the university of texas at austin
School of Information

IT Vision Plan
2007-2008

Prepared For:
Information Technology Advisory Committee

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SUMMARY OF REQUESTS

The requests outlined in this year's School of Information IT Vision Plan can be characterized by three general categories: 1) more robust funding for infrastructure including IT staff and IT equipment resources; one-time projects that will 2) enhance pedagogical initiatives and classroom use of technology; and 3) support for ongoing s curricular initiatives (D-space, paper technology, etc.)

Infrastructure Projects	
Supplemental IT Salary Increases	50,000
Expansion of Consolidated Storage Systems	50,000
FAC and PCL Classroom Upgrades	28,000
Student Computer Lab Lifecycle	20,250
Software upgrades	12,500
One-time Projects	
Mobile computer classroom	38,300
Two GRA's for D-Space and the iXLab	33,000
Experimental upgrade of classroom presentation technology	1,000
Closer look at paper project	4,272
Total Vision Plan Request	**$237,322**

OVERVIEW OF CURRENT IT PROGRAMS AND INFRASTRUCTURE

The School of Information mission aims to advance our understandings of information literally, and informs the School's operations as we seek to explore and create information contexts through all facets of the work of the School. We seek to test out new methods of leveraging information resources, to create new forms of information space that serve our student and faculty needs, and to provide living examples of how information technology can shape practices and adapt to organizational needs. To further these goals, our IT needs are somewhat unique and the school should be viewed as a research and development environment for the university as a whole.

Vision/Mission/Goals of Unit

The School of Information seeks to engage those best and brightest people who thrive on challenges such as exploring and understanding the extraordinary complexity of information and to discover principles and processes that will manage its immense volume and tap its

promise for enhancing our lives. The School of Information aims to make a difference in the lives of citizens by shaping information realities that are accessible, useful, usable and sustainable.

The School's mission is to shape information realities for human and social benefit by:

- Discovering new and vital knowledge about information through research;
- Educating the next generation of information researchers, scholars and practitioners;
- Fostering leaders at the top echelons of national and local information organizations and agencies;
- Facilitating information literacy among the UT student community; and
- Providing continuing education and expert advice on information issues through collaborative relationships.

IT Programs

Information Technology Lab

The Information Technology (IT) Lab serves as the primary general service computer lab for the School of Information, and its facilities are made available to students, faculty, and staff. The IT Lab is staffed by School of Information graduate students and provides 32 stations running Windows XP and 18 Apple computers running Mac OS X plus access to a variety of specialized software and hardware items. Some examples of these specialized items are: statistical and multimedia software; network accessible, cataloging-related services such as Cataloger's Desktop, Classification Web, and Web Dewey; multiple flatbed scanners, a multi-page scanner, two digitization/conversion stations, televisions and VCRs; and a projector used for student presentations, short courses and other classes. Furthermore, the IT lab lends equipment to students, including Windows and Mac laptops, digital cameras, digital video cameras, firewire storage drives, digital voice recorders and more. Part of the IT Lab also serves as space for student work, with access to information technology and cataloging related books and teaching tools. The staff provides one-on-one instruction with students, faculty and staff as well as scheduled short courses on different topics throughout the semester. As part of this teaching effort, the members of the lab staff also produce a variety of instructional materials, ranging from basic, pamphlet-style handouts to streaming video tutorials.

Digitization Classroom

Our digitization classroom in the Sanchez Building offers 29 switchable Mac/Windows stations for student use. An IMLS grant has made it possible to supply each of these stations with a variety of audio and video equipment (analog and digital) to support our expanding digitization curriculum. The instructor station, which also provides both Mac and PC platforms, includes a document camera, VCR and DVD player, any of which can be projected in high definition for instructional purposes.

