

## **Introduction**

Maintaining technological currency is a WSU mission critical element. Technology's high cost, rapid pace of change, and fundamental impact on higher education make careful planning, essential for achieving the three goals of the University's five year Strategic Plan.

In response to the Provost's directive to the representatives of the University Technology Committee (UTC) each of the Colleges has prepared and presented a comprehensive five year planning document to address technology needs and requirements. Also, the University Classrooms of the Future Committee (UCOF) has concluded a study of classroom-technology issues and has produced a set of recommendations and guidelines that touch on many technology issues.

It is acknowledged that the individual college's plans indicate separate resources and staffing to support their technology initiatives. This plan is not intended to offset those plans but to focus on university-wide needs.

The college plans and the guidelines and recommendations of the UCOF Committee provide the elements for this document: *Wright State University's Information Technology Plan, 2004-2009*. This plan will be updated periodically in conjunction with results from IT Committee surveys and college tech plan updates.

## **Four Key Elements for Technology Planning**

- (1) Addressing the University's pervasive technology needs
- (2) Addressing classroom and instruction technology needs
- (3) Addressing faculty technology needs
- (4) Addressing student technology needs

### **1. Addressing the University's Pervasive Information Technology Needs**

Technology applications pervade every aspect of WSU campus life and operations. In order for WSU to keep pace with the growing and constantly changing demands of technology in all phases of the University's work, there will have to be increased funding for technology infrastructure support.

## Recommendations:

1. Replacement and repair funds – In order to protect its investment in information technology and ensure that faculty and staff have the tools available when they are needed, the University needs to establish repair and replacement funds at the appropriate level to support these needs.
2. Expand wireless capacity – The demand for wireless network capability throughout the campus has rapidly increased and will continue to do so. This is evident from the college technology plans, from the concerns and recommendations of The Classroom of the Future, and from the questions asked by students. The University should deploy wireless network access throughout all the campus buildings and residence halls. The cost of this project is estimated to be \$500,000
3. Expand funding for networking and infrastructure. – The campus network has become a critical resource that is used intensively by the entire WSU community. In order to maintain a robust and reliable network we must replace electronic components of the network every 3-5 years. This will require an annual allocation of \$375,000 from the Technology Fee Fund, (TFF). Other universities are experiencing a decrease in their dial-in modem usage; Wright State is not. We need to continue support for the modem pool, including the replacement of aging equipment. This will require an annual allocation of \$100,000 from the TFF.
4. Support the timely implementation of the Banner System – The University is in the first year of a multiyear project to replace all of its core administrative systems with the integrated Banner product. University commitment and support are essential to a timely, successful implementation.
5. Expand portal usage – The University should continue to expand the use of the WINGS portal as a communication and collaboration tool as it moves towards becoming a digital campus.
6. Evaluate and implement a content management system – As more university and college information is provided electronically it becomes very important that this information is accurate and current. Many organizations use content management software to help with this task. Within the next 3-5 years, the university should evaluate content management products for their suitability for use at Wright State.
7. Create a fund for the replacement of staff computers – The use of computers is an integral part of many staff jobs. It is recommended that a fund be established, similar to that used for faculty computers, for the periodic replacement of staff computers. This will ensure that appropriate computing will be available for staff to perform their jobs.
8. Provide universal access to information technology – The University should continue its efforts to provide universal access to the information technology resources on campus. It is necessary to ensure that those with disabilities have the same access as others.
9. Support improvements - The information technology support units, (CaTS, CTL, & UL), should continue their collaborative support efforts, and continue to look for ways to improve their coordination and level of support.

## **2. Addressing Classroom & Instruction Technology Needs**

Between 2004 and 2009 the university will experience significant growth in the use of instruction technology within the classroom and as an extension of onsite instruction through online and video-based formats. Based on the Colleges' Technology Plans, the findings of the Classroom of the Future Committee, and the Wright State University's Distance Learning Plan, the university, by 2009 will:

1. Have integrated appropriate technology into every instructional space—general classroom, computer-based classroom, and instructional lab--on campus. What is currently defined as an electronic classroom will become the standard configuration of all such instructional spaces;
2. Have created the necessary infrastructure to allow any class to incorporate video-based instruction. Faculty will be able to access remote sites as necessary to either access offsite learners or to bring into onsite classes offsite content experts;
3. Have expanded the number of courses accessible through fully online formats to 10-15% of all courses. The university will continue to expand the number of degree programs provided through a combination of onsite and online instruction; and,
4. Have created an infrastructure that allows any class to integrate online instruction into existing face-to-face courses.

