

The College and Graduate School of Business

Information Technology Vision Plan

Academic Year 2000/2001

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The University of Texas at Austin

Austin, Texas

Table of Contents

- 1. Executive Summary**
- 2. College Vision, Goals, Objectives, and Progress**
- 3. Facilities and Staffing - Infrastructure**
- 4. Proposed Projects for AY 1999/2000**
 - 4.1. Deployment of Windows 2000*
 - 4.2. Help Desk Improvements*
 - 4.3. Mailboxes For All Business School Students*
 - 4.4. Student Lab Improvements*
 - 4.5. Multimedia Upgrades*
 - Classrooms/Lecture Halls*
 - Video Security*
 - 4.6. Network Upgrades in CBA*
 - 4.7. Expand Windows Terminal Server Support*
 - 4.8. Data Warehousing Project*
- 5. Business School IT Funding Overview and Lifecycle**

Appendix A -- Total IT Expenditures Report

Appendix B-- College Infrastructure Summary – Networking Status

1. Executive Summary

This vision plan establishes the strategic goals for information technology improvements for the College and Graduate School of Business for Academic Year 2000/2001 and beyond. In view of recent history, the change in computer technologies has been so rapid that strategy extending more

than a year is certain to be obsolete before it can be brought to fruition. The anticipated technical operational framework over the next few years can be envisioned and serves as a planning tool.

As a statement of policy, we will adopt the most relevant business-related hardware and software technology for the business school as soon as it is commercially available. We will accomplish this through strategic alignments with our corporate information technology partners and judicious use of ITAC fees, the business school's information technology fees, course fees, multimedia fees, state allocated funds, grants, and donations from industry and government.

Our present program to convert our college LAN to 100 MB switched Ethernet and to rapidly deploy high performance Windows 2000 Enterprise Servers will position the business school very favorably for the coming migration to high bandwidth networking. Conversion of the college to 100 MB switched Ethernet will be completed in 2000/2001 as rewiring of faculty/staff offices and classrooms in CBA are completed. Rapid deployment of Windows 2000 will also allow us to play a leading role in the soon to be implemented "smart card" authorization scheme to provide one-stop authentication for all campus technology services.

2. College Vision, Goals, Objectives, and Progress

The overarching goal is to become and remain a world leading Business School in information technology by making information technology a core competency of the school. Such leadership is not an imperative, but an opportunity for distinction in an area of very high impact in business education. The Texas Business School is already acknowledged as a leader in the information technology field and we will aggressively exploit our leadership role.

To achieve the overall goal, the Texas Business School must establish its leadership in technology, both in business, and in business education. In both cases, leadership can only be achieved if expertise in technology becomes a core competency of the Texas Business School. Our present MBA/MPA Notebook Initiative represents a major step forward in achieving this goal.

The implementation of the Millennium Lab, construction of two new classroom labs as well as a technology enhanced reading room with 250 network ports, conversion of the college backbone LAN and the student labs to 100MB switched Ethernet, and implementation of the MBA/MPA Notebook Initiative represent major strides toward our continually evolving goal. The future inclusion of upper-division undergraduates in the laptop initiative, implementation of data warehouses for both instruction and research, data mining, and multimedia improvements are a part of and support this goal.

We will refresh student labs every two to three years, reallocating the computers we replace to student organizations, faculty, and staff, thus improving technology services for the maximum number of end-users. Network improvements will be a continuing process, as will improvements to our mission-critical servers.

The Business School has also invested heavily in our technical support personnel through appropriate salary adjustments and training. We presently operate an Authorized Academic Training Program in which we offer inexpensive courses for students, faculty, and staff to prepare for certification exams leading to Microsoft Certified Systems Engineer (MCSE) and Microsoft Certified Solutions Developer (MCSD) certificates. Nine members of the technical support staff are already MCSE certified and several more will be certified in the near future. The knowledge gained through these training initiatives significantly improves our ability to provide the best facilities and support for our students.

