

The College and Graduate School of Business

Information Technology Vision Plan

1999-2000

The University of Texas at Austin

Austin, Texas

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EXECUTIVE SUMMARY

This vision plan establishes the strategic directions toward information technology improvements for the College and Graduate School of Business for Academic Year 1999/2000 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. 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.

COLLEGE VISION, GOALS, OBJECTIVES, AND PROGRESS

The overarching goal is still to become 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 and we plan to include upper division undergraduates in the initiative by September 2000.

The implementation of the Millennium Lab, 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, development of scalable on-line testing, 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 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. Seven 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 become a Citrix Authorized Learning Center in alliance with Citrix Systems Inc. and expect to make a similar arrangement with Cisco Systems. We are committed to the Windows 2000/Office

2000/Internet Explorer 5.0 Rapid Deployment Program with Microsoft and have an end-to-end process for yearly qualification for Business School software images for interoperability among notebooks, desktops, and servers.

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." as programmed in last year's vision plan. 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, three are available for general student use and class reservations while the fourth lab is dedicated to the graduate Information Management program. The 143 machines in the general-use labs are 90 and 133 MHZ/64MB RAM machines. Presently, these labs are running on 10MB Ethernet networks. Classroom 2000, the remaining laboratory, has 49 machines running on a 100MB Ethernet network.

The staff of CBA/GSB Computer Services is a diverse, talented, and dedicated group of 32 full-time 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 divide their efforts in the following manner:

Management and strategic planning	4
Administrative Support	3.5
Administrative Programming Support	6
Laboratory Operations	4
Network Operations	3.5
Technical Support	5
Database Support	4
Training	2

The current staff includes seven members who have received their MSCE certification from Microsoft, two who have received Dell Corporation technician certifications, and two who are currently in training for the Dell technician certification. 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 six students working in the Database Support group that provides operational database support to the college students and faculty.

PROPOSED PROJECTS FOR AY 1999/2000

1. Deployment of Windows 2000/Office 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. 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 the 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
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Network Analyst	1 FTE	\$35,004.00	\$35,004.00
Student Worker	0.5 FTE	\$15,000.00	\$7,500.00
Intel based Servers	4 ea	\$21,166.00	\$84,664.00
Intel based Workstations	4 ea	\$3,414.00	\$13,656.00
Notebook Computers	4 ea	\$3,333.00	\$13,332.00
3Com Managed PC Boot Agent NICs	12 ea	\$ 150.00	\$1,800.00
Total:			\$155,956.00

1. Help Desk Improvements

We require significantly expanded help desk capacity to control the additional MBA/MPA notebooks in the fall 1999 semester and even more in the fall 2000 semester when upper division undergraduates are required to own laptop computers. We will dedicate 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.

Cost Analysis:

Item Description	Units	Cost per Unit	Total Cost
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:			\$178,635.00

2. Home Drive Space For All Business Students

Providing advanced software tools and collaboration software to students can be accomplished only if we provide home drive space on our servers to make student profiles available from any lab workstation or personal laptop computer. Presently, we provide each graduate student 45MB of space to hold his/her personal profile and data. This project will extend home drive space to undergraduate business students as well.

Cost Analysis:

Item Description	Units	Cost per Unit	Total Cost
Intel based Servers	3 ea	\$28,284.00	\$84,852.00
External Raid Storage System	12 ea	\$14,284.00	\$171,408.00
Total:			\$256,260.00

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. Student Discussion Groups Server

We will implement both moderated and unmoderated, password protected, discussion groups for both graduate and undergraduate business students. Anonymous postings will not be allowed. One half-time Systems Analyst will be needed. In order to ensure connectivity and throughput, this project will require the purchase of one server and an external storage system. Office space will be required for the Systems Analyst.

Cost Analysis:

Item Description	Units	Cost per Unit	Total Cost
Systems Analyst	.5 FTE	\$41,000.00	\$20,500.00
Intel based Server	1 ea	\$20,417.00	\$20,417.00
External RAID Storage System	1 ea	\$14,284.00	\$14,284.00
Total:			\$55,201.00

5. 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 upgrades Technology Classrooms and 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.

Project hardware upgrades include 175 Intel-based workstations, two additional 100Mbit switched fiberboards 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.

Increased operating hours will require the addition of one Computer Operations Specialist, one LAN Administrator, and three FTE Student Assistants. We will also need office space to house the added personnel.

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
LAN Administrator	1 FTE	\$26,004.00	\$26,004.00
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
Wiring – GSB 5.142		\$32,500.00	\$32,500.00
Wiring – PPA Lab		\$11,519.00	\$11,519.00
Wiring – CBA 1.342		\$20,766.00	\$20,766.00
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:			\$687,251.00

6. Server Remote Monitoring Project

The ability to detect server faults and to predict when a fault is about to occur is necessary to run a reliable and continuous operation. Servers must be equipped with monitoring software and notification boards. A Network Analyst, using additional office space, is needed to maintain the network/server monitoring software. All students, faculty, and staff of the College and Graduate School of Business will benefit from this project. We welcome collaboration with ACITS on this project.

Cost Analysis:

Item Description	Units	Cost per Unit	Total Cost
Network Analyst	1	\$35,004.00	\$35,004.00
Notification Boards	7	\$1,000.00	\$7,000.00
Network Monitoring Software	1	\$15,000.00	\$15,000.00
Total:			\$57,004.00

7. Web-based Testing Project

A web-based quiz and testing application that scales to support at least 400 simultaneous users with very fast, real-time response is needed. To meet this need, two high-performance web servers will be

required. Personnel requirements to develop the test software include one computer programmer and .5 FTE Student Assistants. A successful project would likely be of major interest to many other UT departments.