Faculty surveys show that technology now plays a critical role in the majority of classes taught at Wright State University. The 2003 Faculty survey by the Faculty Senate Instructional Technology Committee found that:

- a. 68% of the faculty use email in teaching their classes
- b. 53% of the faculty use the internet in teaching their classes
- c. 29% of the faculty use faculty web pages
- d. 29% of the faculty use electronic reserves
- e. 26% of the faculty use some type of course management software

Over the past five years, the growth in the number of students enrolled in courses using WebCT increased from 200 students per quarter to almost 11,000 students per quarter. In that same time period, the number of electronic classrooms increased from 10 rooms (8% of all general classrooms) to over 62 rooms (50% of all general classrooms).

The college technology plans indicate that this trend will continue. Instructional technology use will increase. The Raj Soin College of Business, for example, reports that “the College anticipates significant growth in both web-delivered courses and in the use of distance learning classrooms for course delivery.” The College of Education and Human Services Technology Plan starts with the vision that “all learning environments must promote the active construction of knowledge by providing administrators, teachers, and students with the ability to use technology effectively.” The College of Liberal Arts states that “the college will encourage the incorporation of technology into the curriculum

in order to promote a more learner-centered curriculum by: providing all faculty with appropriate computing resources so that each user will have a desktop system that will accommodate growth in the use of technology; expanding the availability of electronic classrooms to meet increasing demand; maintaining existing computer classroom/labs; providing training to faculty who will inject significant technology into their courses; and providing staff through CaTS to support technology in the college.” The university should continue to expand faculty access to electronic classrooms. One of the findings of the Classroom of the Future Committee’s research is that, “the university needs more electronic classrooms of all sizes, as the shortage of such rooms unwittingly contributes to underutilization of space, including pushing small classes up into larger-than-needed rooms, thereby leaving small classrooms vacant.”

The University’s Distance Learning Plan, the recommendations of the Classroom of the Future Committee, and a majority of the College Technology Plans envision Wright State University offering more courses through web and video-based formats. The University’s Distance Learning Plan projects that between 10 and 15% of all courses taught at the university will eventually be available through an online or video-based format. In addition to the four current degrees available to students online, the college technology plans project additional online degrees in Engineering, Education, Business, Nursing, and Liberal Arts. The technology plans from Engineering, Education, and Business also include the extension of existing classes to remote sites through the use of video-based instruction.

While the number of fully online courses and degrees remains uncertain, the blending of onsite and online instruction will grow. The number of instructors, for example, using course management software as an extension of their onsite course continues to grow. In 1999, on average only 31 instructors per quarter integrated WebCT into their teaching of onsite classes. This number has grown to an average of 270 per quarter in 2004. By 2009, almost all onsite classes at Wright State University will blend face-to-face and online instruction as part of the course.

WSU classrooms must be technologically up to date and enable faculty to take advantage of developments in computing and telecommunication that advance teaching and learning.

Recommendations:

1. Establish a replacement and maintenance fund for instructional technology  
The university must protect its investment in instructional technology by providing a source of funds to replace and maintain the equipment used to support the onsite classrooms and online classes. CTL estimates that the current value of this investment is almost \$6 million. Consistent with this recommendation is The Classroom of the Future Committee’s recommendation that the university “establish a permanent classroom repair and upgrades budget, using the past two years as a baseline; and establish a

permanent replacement budget for electronic classrooms and other instructional technology.”

2. Create Flexible computer classrooms – This recommendation comes from the Classroom of the Future Committee and should be phased in as the need to upgrade computer classrooms occurs. The initial approach will be the use of adaptable furniture. However technology is changing rapidly and better options may be forthcoming. This will cost approximately \$1,000.00 per work station. We recommend that funding come from House Bill funds.
3. Increase the number of flexible learning spaces -- The findings of the Classroom of the Future Committee demonstrate the need to create an additional 25-30 classrooms in the 50 and below range and 2-3 classrooms in the 90 and above range. The university should convert existing classrooms that can be used for only a certain type of instruction into more flexible learning spaces. This can be done by expanding the number of wireless networks to reduce the need for computer-based classrooms and the use of mixed-mode courses where multiple classes can share the same classroom.
4. Continue to support Video-based Instruction and Video conferencing  
The university should continue to support faculty access to remote sites for both video instruction and video conferencing. Currently the university offers between 7 and 10 video-based classes a quarter. Both the College of Education and Human Services and the Raj Soin School of Business’s technology plans contain plans to expand the number of courses provided via video-based instruction. The Classroom of the Future Committee also recommends a continued support of video-based instruction. The university’s Distance Learning Plan recommends an increased sharing of classes between the Dayton and Lake Campuses.  
One of the increasing uses of technology on campus is video conferencing. Current uses include advising, research collaboration, and faculty recruitment. Emerging technology will allow any class on campus to connect their classroom with external experts through portable video conferencing equipment. By 2009, the use of video conferencing as part of onsite instruction will be as common place as connecting to the internet from the classroom is today.
5. Expand DMC -- Under the Ohio Board of Regents Technology Initiatives grant to the Ohio Commons for Digital Education partners \$300, 000 has been allocated for development of the Digital Resource Commons. This is the foundation for expanding the OhioLINK based Digital Media Center (DMC). We recommend that WSU support this initiative, a project intended to make the digital access of the University increasingly accessible to faculty and students.
6. Make all general classrooms on campus electronic classrooms (excepting a few small conference rooms) -- What is currently defined as an electronic classroom should become the general definition of a classroom by 2009. All the college technology plans envision their faculty teaching in fully equipped spaces by 2009. The Classroom of the Future also recommends the conversion of all general classrooms into electronic classrooms.