Audio Digitization Classroom

The advanced digitization lab in the Perry-Castañeda Library (PCL) has six high-end computer workstations. Each has a specialized sound card to interface with professional turntables, reel-to-reel decks, cassette decks, and other audio equipment in conjunction with specialized audio digitization software. The PCL lab also has video digitization and editing capabilities, including conversion equipment from VHS, SVHS, 8mm, and Umatic tape formats, as well as 16mm and 8 mm film to digital conversion. A number of digitization courses meet in this lab, and students enrolled in those courses have access to the lab through a swipe-card lock during regular library hours.

Information eXperience Lab
The Information eXperience lab, located at the Flawn Academic Center (FAC), has hardware and software for use in usability testing. Hardware includes multiple computers for users, a workstation to run the specialized usability software, and high definition video connections between the users being tested and the observers. Other rooms at the FAC provide additional space for the production of student and staff multimedia and tutorial projects.

Kilgarlin Center
The Kilgarlin Center houses six Macs running OSX in two labs, two flatbed scanners, and two printers. Recently an audio digitization cart was created for student and classroom use. Additionally, a teaching microscope is used to effectively demonstrate testing methods and procedures for conservation treatment and analysis to groups of eight or more students in the Conservation Studies program. Peripheral equipment supports the import of magnified images to computers for use in websites and videos. Currently, the peripheral equipment consists of a Mac running OSX and a digital video camera to provide video recording and editing capabilities for the microscope.

IT Infrastructure

As of the fall 2006 semester, the School has 17 full-time faculty members, 15 adjunct instructors and 17 support staff, five of whom are part-time. This group of faculty and staff support both Master's and PhD programs and our newly established undergraduate minor. Beyond the general facilities mentioned above, every faculty and staff member has at least one computer for their exclusive use, and some have more than that. Full-time members of the faculty have the option of choosing the type of computer and operating system they prefer, and we currently support both Mac and PC desktops and laptops.

Personnel
Four full-time and one part-time employee support a wide spectrum of iSchool IT services. This team includes a senior systems analyst (network and server administrator); a manager of computer services (faculty instructional support, and online teaching tools); a computer operations specialist (faculty, staff and lab IT support) and; an information analyst (faculty, staff, and student information literacy and IT lab management). The School also has a part-

time Web manager. Currently, resources from ITAC, as well as iSchool IT and Distance Education fees and classified budget lines fund these critical positions.

Facilities
The iSchool is housed in approximately 10,000 square feet of the 4th and 5th floors of the Sánchez building and 6,000 square feet of the Collection Deposits Library. During the past six months teaching and laboratory space has been acquired at PCL. Additionally 13 offices have been made available for assistant and part-time instructors supporting the School's undergraduate courses on the 3rd floor of the Flawn Academic Center (FAC). In these four buildings we have five classrooms, one computer and two conservation labs to serve around 300 graduate students and approximately 700 undergraduate students taking courses through the School. School IT staff members support computing and networking services for faculty and staff, including nearly 100 desktop and laptop computers (Macs and PCs.) All classrooms, offices, and conference space in the iSchool provide high-bandwidth wired network connectivity, as well as wireless capability via UT's public network. The classrooms and Dean's conference room include computers (Apple and PC), projection, VCRs, sound systems, and document cameras.

Servers
A variety of server platforms provide additional capabilities and infrastructure for student, faculty and staff use. Our two main servers, running Red Hat Enterprise Linux, offer standard web and email capabilities, access to technologies such as MySQL, as well as various PHP web-based applications. Three other servers allow us to offer streaming media in multiple formats and deliver content such as video tutorials, video of important events and live webcasts for Web-based classes. A number of other servers (primarily Linux-based) support our basic server and network infrastructure through services such as distributed backup, lab management, network-based intrusion detection, and license provisioning. In order to meet increasing faculty (and doctoral student) needs for server-based research and teaching platforms, we have deployed a Virtual Machine environment that allows us to quickly create and configure such platforms as required. Combined with several physical servers, we currently maintain 10 servers dedicated to such efforts. In all, over twenty different servers support Internet and other services to faculty, staff, and students with individual functions including streaming video, webcasting, web, email, file storage, searching, and digital archiving.