Within the coming year, we will be establishing a Certified Technical Education Center to offer Microsoft Official Courses. We will continue our program of internal staff development by getting more members of Computer Services staff certified as MCSE, MCSD, MCDBA, MCP, and MCT.

We are committed to the Rapid Deployment Program with Microsoft for the implementation of Windows 2000 Active Directory, Office 2000 collaboration, Exchange Server 2000 support to extend to the undergraduate level. We will provide an end-to-end process for yearly qualification for Business School Common Operating Environment software images for interoperability among notebooks, desktops, and servers.

3. Facilities and Staffing - Infrastructure

The College and Graduate School of Business currently operates five student computer laboratories. In August 1998, the college opened a new state-of-the-art facility dubbed "The Millennium Lab." This laboratory is comprised of 140 individual workstations, of which six are dedicated to student team use. These workstations are 400 MHz/128 MB RAM units running on a 100MB network. This lab also has network connections for 186 notebook computers.

Of the other labs in the college, two are available for general student use and class reservations, one is dedicated to the graduate Information Management program, and one (8 workstations) is reserved for PhD students. There are 100 computers in the two general-use labs. These are 450 MHz/128 MB RAM units.

Construction of two additional classroom labs with a total of 80 seats will be completed in December 1999. These enhanced multimedia labs will be available for lectures and for open labs when not in use for teaching.

Construction of a Technology Enhanced study area with 250 network ports (with electric power available) will be completed in January 2000. This facility will be designed to be aesthetically appealing and will provide both individual workspaces and group areas for students to work on team projects.

The staff of CBA/GSB Computer Services is a diverse, talented, and dedicated group of 40 FTE professionals and approximately 50 student employees. The college has responded to the university-wide salary survey by improving the entire staff compensation to CAC recommended levels and will continue to maintain salaries as near competitive levels as possible. The full time employees are assigned to the following areas:

Area	FTE
Executive Management and Strategic Planning	4.00
Administrative Support	4.00
Administrative Computing Support (Support Deans' use of student records)	6.00
Application Development (Help Desk; automated account and mailbox generation; lab management, accounting, and measurement software; etc.)	3.25
Laboratory Operations	5.00
Network Operations	6.00
Technical Support	6.00
Academic Database Support	3.75
Training	2.00

The current staff includes nine members who have received their MSCE certification from Microsoft, five who have received Dell Corporation technician certifications, and three who are A+ certified. Several members of the staff are taking courses for the MCSD certification from Microsoft.

The student employees on staff include approximately forty-five students that serve as computer lab proctors. Additionally, there are three students working in the Database Support group that provides operational database support to students and faculty and three students in a newly formed applications development group charged with implementing Help Desk software and student service

applications.

4. Proposed Projects for AY 1999/2000

4.1. Deployment of Windows 2000

The introduction of Microsoft Windows 2000 offers features and enhancements vital for continued progress toward technology goals, including improved network management, better security, and better handling of roaming profiles. We have joined with Microsoft as a higher education member in their Rapid Deployment Program for Windows 2000/Office 2000. Office 2000 has already been deployed, and we are positioned to deploy Windows 2000 in the coming summer. This project places us in an ideal position to take a leading role in the coming, system wide, "smart card" authentication project. Office space will be required for additional personnel. The audience for this project is the students, faculty, and staff of the College and Graduate School of Business.

Cost Analysis:

Item Description	Units	Cost per Unit	Total Cost
Network Analyst	1 FTE	\$35,004.00	\$35,004.00
Intel based Servers	4 ea.	\$8,894.00	\$35,576.00
Total:			\$70,580.00

4.2. Help Desk Improvements

We have significantly expanded our help desk capacity in the past year to control the additional MBA/MPA notebooks in the fall 1999 semester and will expand even more in the fall 2000 semester when increasing numbers of undergraduates require support for laptop computers. We will dedicate one FTE Network Analyst, two FTE LAN Administrators and five FTE Student Assistants to this purpose. To minimize student time lost, all technical support staff must be continuously trained in laptop support technology and must be A+ certified in order to perform warranty service.

