

**The McCombs School of Business**

**Information Technology Vision Plan**

**Academic Year 2001/2002**

**January 2001**

**The University of Texas at Austin**

**Austin, Texas**

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## 1. Executive Summary

This vision plan establishes the strategic goals for information technology improvements for the McCombs School of Business for Academic Year 2001/2002 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 program to convert our school LAN to 100 MB switched Ethernet and to rapidly deploy high performance Windows 2000 Enterprise Servers has positioned the business school very favorably for the coming migration to even higher bandwidth networking. Conversion of the business school 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 has also positioned 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. Business School 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 McCombs School of Business 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 McCombs School of Business 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 McCombs School of Business. Our present MBA/MPA Notebook Initiative represents a major step forward in achieving this goal.

The implementation of modern, high-technology student labs, construction of two new classroom labs as well as a technology enhanced reading room with 250 network ports, conversion of the business school 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 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 Partner program in which we offer inexpensive courses, many of which will soon be offered online through Microsoft's eLearning initiative, for students, faculty, and staff to prepare for certification exams leading to Microsoft Certified Systems Engineer (MCSE) and Microsoft Certified Solutions Developer (MCSDB) 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.

In addition, we have structured the training department so that individual members are assigned to specific groups of users. We have joined with other University level technology trainers to help implement a campus-wide comprehensive computer-based training and core skills assessment program. The resources of this program will be made available to students, faculty, and staff. We are working with graduate IM and upper-level undergraduate MIS student groups to develop programs through which students can demonstrate their technical skills by developing and providing technology solutions for faculty to incorporate into their curriculum. We will continue our program of internal staff development by getting more members of Computer Services staff certified as MCSE, MCSDB, MCSDBA, MCP, and MCT's. We are committed to the Rapid Deployment Program with Microsoft for the implementation of Windows 2000 Active Directory, Office 2000 collaboration, and 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 McCombs School of Business currently operates six student computer laboratories. In August 1998, the business school opened a new state-of-the-art facility dubbed "The Millennium Lab." This laboratory is comprised of 160 individual workstations, of which six are dedicated to student team use. These workstations were upgraded to 450 MHz/128MB RAM and 10GB hard drive units running on a 100MB network. The need to upgrade these machines was driven by the increase in space required by the latest Common Operating Environment, (COE), which is the core set of applications. This lab also has network connections for 186 notebook computers.

In January 2000, the school opened two modular classroom labs (Mod Labs) designed specifically for instructional use. These labs can be reserved for lectures, labs, presentations, and examinations. There are 40 seats in each lab with a removable partition so that the two rooms can be used independently or as one large 80-seat lab. When not reserved these labs are available for general student use. The computers in these labs are 400MHz/128MB RAM with 10 GB hard drives.

Of the other labs in the school, one is available for general student use and class reservations, one is a classroom lab dedicated to the graduate Information Management (IM) program, and one (8 workstations) is reserved for PhD students. There are 56 computers in the general-use lab and 48 network ports with electric power in the IM Classroom Lab. Construction of a technology-enhanced study area with 250 network ports (with electric power available) was completed in January 2000. This facility has been designed to be aesthetically appealing and provides both individual workspaces and group areas for students to work on team projects.

The staff of McCombs School of Business Computer Services is a diverse, talented, and dedicated group of 43 FTE professionals and approximately 60 student employees. The school 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	3.00
Administrative Support	4.00
Administrative Computing Support (Support Deans' use of student records)	7.00
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	7.00
Database Support	4.00
Training	4.00

The current staff includes seven members who have received their MSCE certification from Microsoft, four who have received their MCT certification from Microsoft, one who is MOUS-AI, five who have received Dell Corporation technician certifications, and two 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 fifty students that serve as computer lab proctors. Additionally, there are twelve students working in the SWAT (Students With Advanced Technology) shop where they help support the hardware and software on the 1000+ student notebooks in use throughout the school.