Current and Proposed Funding Sources

As noted above, the iSchool has several different funding sources to support the development and use of technology in the School. These funding sources for the current fiscal year (2006-2007) are noted in the table below. The primary external funding source for new technology has been the "Digitization in the Round" project. The three-year collaborative project with the University of Texas Libraries Digital Library Services Division is funded by a federal agency, the Institute for Museum and Library Services, began in

January 2005. Specifically, the project goal has been to build both a curricular specialization in digital libraries and an instructional technology infrastructure to support these activities. The iSchool will be receiving funds for the project through December 2007. For more information on the project please see http://www.ischool.utexas.edu/~digitize/.

IT Funding Sources for School of Information for FY 2006-2007

Funding Type	Budgeted Allocation	Carryover	Total
iSchool IT Fee	164,657	9,345	174,002
IT Vision permanent allocation	71,996	10,622	82,618
IT Vision one-time project allocation	28,501		28,501
ISchool Distance Education Fee (web-based courses)	57,000	4,952	61,952
Digitization in the Round Project (IMLS Grant)	70,553		70,553
Special equipment, etc. (includes furniture, computers, telecom)	30,000		30,000
TOTAL	**$422,707**	**$24,919**	**$447,626**

Best Practices

Since the last Vision Plan, the School of Information has implemented the following practices that may be of interest to other academic IT programs. IT Services staff (including full-time and student support staff) have:

- Installed various VMWare virtual infrastructure systems has provided a number of benefits, including:
    - Increased performance and reliability of services migrated from aging hardware;
    - Streamlined deployment of new servers based on templates;
    - Implemented more efficient use of hardware resources and corresponding rack space savings.

- Provided technology-related training and training materials to students, faculty, and staff at the University of Texas in the forms of online tutorials, short courses, one-on-one interaction and other means. Teaching Assistants, full-time staff and part-

time staff assist in these endeavors.

- Tracked student use of lab space and lab resources in order to better allocate limited existing space and prepare for use of space in the FAC.

- Joined Tech Deans from other University of Texas colleges in the purchase of computers and other materials in order to obtain better costs.

- Performed formal usability testing for technology training materials generated at the school, and are increasing testing through the use of the Information eXperience lab currently located at the FAC.

- Updated Keyserver software in order to facilitate the tracking of software licenses. We are currently examining the use of license tracking software with mobile devices.

- Interviewed instructors to facilitate the utilization of technology in the classroom and in the Information Technology Lab as well as grant-related research projects.

- Assisted in the grant-request process to assess and evaluate technology needs and possible impact on staff support.

- Worked with faculty and records managers to ensure that electronic records are being properly maintained.

USE OF PREVIOUS ACADEMIC YEAR ALLOCATIONS (2005-2006)

Proposed Infrastructure Projects

Project	Estimated Cost
Network Security	8,000
Network Hardware Upgrades	5,000
GRA for Cochineal	10,000
Total Infrastructure	**23,000**

Actual Infrastructure Projects Completed

Network Security
We installed Sourcefire, a commercially packaged version of snort designed with customized hardware for network security management (intrusion detection, vulnerability management, etc.).

Network Hardware Upgrades
Two, gigabit capable switches were purchased and added to our network

Graduate Research Assistant for Cochineal
A Master's student specializing in conservation studies was appointed to manage the Cochineal: An Online Student Journal and Repository of Conservation. The Cochineal was created to assist exploration conducted by current and future students in the field of preservation and conservation. The goal is that this resource will grow to be a fully-searchable online database of research completed by conservator and preservation administration students during their course of study in the School of Information at UT. Each year, works from the repository will be selected for publication in the newsletter. In addition to this research, the newsletter highlights student projects and alumni news.

One-time Projects Proposed for 2005-2006

Project	Estimated Cost
Student/Class Project Servers and Racks	20,000
Build Content Corpus	1,000
Digitization in the Round	75,000
Teaching Microscope	10,000
Total One-time	**32,650**

Actual One-time Projects Completed

Student/Class Project Servers and Racks
The student and class project server and racks proposal morphed into our VMware purchase. The VMware project enables the School to combine multiple servers running on separate physical servers to run simultaneously (by using virtualization) on one or two, high-powered, high-reliability physical servers. In addition to saving physical space, this project provides improved scalability and flexibility in deploying and testing new services and provides more efficient use of system resources.