Cost Analysis:

Item Description	Units	Cost per Unit	Total Cost
Network Analyst	1 FTE	\$42,000.00	\$42,000.00
LAN Administrators	2 FTE	\$35,004.00	\$70,008.00
Student Assistants	5 FTE	\$15,000.00	\$75,000.00
Intel based Server	1 ea.	\$23,627.00	\$23,627.00
Software		\$10,000.00	\$10,000.00
Total:			\$220,635.00

4.3. Mailboxes For All Business School Students

In the fall 1998 semester, MBA/MPA students were assigned Microsoft Exchange Mailboxes for messaging and collaboration. This project was very successful, and the next goal is to assign Exchange mailboxes to undergraduate students. Microsoft Exchange, as a common platform for students, faculty, and staff, will ensure a high level of communication and collaboration. Additional storage capacity for the mail server is required.

Cost Analysis:

Item Description	Units	Cost per Unit	Total Cost
External Raid Storage System	3 ea.	\$14,284.00	\$42,852.00
Total:			\$42,852.00

4.4. Student Lab Improvements

In August 1998, the Business School opened a new state-of-the-art computer laboratory, the "Millennium Lab," available to all students enrolled in Business School classes. This project creates two Technology Classrooms and upgrades other student labs to the same networking and hardware

level as the Millennium Lab. It also expands the operating hours of the Millennium Lab to meet student demand.

Increased operating hours will require an additional Computer Operations Specialist as well as additional Student Assistants.

Project hardware upgrades include 175 Intel-based workstations, two additional 100Mbit switched fiber boards for the Catalyst 5500 router purchased last year, 14 Cisco Catalyst 2924 Ethernet switches, and networking and electrical service for notebook computers in the three existing computer labs. BDC/DHCP servers will be installed to improve network service to technology classrooms

The intended audience is any student who is taking at least one class from the College and Graduate School of Business.

Cost Analysis:

Item Description	Units	Cost per Unit	Total Cost
Computer Operations Specialist	1 FTE	\$19,404.00	\$19,404.00
Student Workers	3 FTE	\$15,000.00	\$45,000.00
Intel based Workstations	175 ea.	\$2,500.00	\$437,500.00
Cisco Catalyst 2924 Switches XL	12 ea.	\$1,700.00	\$20,400.00
Cisco Catalyst 2924 Switches XL-C	2 ea.	\$1,900.00	\$3,800.00
Fast Ethernet Switching Module	2 ea.	\$20,000.00	\$19,404.00
BDC/DHCP Servers for Cohort Classes	2 ea.	\$20,477.00	\$40,954.00
Software Costs		\$10,000.00	\$10,000.00
Total:			\$596,462.00

4.5. Multimedia Upgrades

Classrooms/Lecture Halls

This project will replace obsolete and inadequate projection equipment in 3 GSB and 24 UTC classrooms, expand and upgrade the multimedia lab, and replace obsolete items in the checkout facility. There is a significant gap in quality between the GSB cohort rooms, certain large GSB lecture halls and the facilities in the UTC. The upgrade of the GSB 2nd floor classrooms will not only provide an educational benefit to CBA/GSB students but also expand and improve the facilities available for guest lectures, student organizational meetings and other outside the classroom educational experiences. These same benefits will also be realized with an upgrade to the UTC facilities. If the goal of the Texas Business School and the university is to provide the best education possible, it is necessary to supply the student body with 21st Century multimedia technology.

Since this project will also benefit the many other university departments who use UTC classrooms, an additional special project allocation from ITAC for this upgrade is needed.

