“Auburn University will be nationally and globally recognized as a premier public institution, embracing information technology to enhance the education, research and services we provide. We will distinguish ourselves in our efforts to equip faculty, students and staff with the tools, training and support they need to be superlative information managers and highly proficient technology users in their professional pursuits. This worldwide reputation will promote the economic vitality of the State of Alabama and its citizens whom we serve.”

May 22, 2000

Bliss Bailey, Campus Network
James Barnes, Instructional Media Group
Jonathan Davis, Cooperative Extension System
Sheri Downer, Library
John Fletcher, Student Affairs
Dan Gropper, College of Business
Steve Henderson, College of Engineering
Steve McFarland, Graduate School (chair)
Tammie Patterson, Information Systems
Betsy Smith, English
Marcie Smith, Controller
Mark Steltenpohl, Geology
Overview

Information technology at Auburn University has advanced from a pioneering adolescence to a maturing middle age. In this process Auburn information technology has been a leader in the Southeast and has established a reputation for innovation in the higher education Information Age. Its achievements should be the cause for great pride. They have transformed instructional, research, extension, outreach, financial, and administrative operations and activities at the University and have positioned Auburn for an exciting future. No area has escaped dependence on information technology in performing university missions and responsibilities.

This is, however, just a beginning. A youthful spirit of adventure, individual initiative, and the freedom that is the essence of the Internet age have brought us to this state of affairs. Information technology has become sufficiently complex and has been professionalized to a point where youthful exuberance and excitement no longer can serve as the driving forces behind the continued development of information technology required to serve the current and future requirements of Auburn’s students, faculty, and staff.

As in all organizations and as the history of information technology teaches us, future progress and keeping pace with the evolution of information technology require the development of a mature organization and mature systems. Such organization and such systems must take the accountability and service orientation that have been the mainstay of distributed operations and combine them with the perspective, knowledge, greater resources, and efficiencies of scale of centralized operations. To prepare Auburn students for the future and to reduce and eliminate the digital divide that threatens to stratify our society will require the coordination, knowledge, perspective, and resources of a centralized information technology organization, but one that will augment and fertilize the innovations and initiatives of the diverse and distributed prime users of information technology at Auburn University. Emerging information technologies require a degree of cooperation, concentration, and integration only possible with a unifying central coordination of activities and resources.

Achievements of Auburn’s Information Age

Instruction formerly requiring physical presence in a classroom has in some cases been replaced by instructional technologies accessible from around the world. Information technology allows faculty to publish their own textbooks, customized to fit the needs of Auburn students and prominently carrying the name of Auburn University on the covers. Engineers, pharmacists, business people, and rehabilitation specialists across the state and the world continue their educations through graduate distance education programs. More than half of these graduate students apply for admission on-line and pay their application fees on-line; Auburn was one of these first universities in the nation to allow students to apply for admission and pay for admission on-line.
Course materials once available only on chalkboards and mimeographed sheets of paper have been replaced by multimedia presentations and an innovative web-based AUStudy that allows students instant, 24-hour per day access to electronic course materials, and faculty-monitored e-mail discussion groups. Students who used to perform time-consuming, expensive, and occasionally dangerous laboratory experiments are now using electrons to simulate the natural processes of our universe. Research once requiring trips to the university library, university laboratories, or distant sites can now be done from offices, homes, dormitories, or apartments, anywhere and anytime. Library patrons formerly had to complete, by hand, a detailed form to check out a book. Today a simple scan through a laser beam achieves the same objective, though increasingly the library’s information is available through the Web and therefore does not require checking out books.

Registration, schedule adjustment, and tuition payments only a decade ago required a day or two lining up in Haley Center, with multiple side trips to the Office of the Bursar, the Registrar, Financial Aid, and academic departments. Today all this can be achieved by the web, by telephone, or by surface mail (or by, perhaps for nostalgic reasons, walking to the appropriate office) from anywhere and nearly anytime. Campus transactions for books, supplies, food, and fees used to be nearly universally cash-based. Today, student bills have been consolidated and are paid by credit card or campus cards (of $11 million in Bursar payments in the first quarter of 2000, $4 million was by credit card, of which $1.6 million came via the web). Student, financial, and human resource records have evolved from hundreds of four-drawer cabinets to an integrated electronic record system accessible to thousands of simultaneous users from anywhere in the world based on over 40,000 computing accounts and over 2,000 gigabits of disk storage space.