#### 4. Proposed Projects for AY 2001/2002

##### 4.1. Windows 2000 / Exchange 2000 Improvements

Microsoft Windows 2000 offers features and enhancements vital for continued progress toward technology goals, including improved network and server management, better security, and better handling of roaming profiles. We have deployed our initial production Windows 2000 domain and we are positioned to deploy a more robust Windows 2000 domain that will fully integrate Exchange 2000 messaging services to all our users. We also plan to leverage Windows 2000 for use with Smart Cards and X.509 digital Certificates. Additionally, we will be collapsing the old NT4 resource domains and consolidating all of the storage space into a centrally managed repository. The audience for this project includes the students, faculty, and staff of the McCombs School of Business.

###### Cost Analysis:

Item Description	Units	Cost per Unit	Total Cost
Intel-based Domain Servers	7	\$16,284	\$113,988
Exchange 2000 Servers	2	\$56,317	\$112,634
PowerVault Raid Storage System	2	\$27,201	\$54,402
Exchange 2000 Front End Servers	3	\$6,060	\$18,180
<b>Total:</b>			<b>\$299,204</b>

##### 4.2. Help Desk Improvements

Student participation in the business school's laptop initiative is continuing to grow. The need for more professional Help Desk support personnel as well as increased floor and counter space will be required in order to better service the student customers and minimize wait times. Due to the ever changing hardware and software that is supported by our team, staff training is an ongoing necessity.

###### Cost Analysis:

Item Description	Units	Cost per Unit	Total Cost
Construction		\$12,000	\$12,000
LAN Administrators	2 FTE	\$35,004.00	\$70,008
Student Assistants	5 FTE	\$15,000.00	\$75,000
Training	7 ea	\$1,500	\$10,500
Software		\$10,000.00	\$10,000
<b>Total:</b>			<b>\$167,508</b>

### 4.3. Student Lab Improvements

To meet student demands, the Millennium Lab will need six larger monitors for the Team Meeting Room. Due to the increasing complexity with the applications being supported, additional training resources are needed to better prepare both the Student Lab Proctors as well as the Lab Operations staff for solving complex student computer issues.

The primary audience is the students, faculty and staff of the McCombs School of Business. Secondary audiences include non-business students enrolled in at least one business course, as well as non-business faculty and staff that use our facilities for classes, training and conferences.

#### Cost Analysis:

Item Description	Units	Cost per Unit	Total Cost
21" computer monitors	6 ea	\$ 1100	\$ 6600
Application and OS Training Classes	15 ea	\$ 600	\$ 9000
<b>Total:</b>			<b>\$15,600</b>

### 4.4. Data Warehousing Project

The Data Warehousing Project has two parts, one will provide a server base to teach data warehousing and data mining for MIS and Marketing courses; part two is for the administrative use of data warehousing to support student services. Part two is already underway and work on this important project will continue throughout the year. This project has and will continue to be funded partially with Dean's Office discretionary funds. The primary audience for part one is the students, while the primary audience for part two is the staff who support student operations, the students will also benefit due to better reporting capabilities and quicker turn around times.

#### Cost analysis:

Item Description	Units	Cost per Unit	Total Cost
Systems Analyst	1 FTE	\$41,000	\$41,000
Computer Programmer	1 FTE	\$35,004	\$35,004
Student Assistants	1.5 FTE	\$15,000	\$22,500
Software		\$15,000	\$15,000
Extra RAID Storage		\$80,000	\$80,000
PowerEdge 6300 Server	2 ea	\$20,627	\$41,254
<b>Total:</b>			<b>\$234,758</b>

### 4.5. Multimedia Upgrades

#### Overview

Proposed for the AY 2001/2002 is phase two of the UTC renovation project, the upgrade of GSB Cohort Rooms, renovation of Dean's Conference Room, Technology Services Conference Room, GSB 2.122 and GSB 2.120.

### **Details by Room**

#### **GSB 2.122**

This classroom seats 68 students in a theater style setting. The room needs some minor environmental upgrades including writing surface, projection screen and lighting. Media upgrades consist of new control system, computer and video projector mounted on a lift recessed in the ceiling, a video player and audio reinforcement. Hookup for computer is provided at the lectern as well as all needed controls.

This room will receive desk style lectern with an adjustable portion to accommodate different teaching styles.