Cost analysis:

Item Description	Units	Cost per Unit	Total Cost
Upgrade to GSB 2.122 (equipment and environmental upgrades)	1	\$19,200.00	\$19,200.00
Upgrade to GSB 2.126 (equipment and environmental upgrades)	1	\$18,600.00	\$18,600.00
Complete facility upgrades of GSB 2.120 and 2.124	2	\$2,800.00	\$5,600.00
Upgrades to projectors, etc. in UTC (Multimedia costs only, does not include environmental upgrades)	24	\$12,350.00	\$296,400.00
MO&E (Needed to complete upgrades in UTC)			\$216,000.00
Total:			\$555,800.00

Video Security

The cost and risks associated with supporting 1000+ notebook computers as well as state of the art computer lab facilities force us to look for different methods to protect these investments. Additionally, the use of large 24hr facilities (reading rooms, etc.) and increase in the amount of mobile computer equipment, calls for a public surveillance system to provide a deterrent as well as an investigative tool for the UT police. The first key to any form of security is visibility and awareness. The second is matching the cost against the perceived benefit achieved. Based on this we are recommending the installation of a video security surveillance in the GSB/CBA reading rooms, computer labs and computer support facilities.

A video surveillance system consists of the following: Cameras, Multiplex units, (1 per 8 cameras) Video Tape Recorders (1 per 8 cameras), Power Supplies and Video Amplifiers.

Cost Analysis:

Item Description	No. of Units	Cost per Unit	Total Cost
Cameras	47	\$300.00	\$14,100.00
Multiplex Unit	6	\$2,500.00	\$15,000.00
Recorders	6	\$800.00	\$4,800.00
Power Supplies	6	\$175.00	\$1,050.00
Video Amplifiers	6	\$150.00	\$900.00
Video Tape Stock (1 Year Supply)		\$720.00	\$720.00
Cabling Estimate		\$4,000.00	\$4,000.00
Cabling Contract (Outside Labor)		\$4,230.00	\$4,230.00
Total:			\$44,800.00

**Cost per year (\$720 for Tapes + approx.
\$2,000 maintenance)**

\$2,750.00

4.6. Network Upgrades in CBA

Every part of the College and Graduate School of Business network has now been upgraded to support 10/100MB switched Ethernet except the wiring to faculty/staff offices and classrooms in CBA. We will complete the wiring in AY 2000/2001.

Cost analysis:

Item Description	Total Cost
Wiring for faculty/staff offices in CBA North	\$150,000.00
Wiring for faculty offices and classrooms in CBA South	\$150,000.00
Total:	\$300,000.00

4.7. Expand Windows Terminal Server Support

Beginning in the fall 1999 semester, the College and Graduate School of Business began a Pilot implementation of a Terminal Server in our student labs. This Pilot published three applications throughout the Business School Student labs. This project needs to be expanded to provide more students access to more of the software that is currently limited to a select few machines for which we have licenses. In order to do this we need to purchase a couple of high availability servers.

Cost analysis:

Item Description	Units	Cost per Unit	Total Cost
Intel Based Server	2 ea.	\$26,499.00	\$52,998.00
Total:			\$52,998.00

4.8. Data Warehousing Project

Provide a server base to teach data warehousing and data mining for MIS and Marketing courses. Administrative use of data warehousing to support student services will follow upon completion of the Year 2000 project. This project will be funded partially with Dean's Office discretionary funds.

Cost analysis:

Item Description	Units	Cost per Unit	Total Cost
Systems Analyst	1 FTE	\$41,000.00	\$41,000.00
Computer Programmer	1 FTE	\$35,004.00	\$35,004.00
Student Assistants	1.5 FTE	\$15,000.00	\$22,500.00
Software		\$15,000.00	\$15,000.00
Extra RAID Storage		\$80,000.00	\$80,000.00
Poweredge 6300 Server	2 ea.	\$20,627.00	\$41,254.00
Total:			\$234,758.00

5. Business School IT Funding Overview and Lifecycle

Constantly changing technologies as well as needs for course development have required continuous changes to our funding methods and sources. Opportunities provided by corporate alliances for grants and practicums have provided not only new software, hardware, and cash for our facilities and new improvements, but budget windfalls to use on projects of lesser initial priority that still required funding. While we have made continuous adjustments to our vision plans and priorities, we have remained focused on the Business School goal of constantly providing leading-edge technology for our community.

We have funded our expenditures with information technology and course fees, allocations from the Information Technology Advisory Committee (ITAC), and loans from UT System. Our fee structure has been modified to levels that will meet the needs of our technology evolution. We borrow from the UT System against these new fees and aggressively pursue grants, discounts, and gifts from vendors to accomplish the projects outlined in our vision plans.