Digitization in the Round
We purchased a high definition video-conferencing system, LifeSize. The system enables the remote transmission of the delicate and complex scanning process of rare and fragile materials by library staff in PCL or other UT digitization facilities to a classroom of students in the INF 385R, Survey of Digitization class. Additionally, a new teaching lab was outfitted in the Perry-Castañeda Library to support instruction in the digitization and preservation of audio files.

Teaching Microscope

We purchased a teaching microscope to effectively demonstrate testing methods and procedures for conservation treatment and analysis to groups of eight or more students in the Conservation Studies program. Peripheral equipment supports the import of magnified images to computers for use in websites and videos. Currently the peripheral equipment consists of a Mac running OSX and a digital video camera to provide video recording and editing capabilities for the microscope.

NEEDS AND PROPOSED USE OF FUNDS

Infrastructure

Supplemental IT Salary Increases
Over the past several years the volume and complexity of providing IT support to iSchool faculty, staff, and students has increased. The School has recruited increasingly IT savvy faculty and students whose expectations for access to dependable and cutting edge technology grows with each year. While university-wide funds have been provided for modest merit-based salary increases, the School's IT staff have begun to fall behind in salaries as compared with other UT colleges and departments.

During this academic year new personnel evaluation metrics are being developed to inform justification for enhanced financial rewards for those IT staff who excel in their job performance, teamwork, customer service, and innovation. An increase in the funding pool to reward exemplary performance is critical to provide motivation and incentive for top-performing IT staff. **($50,000)**

Expansion of Consolidated Storage Systems
Previous vision requests have allowed us to begin establishing consolidated storages systems (A Storage Area Network or SAN has already been deployed, and we're currently determining specifications for a Network Attached Storage or NAS installation). These systems are critical to many of our other IT projects, including VMWare virtualization and several courses that focus on, and several courses on digital archivy. Up front costs for these sorts of storage systems are relatively high. Initial storage capacity, and most of our previous and current funding for this project has gone toward ensuring a reliable, scalable, and expandable infrastructure. This second expansion phase of the project aims to increase our storage capacity by approximately six terabytes (final increase depends on funding and future price changes). **($50,000)**

FAC and PCL Classroom Upgrades
The iSchool will take over management of FAC 304 and FAC 327 from the Library in 2007, as well as use of PCL 6.120, to increase our managed classrooms from three to six. FAC 304 will need full instructor stations and a projector, FAC 327 will need new computers, and PCL 6.120 will need a projector and screen. FAC 304 or 327 will also be customized to support webcasting of our INF 312 classes. Webcasts are broadcast up to five times each

semester with up to 100 students "tuning in" to each broadcast. These rooms will need to be fitted with lighting equipment, sound dampening gear, and microphones to connect to our existing cameras. **($28,000)**

Student Computer Lab Lifecycle
ISchool IT Services has implemented an 18-month lifecycle for student-use computers that provides up-to-date machines for both our general use computer lab as well as our computer classroom. The next upgrade cycle will be summer 2007, when 33 PCs and 12 Macs in the general use lab will be upgraded and the older machines cascaded to the computer classroom. **($20,250)**

Software upgrades
Ongoing software upgrades for student lab computers. **($12,500)**