Information needed for the functioning of a university formerly resided in offices across campus, requiring significant expenditures of time and effort to access, replaced now by a login and password to unleash almost any information desired by a user. The Internet has made e-mail the communications media of choice—Auburn University generates and receives about 3.3 million e-mail messages each month (compared to 525,000 letters and packages and 3 million telephone calls each month). A recent survey by IBM indicates that 86 percent of Auburn students, 92 percent of Auburn faculty, and 90 percent of Auburn staff have convenient access to a computer on campus, which they use on a continuous basis.

Justification for Changes

- As Auburn expands its information technology systems to a broader population of faculty, staff and students, central information technology will not be able to keep pace without dramatic changes in organization and structure.

- There is a tendency to see information technology investment the same way Auburn traditionally views parking lots or buildings—using one-time funds and requiring only
periodic upgrades or deferred maintenance. Information technology is different, requiring continuous and constant replacement and upgrading.

- Access is generally available today, but with significant islands lacking adequate access. Examples include the off-campus experiment stations and the Extension System as well as computer labs for students, access to which is currently limited by the availability of staff to monitor and support them. Information technology has evolved to the point, however, where faculty and students, especially, have come to expect and have come to be dependent on access to the high-speed Internet from anywhere at anytime. Distance education has for years meant “away from campus,” but is being redefined to mean any part of the educational process outside of the classroom walls. Auburn must do more to insure this access for all offices, units, students, staff, and faculty.

- Auburn has begun to migrate toward enterprise-wide administrative systems that extend information technology resources and tools to a broad population of faculty, staff, and students. The main focus of these activities has been OASIS, HRS, FRS, and library on-line resources. More and more students come to Auburn with computers these days, demanding access to the AUNET. These developments have taxed university support and infrastructure.

Existing and incoming faculty, students, and staff do not receive the orientation and training necessary to exploit information technology resources available to them at Auburn, let alone to develop new, innovative uses for the present and future. For example, AUStudy provides faculty with the ability to post course material on the web without training in basic HTML, to communicate to students through e-mail, and to supervise on-line discussions. Training in its use is available on a limited basis, requiring approximately four hours of instruction. The university does not, however, provide incentives and encouragement for faculty to take advantage of AUStudy.

According to the IBM study, access to existing enterprise-wide administrative systems needs to be expanded and customized at the user level to achieve true functionality. This will require a paradigm shift from control by central administrative offices to control by the users of these technologies. This shift will be away from emphasizing the software and hardware behind these functions to an emphasis on the actual data generated and entered by the users for archiving and dissemination by the central administrative offices.

- Some of Auburn’s successes to date have been the product of pioneering efforts by distributed users without central coordination. This has allowed Auburn to develop a number of competing e-mail systems that in many ways take great advantage of this relatively new means of communication. Unfortunately it has also led to a chaotic system that plagues e-mail users in searching for up-to-date and accurate directory information for students, staff, and faculty. This chaos can only be resolved by a single unified
electronic directory directed from a central source. Additionally, there has been no coordination, standards, or policies associated with web pages. As the university’s window to the outside, web world, we do nothing to insure these pages are up-to-date and represent the university in a favorable fashion.

- Many of Auburn’s accomplishments in information technology have come from a pioneering spirit at the distributed level, resulting in the creation of applications and capabilities that are not always compatible with other areas and in a duplication of effort that has resulted in an inefficient “reinventing the wheel” problem. Too many of Auburn’s information technology accomplishments have been products of “islands of innovation” inaccessible to other Auburn units. Central information technology has not been truly “central,” but rather just one of these “islands of innovation.”

- Auburn has created a number of electronic classrooms, largely funded from distributed, one-time resources. By the end of summer 2000, these will number 80. By summer 2001, 200 of the roughly 1,000 classrooms on campus will be modernized, electronically-enhanced, and equipped with multimedia capabilities. Auburn has not, however, provided the infrastructure of training, maintenance, and incentives needed to exploit these resources fully. No provision has been made to provide continuing budgetary support. The distributed nature of these classroom facilities has also minimized their impact rather than maximizing it.

- Auburn has achieved the first requirement of the Information Age—that of realizing that education will become increasing dependent on information technology. The IBM study showed, however, that Auburn users perceive a lack of commitment of resources to training faculty, staff, and students in information technology. IBM blamed this primarily on “territorialism” at the University, caused by a lack of coordination and cooperation between central and distributed information technology providers. This situation has created obstacles and misunderstandings that confuse and discourage users. Central and distributed information technology organizations understand information technology and are partially situated for innovation in information technology, but the users caught in between suffer in the inconsistent environment that has resulted.

- IBM expressed admiration for the depth and quality of Auburn’s information technology facilities and accomplishments, but concern that these are an “invisible” asset due to poor communication and coordination between central and distributed information technology providers and between these providers and their customers. IBM also noted that the multitude of information technology committees on campus are ineffective and largely impotent in guiding information technology at Auburn.