Cost Analysis:

Item Description	Units	Cost per Unit	Total Cost
Computer Programmer	1 FTE	\$35,004.00	\$35,004.00
Systems Analyst	1 FTE	\$41,000.00	\$41,000.00
Student Assistants	0.5 FTE	\$15,000.00	\$7,500.00
Web Servers	2 ea	\$24,166.00	\$48,332.00
Software (WebCT)		\$15,000.00	\$15,000.00
Total:			\$146,836.00

8. Business School Web Improvement Project

Develop a Business School web site that meets professional quality standards. Required personnel are include one systems analyst, two computer illustrators, graphics design software, two large RAID units, and a high performance server. Additional office space will be required to support this operation.

Cost analysis:

Item Description	Units	Cost per Unit	Total Cost
Systems Analyst	1 FTE	\$41,000.00	\$41,000.00
Computer Illustrator	2 FTE	\$26,000.00	\$52,000.00
Graphics Design Software		\$20,000.00	\$20,000.00
Extra RAID Storage		\$20,000.00	\$20,000.00
Poweredge 6300 Server	1 ea	\$20,627.00	\$20,627.00
Total:			\$153,627.00

9. 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

10. Multimedia Upgrades

This project will replace obsolete and inadequate projection equipment in eight GSB and twenty-four UTC classrooms, expand and upgrade the multimedia lab, and replace obsolete items in the checkout facility. 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
Upgrades to projectors, etc. in GSB			\$58,273.00
Upgrades to projectors, etc. in UTC			\$406,440.00
MO&E			\$60,000.00
Total:			\$524,713.00

11. Web Store

Establish a Web Store to assist students and faculty in designing and publishing individual web pages. Required personnel additions include one Senior Computer Illustrator and one Computer Programmer to support the Web Store. Additional office space will also be required.

Cost analysis:

Item Description	Units	Cost per Unit	Total Cost
Senior Computer Illustrator	1 FTE	\$38,150.00	\$38,150.00
Computer Programmer	1 FTE	\$38,150.00	\$38,150.00
Remodeling, furnishings & equipment			\$44,276.00
Total:			\$120,576.00

12. Year 2000 Remediation Project

The purpose of this project is to ensure that all mission critical servers, network components, and key application software products are Year 2000 compliant. Since this project has been underway for more than a year, a major portion of the personnel cost has already been incurred.

Cost analysis:

Item Description	Units	Cost per Unit	Total Cost
Personnel	4.0 FTE	\$102,500.00	\$102,500.00
Software		\$15,000.00	\$15,000.00
Intel based Server	1 ea	\$20,627.00	\$20,627.00
Total:			\$138,127.00

Business School IT Funding Overview and Lifecycle

Constantly changing technology 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. This objective has still caused fiscal deficiencies.

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 ITAC FUNDS EXPENDITURES AY 1997 – 98

Routine Expenses

1 Salaries and fringe benefits	\$186,067
2 Overhead (maintenance, lab supplies, etc.)	37,410
Total use of ITAC funds for Routine Expenses	\$223,477
Projects	
1 Lease payments for student lab upgrades	230,965
PC labs for all business students	0
MPA/PPA lab	0
2 Replace 1/3 of lab computers with	0

	later technology	
3	Replacement of 386SX computers in terminal lab w/ Pentiums	0
4	Improvements to network servers (addt'l Net servers, RAID, etc.)	0
5	Network infrastructure; switches, hubs, CAT 5 wire, wireless, etc.	46,754
6	Lotus Notes (hdw and sftw) for grad students, faculty, and academic staff. (Need super server for Notes.)	44
7	MultiMedia (continuing improvements)	7,430
8	Special projects	43,436
9	Training for support staff (BackOffice, SQL Server, Visual Basic, hardware maintenance, etc.)	5,337
Total Expenditures		\$557,443

Appendix B – College Infrastructure Summary – Networking Status

For the past five 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 600 plus laptops from the MBA Laptop Initiative, an upgrade from a shared 10MB Ethernet to a faster 10/100MB switched Ethernet was accomplished during the summer of 1998.

First, an existing Cisco Catalyst 5500 router was upgraded with one 12-port Fiber Module, two 24-port 10/100MB Fast Ethernet Switch Modules, and we put a Route Switch Module in place. This switch allowed us to have two 200MB direct links directly 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. Fully 90% of our network servers are now connected via the new switches. Migration to the new switches in the communication closets is approximately 30% complete, and 4,140 new or upgraded ports are now supported.

In 1998/1999, the deployment will be complete and the entire Business School complex will be migrated to the 10/100MB Fast Ethernet switches, adding an additional 1,104 ports. UTC will also be upgraded to fast, switched Ethernet in 1998/1999 if the funds to purchase additional fiber modules for the Catalyst 5500 are available.

A new 140-seat lab (six machines are designated for team use) was opened with state-of-the-art, 400MHZ Dell Optiplex GX1 computers each with 128 Megs of RAM. These machines are ready for Windows 2000. The lab also has 186 ports for notebook connectivity.

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

Over 600 laptops were deployed to new and incoming MBA and MPA candidates with another 600 to be added fall 1999. The laptops for 1998 are Dell Cp/Cpi's, running Windows NT 4.0 Wworkstation. The deployment went very well for the initial experience. The vendor for the next deployment will be decided upon in the spring of 1999.

A Network Appliance F630 was acquired and implemented to host MBA/MPA home drives and a temporary mail server was installed for the MBA/MPA students. A project to build an Exchange Cluster to host all business students, faculty, and staff was delayed due to vendor support and hardware delivery problems. A new vendor has been obtained and the Exchange Cluster will be implemented during the Christmas 1998 holidays. In addition, a web server called Classweb1 was initiated for students to complete class assignments requiring them to publish from the Microsoft FrontPage application.