#### **GSB 2.120**

This classroom seats 69 students in a theater style setting. The room needs some minor environmental upgrades including projection screen and lighting. Media upgrades consist of new control system, a video player and audio reinforcement. Hookup for computer is provided at the lectern as well as all needed controls.

This room will receive desk style lectern with an adjustable portion to accommodate different teaching styles.

#### **Dean's Office Conference Room**

This conference room will receive a ceiling mounted computer projector, a new screen and control interface as well as desktop connectivity for meeting participants.

#### **Technology Services Conference Room**

This conference room will receive a projector upgrade, a new computer connectivity and system control interface as well as desktop connectivity for meeting participants.

#### **UTC**

Phase two of the UTC renovation contains lighting system upgrades including re-zoning of existing fixtures, new dimmers and controls as well as replacement of existing lectern with a desk style lectern with an adjustable portion to accommodate different teaching styles.

#### **GSB Cohort**

These rooms are proposed to be redone completely, after the renovation is completed we will install new controls etc. the full scope of this project is not determined yet.

## **4.6. Hire a Dedicated Security Manager**

As our organization moves to provide increased services including storage space for faculty, staff, and student files, more server based applications and an overall increase in the use of web based content, the need for better security and protection techniques increases as well. We are constantly seeing viruses and hackers trying to bring down our systems and destroy our data. To address this need we require a full time security administrator to help generate and implement proper security procedures for the protection of customer data and enterprise servers. We will also need to invest in Server Monitoring software so that we have a much better handle on what happening with our servers. This software should allow individual server customization and also support centralized management and monitoring. The audience for this project includes the students, faculty and staff of the McCombs School of Business.

**Cost Analysis:**

Item Description	Units	Cost per Unit	Total Cost
Monitoring Software	30	\$900	\$27,000
Systems Analyst	1 FTE	\$40,560	\$40,560
<b>Total:</b>			<b>\$67,560</b>

#### 4.7. Upgrade and Consolidation of Production Servers

The recent phenomenal growth of the Web has sparked a great deal of interest from our faculty to teach Web-related courses and to use the Web as an aid to teaching. Additionally, our students desire server space to create not only personal Web pages but also Web sites that are part of class assignments. In order to accommodate this increase in demand for Web space we need to upgrade and consolidate our current Web servers to more powerful systems with more available storage. We also need to hire an additional staff member to help with the constant requests to create and maintain Web sites. Along with the growth in the web arena, the dependence upon our server infrastructure has skyrocketed. Gone are the days where a hand-me-down desktop machine can be pressed into service as a production server. In order to meet the demand for enterprise level server up-times we have had to upgrade and consolidate our server platforms. During this year we have made great strides in upgrading our servers by purchasing 18 new servers and necessary hard drive storage. These servers are rack optimized and have many fault tolerant features built in. During the next year we anticipate needing to purchase another 20 servers to complete the server upgrade.

**Cost Analysis:**

Item Description	Units	Cost per Unit	Total Cost
Systems Analyst	1 FTE	\$40,560	\$40,560
Intel-based Servers	22	\$16,284	\$358,248
PowerVault Raid Storage System	6	\$27,201	\$163,206
<b>Total:</b>			<b>\$562,014</b>

#### 4.8. Completion of Network Wiring Upgrades

Every part of the McCombs School of Business network has been upgraded to CAT5 wiring except some faculty/staff offices and some classrooms. We will complete the wiring during this academic year.

**Cost Analysis:**

Item Description	Total Cost
Wiring for faculty/staff offices in CBA North (Paid from the Dean's discretionary funds)	\$60,000
Wiring for faculty/staff offices and classrooms in CBA South	\$150,000
<b>Total:</b>	<b>\$210,000</b>

## 4.9. Windows Terminal Server Project

Beginning in the fall 1999 semester, the McCombs School of Business began a pilot implementation of a Terminal Server in our labs. This pilot published three applications throughout the Business School student labs. We have since expanded this project to include six applications. 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 three high availability servers to support these applications.