Computer laboratory consolidations have provided windfall savings to Business School departments by freeing desktop computers for departmental use rather than spending new money from their budgets. These funds are now available for new academic software acquisition and licensing costs.

Appendix A -- Total IT Expenditures Report

CBA/GSB COMPUTER SERVICES TOTAL IT SUMMARY EXPENDITURES FY 1998-99

Budget Category	Expenses
Administrative and Professional Salaries	\$ 175,950
Classified Salaries	1,087,636
Fringe Benefits	161,185
Wages	184,270
Operating Expenses	433,987
Training and Travel	27,551
Capital Expenditures	1,482,917
Total Expenditures	\$ 3,553,496

Appendix B– College Infrastructure Summary – Networking Status

For the past six years, one of the Business School's driving goals has been to improve the network capacity to handle the rapidly increasing load on the infrastructure. To handle this rapidly increasing need for network bandwidth, which was exacerbated by the addition of 1,000 plus laptops from the MBA Laptop Initiative, an upgrade from a shared 10MB Ethernet to a faster 10/100MB switched Ethernet serving all student facilities was accomplished during 1998/1999.

First, an existing Cisco Catalyst 5500 router was upgraded to provide two 1GB direct links to the Network Operations Center's (NOC) core switching routers to provide faster service as well as fault tolerance between CBA/GSB and the NOC.

Next, Cisco 2926 switches were strategically placed to handle distribution of network connectivity. Each switch has at least one full-duplex link to the Catalyst 5500, providing a 200MB connection for the backbone. In some switches, there are two links, providing a 400MB connection for the backbone. These switches are located in the following areas:

CBA South Communication Closet #1	CBA 1.320
CBA South Communication Closet #2	CBA 2.310
CBA South Communication Closet #3	CBA 3.312
CBA South Communication Closet #4	CBA 4.312
CBA South Communication Closet #5	CBA 5.312
CBA South Communication Closet #6	CBA 6.406
CBA North Communication Closet	CBA 3.249
PCLAB	GSB 5.158
CORE	GSB 3.130
Millennium Lab	CBA 5.322A

For desktop connectivity, we deployed Cisco 2924-XLs 24-port 10/100MB auto-sensing-auto-configuring fast Ethernet switches and upgraded all labs and laptop connectivity ports to these new switches. All of our network servers are now connected via the new switches. Migration to the new switches in the communication closets is complete.

In 1998/1999, the deployment was completed and the entire Business School complex was migrated to the 10/100MB Fast Ethernet switches. UTC was also upgraded to fast, switched Ethernet in 1998/1999.

Two new classroom labs with enhanced multimedia facilities were constructed in 1998/1999. These rooms can be partitioned to provide two 40-seat classroom labs or one 80-seat classroom lab for larger classes. In addition, a large reading room is presently being remodeled to provide 250-networked seats with electric power for notebook computer users. This facility will provide both individual workspaces and group work areas for team projects.

Each student seat in four MBA/MPA Cohort classrooms is wired for laptop connectivity, adding another 322 ports, and Classroom 2000 was completely rewired for laptop connectivity. All student facilities are wired for 10/100MB Ethernet. All wiring has been done to CAT-5 specifications.

Over 1,000 notebook computers were deployed to new and incoming MBA and MPA candidates. The notebook computers for 1998 are Dell Cp/Cpi's, running Windows NT 4.0 Workstation, and the notebook computers for 1999 are IBM ThinkPad 600Es with NT 4.0 and Office 2000. The deployment went very well. The vendor for the next deployment will be decided upon in the spring of 2000.

CBACC acquired a Dell PowerEdge 6350, a Fiber Channel PowerVault Subsystem and Tape Backup library to provide home drive space for all students in the college. This system is a state of the art Enterprise class server. By using Fibre Channel we are allowing for fast access as well as fast backups to over 1.8 Terabytes of usable data space. The server is running Windows 2000

Advanced Server to provide such features as improved access to the file system and disk quota management.