7. Establish technology training fund for faculty – CTL currently offers approximately 50 workshops a year in areas related to the use of instructional technology, more will need to be done over the next five years. Almost half of the colleges' technology plans indicate a need for additional training for faculty and staff.  
The majority of college technology plans recognizes the need for faculty access to the training necessary to take advantage of advances in instructional technology.  
While CTL, CaTS, and the Library have the capacity to meet many of these needs, the university will need addition funds to purchase online training, bring specific types of training programs to campus, and support faculty attendance at off site training.
8. Increased support for instructional design -- Instructional technology must have some positive effect on student learning to justify the expense of acquiring and supporting the equipment. Courses must be redesigned to insure that the technology contributes to the learning objectives of the course. Currently the university provides limited support in the form of two instructional designers located within CTL. With over 700 faculty, the university will need to expand this level of support to insure that the investment in instructional technology will improve the quality of student learning
9. Increase classroom support staff -- Despite the increase in the number of electronic classrooms, requests for the direct delivery of equipment to classrooms continue to increase. In 2004, for example, CTL responded to almost 8,000 requests for equipment. This was a 5% increase over the previous year. In addition, the use of university technology has expanded from a 5-day to a 7-day need. The university currently employs 7 full time staff to support over 170 rooms across all 7 days.
10. Distance Learning Initiative  
The technology plan proposes only a modest increase in the level of resources devoted to supporting the technology associated with online learning. The greatest need over the next five years will be in the form of instructional design staff capable of working with faculty in redesigning current face-to-face classes into classes that mix online and onsite instruction. Of particular importance will be the need to integrate assessment of student learning into these types of courses and the creation of new types of learning components that take advantage of the internet.

### **3. Addressing Faculty Technology Needs**

Information technology is an essential element in effective teaching and competitive research. WSU faculty need to have access to the most current hardware and software applications necessary to be able to teach effectively and to conduct research.

#### Recommendations:

1. Establish four year replacement cycle for faculty computers – It is critical that faculty have the tools necessary to perform their job effectively. Since computers are one of these tools adequate funds should be made available to ensure that all full time teaching faculty have new computer at least every 4 years.
2. Support and encourage the migration of faculty from desktop to laptop computers – The declining cost and increasing functionality of laptop computing make it feasible and desirable to move faculty toward the use of laptop computers. The portability of laptops will make it easier for faculty to adapt the appropriate software applications for use in the classroom. This portability and flexibility will also help reduce the cost of technical support for classrooms.
3. Establish a fund for college-specific IT needs – Each college has unique IT needs and requirements. It is recommended that a fund be established as a source of support for college specific IT initiatives.

#### **4. Addressing Student Technology Needs**

For effective student learning to take place at WSU, students will need to have ubiquitous access to computing, a requirement that will increase the need for more direct student physical access to computers as well as more staff support for computing functions..