One-time Projects

Mobile Computer Classroom
The School of Information has combined ITAC monies with IMLS grant funding to establish our Digitization classroom, which contains 29 Mac and PC computers and specialized digitization equipment to support both digitization courses and other iSchool courses. The ability to easily use technology in the classroom has changed many teaching methods, and created a number of new possibilities. Unfortunately, there are only so many hours in a day, and in spite of the fact that we offer a number of night classes, we find that we have maximized our ability to use this facility. As noted above, the iSchool is currently housed in four separate buildings on campus (SZB, PCL, CDL, FAC) that we hope will be consolidated in the near future onto the 3rd floor of FAC. For this reason we hesitate to equip another computer classroom at this time. We have examined other departments' uses of mobile computing labs, and determined that our two classrooms and a conference room in the Sanchez building with sufficient wireless coverage to support a mobile lab. Furthermore, we have a long history of supporting Macintosh computers, and believe that the Intel-based Mac platform offers the unique opportunity to support Windows XP and Vista, various Linux distributions, and the Mac OS on the same hardware. This project proposes to purchase and equip a mobile computing lab with up to 20 laptops running triple operating systems for use in SZB 464 and SZB 468, as well as work with UT Transportation to study the feasibility of moving the mobile computing lab between SZB and FAC for scheduled classes. **($32,300)**

GRA Support for D-Space and the Information eXperience Lab
D-Space. In 2005 a School of Information repository was initiated and materials of permanent or long-term value to the School were ingested. In the summer of 2006 a study was carried out to estimate the costs and benefits thus far of the repository, and it was determined that whereas the costs so far had been close to $7000/year (most of that the fractional salary of the Systems Administrator), the benefits had begun to spread manifest in a near quadrupling of the number of students in the course from 2003 to 2006 and

additional uses of the repository for student capstones and individual studies. We need a more dedicated position so that we can institute policy-driven activities like a specific backup routine and implementation of a dark archive, periodic server log analysis, installation of newly-developed and released add-ons from the open-source community, and even modifications to the interface, the latter of which could be accomplished as student projects if we had some additional support. The creation of a dedicated GRA position could well facilitate an expansion of uses of the repository into other classes; it would also be possible to undertake expansion into faculty self-archiving, specific uses connected with the advanced digitization courses, and a potential future digital archives management course.

Information eXperience Lab. As noted above the iXLab has hardware and software for use in usability testing. The usability facility is a powerful, but complex configuration of hardware and software that requires skill to use effectively. A designated 20 hour per week GRA would not only be able to develop training modules to assist iXLab users, but also to systematically evaluate how to make the facility more "user" friendly. Once these modules have been developed, the iSchool will schedule regular training sessions for other UT units interested in conducting usability tests on a wide range of technology-based learning objects and class web-sites. Please note that this estimate includes the cost of benefits required for student position funded by local funds.
(**$33,000**)

Upgrade Classroom Presentation Technology

Our classrooms could use an upgrade to match what is nearer to state of the art with presentation software and tools for student projects. The addition of Keynote software and new presentation remotes would allow new features such as timed presentations and monitor switching. **($1,000)**

A Closer Look at Paper: A New Flexible, Non-Damaging Light Source
Part of the School of Information's mission is to compel students to look more closely at cultural records of all kinds. Paper has been one of the primary carriers of information in libraries and archives since it arrived in the western world through Spain in the 11th century. Like any cultural object, close examination of paper will result in a more sophisticated understanding of the material. At this point we use teaching microscopes with video projection to reveal the structure and provenance of paper and other information materials. But some materials have resisted examination because of their physical structure. Looking closely at paper bound into book form is impossible because you cannot slip a standard lighting source between the book pages. It is also extremely difficulty to reveal to students what is happening to paper in water, since we cannot place traditional illumination sources directly under a clear washing tray. A third problem is adequate lighting for completing or examining paper mends deep into the gutter of a book. Mending book pages, treating paper with water to wash out damaging elements, and most importantly physical examination of paper are all areas we do research in here at the School of Information. A fiber optic lightsheet now exists that will allow light to be inserted directly between pages of a book to

reveal the dispersion of paper fibers, any erased signatures, earlier mends, possible forged areas and watermarks (the paper-maker's signature hidden in the paper). This same lighting source will illuminate book pages while doing mends deep into the gutter of the book, and can also be placed under a clear washing tray so signatures and other media on the paper can be revealed during aqueous treatments. **($4,272)**