doing a variety of product developments in wireless communications and some integrated microsystems.

There is an aerospace enterprise that, with \$125,000 support from NASA and the Air Force, is designing, building, and then launching a satellite called a nanosat that will be able to discern water supplies under the earth's surface worldwide from space. These are college students that are doing this, and that's one of our enterprises.

So it's really one of the most exciting developments in education that I have seen, and it makes education very relevant to the students. It's one of those things that the students get into and put a tremendous amount of time and energy into beyond anything you could ever require them to do, but they do it because they just love this sort of hands-on discovery-based approach to learning.



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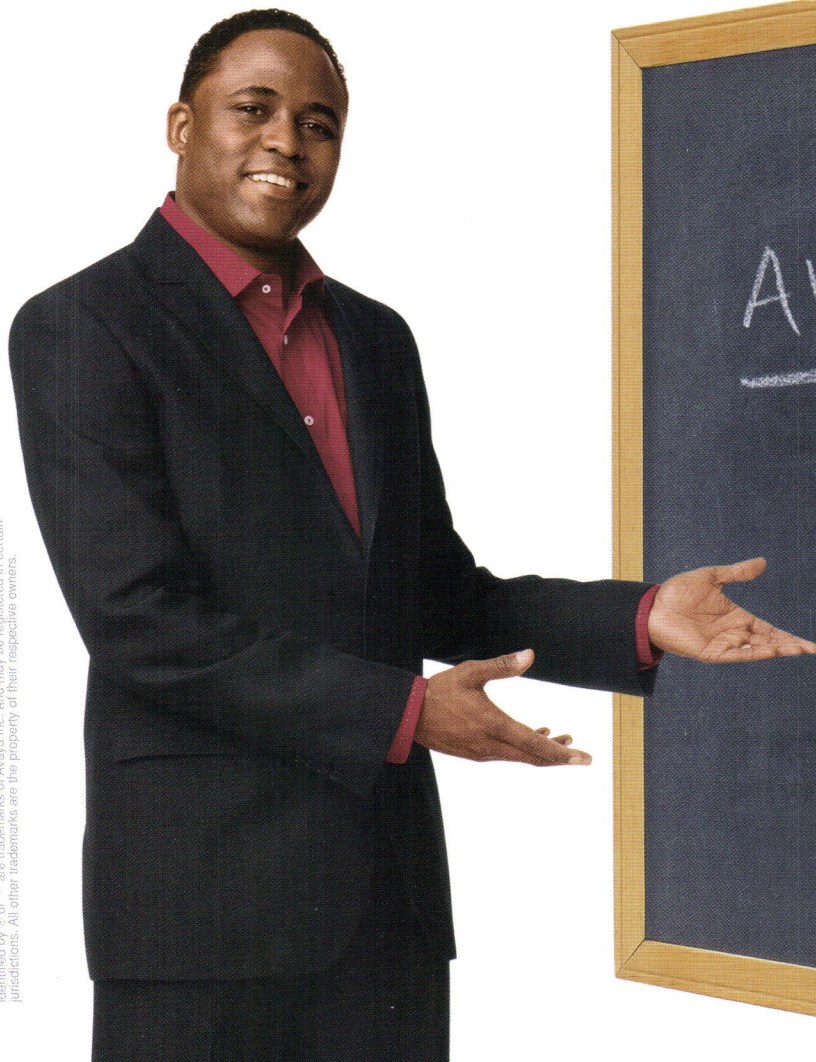
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