#### Recommendations:

1. Pilot a student laptop loaner program – Approximately half of the Ohio public universities offer loaner laptop computers to their students. They have found this to be an excellent service to their students and helps provide laptop technology to those that can't afford it. Wright State should conduct a pilot project to see if such a program is desirable to offer our students.
2. Expand the Helpdesk – In order to provide our distance learning students the support when they may need it, it will be necessary to expand the hours of the help desk until a 24 x 7 schedule has been achieved.
3. Expand the Student Technology Assistance Center (STAC) – Student demand for assistance with the tools to make productive use of new information technologies has risen dramatically with the opening of STAC in fall 2002 in the Dunbar Library. STAC employs Library staff and trained student mentors to assist WSU students with the creation of soft-ware enhanced presentations, web design, video production, music production OCR and other applications.
4. Electronic Portfolios - Several colleges have begun to research, or have expressed interest in the use of Electronic Portfolio (ePortfolio). An ePortfolio is an electronic repository, typically web-based, in which students accumulate coursework or other relevant materials they may wish to share with selected individuals, with one primary example being potential employers as they approach graduation. ePortfolios are also beginning to be used by faculty as a tool to assess student progress towards course or program-based learning

objectives as well as at the institutional level as part of accreditation review. Since the ePortfolio would be appealing to more than one college and to students across many disciplines, it is likely that such software would need to be integrated with existing university services and considered within the broader mix of software and services supported by the institution. It is recommended that upon the completion of the SCT Banner system, Electronic Portfolios be considered and studied as an Enterprise Application involving all interested colleges and support departments such as the Center for Teaching and Learning (CTL), Career Services, and Computing and Telecommunications Services (CaTS).

### **Information Technology Infrastructure Maintenance Funding.**

Since 1995 the use of computing technology has grown dramatically, and now is part of almost every aspect of university operations. In 1997-98 a continuous fund was established by setting aside a portion of the tuition increase to support the cost of maintaining this growing technology infrastructure. The original plan recommended that a portion of tuition be set aside for each of five years, to create a fund of \$2,000,000. Currently a fund of \$1,650,000 is available.

With the expansion of technology in the classroom, computer based teaching labs, electronic classrooms, and the increased need for Internet bandwidth, as well as a general increase in the use of technology throughout the campus community, the current fund is inadequate. The continuing funds for the maintenance of the technology infrastructure must grow to almost \$4,000,000 by 2008-9. We recommend that a portion of the tuition increase for the next five years be allocated for this purpose. However this alone will not generate the continuing funds necessary, therefore we also recommend that the fund be supplemented from the House Bill funds.

Funding beyond the \$1,650,000 is currently not available. It will be necessary for the university to take action to obtain the additional funding to support the technology requirements of the campus.

The chart below proposes a distribution of the Technology Fee funds.

	2004-5	2005-6	2006-7	2007-8	2008-9
Tuition Allocation	\$500,000	\$350,000	\$325,000	\$275,000	\$275,000
Cumulative Tuition Allocation	\$2,150,000	\$2,500,000	\$2,825,000	\$3,100,000	\$3,375,000
House Bill Allocation	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000
Total Funds Available	\$2,450,000	\$2,800,000	\$3,125,000	\$3,400,000	\$3,675,000
<b>ACTIVITY</b>					
Student Computer Labs	\$100,000	\$100,000	\$125,000	\$125,000	\$125,000
Adaptive Equipment	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Dial-In/Modems	\$75,000	\$75,000	\$100,000	\$100,000	\$100,000
Central Software	\$300,000	\$325,000	\$350,000	\$350,000	\$375,000
Network R&R	\$350,000	\$350,000	\$375,000	\$375,000	\$375,000
Internet Services (OARnet)	\$190,000	\$200,000	\$210,000	\$220,000	\$230,000
Laptop Loaners for Students	\$30,000	\$0	\$0	\$0	\$0
Electronic Classroom Equipment	\$500,000	\$600,000	\$700,000	\$800,000	\$900,000
Distance Education	\$75,000	\$80,000	\$85,000	\$90,000	\$100,000
Computer Based Classrooms	\$330,000	\$450,000	\$300,000	\$300,000	\$300,000
Library/Public Computers	\$95,000	\$110,000	\$120,000	\$130,000	\$140,000
STAC	\$10,000	\$40,000	\$50,000	\$50,000	\$50,000
Lake Campus	\$60,000	\$75,000	\$90,000	\$105,000	\$120,000
College Init. & Tech. Plans	\$250,000	\$255,000	\$260,000	\$270,000	\$280,000
College Instructional Software	\$10,000	\$15,000	\$20,000	\$25,000	\$25,000
Faculty Technology Training	\$50,000	\$50,000	\$60,000	\$70,000	\$80,000
<b>STAFFING</b>					
Electronic Classroom Support - 2 FTE		\$50,000	\$100,000	\$100,000	\$100,000
Computer Based Classroom Support - 1 FTE			\$60,000	\$60,000	\$60,000
Instructional Design - 2 FTE			\$85,000	\$85,000	\$170,000
Help Desk - 2 FTE			\$60,000	\$120,000	\$120,000
Total Expenses	\$2,450,000	\$2,800,000	\$3,175,000	\$3,400,000	\$3,675,000