### Cost Analysis:

Item Description	Units	Cost per Unit	Total Cost
Intel-based Servers	3	\$17,755	\$53,265
<b>Total:</b>			<b>\$53,265</b>

## 4.10. Wireless Networking Project

The requirement of all our MBA/MPA students to own laptops and use them in class has put our network team under considerable pressure to provide network connectivity throughout the business school complex. Over the last few years we have installed over 1,000 notebook ports most of which are concentrated in a few of our teaching rooms, our labs, the atrium, and the Reliant reading room. However, there are many areas of the building complex where there are no network connections and it would be very difficult and costly to provide hard-wired network connectivity. Wireless networking provides an elegant solution to a difficult problem. We need to test the capabilities of wireless networking in order to make use of it effectively. This pilot will require wireless networking hardware.

### Cost Analysis:

Item Description	Units	Cost Per Unit	Total Cost
Wireless Networking Hub	2	\$929	\$1,858
Wireless NIC	15	\$185	\$2,775
<b>Total:</b>			<b>\$4,633</b>

## 4.11. Development / Testing Lab

Over the last few years our IT department has greatly expanded the services and capabilities offered to the students, faculty and staff of the McCombs School of Business. At the same time, the software that we use to make these services available has become much more integrated and complex, and a change made in one area can have an unforeseen effect on another. This makes it necessary to vigorously test all changes before implementing them in our production IT system. In order to provide the most reliable testing we need to set up a testing lab with an IT structure as close to the production IT structure as is reasonably possible. Several servers, storage space, and a room to house the lab are needed to accomplish this project.

**Cost Analysis:**

<b>Item Description</b>	<b>Units</b>	<b>Cost per Unit</b>	<b>Total Cost</b>
Intel-based Servers (Domain)	2	\$6,060	\$12,120
Intel-based Servers (Exchange)	2	\$12,338	\$24,676
PowerVault Raid Storage System	1	\$27,201	\$27,201
Intel-based Server (Terminal)	1	\$7,500	\$7,500
Intel-based Server (Webs)	1	\$7,500	\$7,500
<b>Total:</b>			<b>\$78,997</b>

## 4.12. Itanium Project

In an effort to expose our students to the absolute latest technology in terms of both hardware and software, we have arranged through our vendor relations to purchase one of the first Intel Itanium based Servers on campus. We will investigate the use of the 64-bit version of Windows 2000 as well as the 64-bit version of Linux. Along with the purchase of the server, several additional pieces of hardware are also being ordered. Because of our relationships with our software vendors, the 64-bit beta operating systems have been obtained at no cost.

**Cost Analysis:**

<b>Item Description</b>	<b>Units</b>	<b>Cost Per Unit</b>	<b>Total Cost</b>
Intel-based Itanium Server	1	\$36,000	\$36,000
Required Rack and UPS Hardware	1	\$4,000	\$4,000
<b>Total:</b>			<b>\$40,000</b>

## **5. McCombs School of Business 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 new software, hardware, and cash for our facilities and new improvements, as well as 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 McCombs School of Business 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

<b>99-00 ITAC BUDGET SUMMARY</b>	
<b>Revenues</b>	
1998-99 ITAC Allocation	
Base Allocation	\$190,616.00
Supplemental Allocations	\$380,000.00
Carried Forward from 1997-98	\$58,053.43
<b>Total Available</b>	<b>\$628,669.43</b>
<b>Expenditures</b>	
Salaries & Wages	\$331,000.09
Maintenance & Operations	\$81,114.30
Capital Equipment	\$125,172.89
Lease Payments	\$15.28
Travel Associated with Staff Training	\$8,489.17
Budget Adjustments	
<b>Total Expended</b>	<b>\$545,791.73</b>
<b>Carry forward to FY 00-01</b>	<b>\$82,877.70</b>

## **Appendix B– Business School 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. By late 2000, funding had been secured to rewire, with Category 5+ cabling, the faculty and staff offices in the CBA North wing. This will allow many of the faculty and staff to fully take advantage of the backbone upgrades that took place during the last few years.

Another major move was the full implementation of best practices in the server room. The first phase saw the consolidation and upgrade of many infrastructure servers. These older servers, many of which were workstations, were replaced with true enterprise level rack-optimized server class machines. These machines include redundant power-supplies, hot swappable hard drives and other fault tolerant features to ensure the maximum up-time possible.