- There is a significant and increasing diversion of faculty and staff resources away from their assigned areas of responsibilities to fill the information technology void, leading to
an inefficient use of resources. Faculty, for example, who have spent many years studying and researching to become regionally, nationally, and internationally renowned in a given area have made up for the lack of information technology support at Auburn by diverting some of their time and energies to basic information technology development, to the overall detriment of their primary areas of expertise. What has hidden or camouflaged Auburn’s information technology problems has been that a significant amount of information technology functionality and development has been performed by faculty and staff diverted from their assigned areas of responsibility.

- Auburn must work to integrate information technology functions and responsibilities. As the information technology world works toward integrating operations, Auburn should not allow its distributed operations to stand as obstacles to this integration.

Identifying Main Areas of Concentration

Auburn University must guarantee a minimum level of support to all Auburn units, faculty, staff, and students to encourage and cultivate the expanded use of information technology.

- Expectation that Auburn University will provide anytime, anywhere high-speed (broadband) Internet and AUNET access. This should include off-campus connectivity for faculty, staff, and students. This should also include secure and standardized connectivity to the University network and the Internet for mobile information technology activities and uses on campus in support of instructional, administrative, and research objectives.

- Expectation that Auburn University will provide the necessary infrastructure to pave the way for new waves of information technology use. It must provide current software and hardware to faculty, staff, and students. Replacement plans and opportunities for adopting emerging technologies must be in place.

- Expectation that central information technology will make available continuing education opportunities and an expectation that faculty, staff, and students will take advantage of these opportunities. Auburn University must include a means for making faculty, staff, and students aware of capabilities and training in how to utilize the information technology. Faculty, staff, and students should have opportunities to achieve basic literacy and competency in the technology tools of the Information Age.

- Expectation that Auburn University will provide all new faculty with a computer on their desks and orientation and instruction in its use and in accessing and utilizing the Auburn information technology network (e.g., e-mail, OASIS, HRS, FRS, Library, AUSudy)
• Expectation that Auburn University will provide faculty and students with information technology-ready, centrally-maintained multimedia classrooms specific to the different disciplines, enhanced to link “in-the-classroom” instructional technologies to distance education technologies beyond the classroom. These should include life-long learning capabilities as well as the goal of delivering the opportunity for education to the students rather than making the students always come to the opportunity for education.

• Expectation that Auburn University will provide information technology support for software and hardware (including applications, product design, and implementation), with support personnel located within the various administrative units of the university, though coordinated and managed centrally—this support must be on-site with a quick response time and should be one-on-one. Central groups can provide some training, but technical support should be one-on-one and on-site. This is essential to insuring that faculty and staff hired to perform specific functions can concentrate on performing those functions instead of troubleshooting technology problems. This orientation and training should also include students.

• Expectation that information technology support personnel will be established in geographically-clustered support groups insuring distributed accountability, but central coordination and control.

• Expectation that funds for information technology support personnel will come from a combination of central and distributed sources, though not at the cost of current support personnel or resources funded by academic and administrative units. This is necessary to eliminate the “haves and have-nots” of Auburn information technology. Lines of authority and responsibility will be shared between central and distributed information technology organizations.

• Expectation that individuality is the essence of the Internet, not standardization. Centralized coordination should not mean mandated conformity.

Organizational and Management Recommendations

The hiring of a Associate Provost for Information Technology and Chief Information Officer and a reorganization of information technology governance on campus will provide the leadership to implement the action recommendations. The proposed central committees (the Academic Information Technology Advisory Committee, the Administrative Information Technology Advisory Committee, and the Information Technology Services Council) will have fixed, limited membership, but with subcommittees drawing in other members as needed. Suggested responsibilities and committee memberships are outlined below and shown in the organizational charts found at the end of this report.
Associate Provost for Information Technology and Chief Information Officer

Responsibilities

• Reports to Provost and Executive Vice President
• Serves as chief advocate for information technology, responsible for building awareness of and consensus on informational technology issues and capabilities, and as chief catalyst for innovative information technology applications
• Manages university information technology infrastructure, including telecommunication, network, video, server, central instructional and academic technology, and administrative systems services
• Coordinates and manages the development and implementation of campus information technologies
• Consults with academic information technology advisory committee and administrative information technology advisory committee
• Fosters customer-oriented attitudes among information technology support personnel and organizations
• Serves as university representative to state, regional, national, and international information technology organizations
• Coordinates Auburn information technology activities with Auburn University–Montgomery campus
• Coordinates information technology efforts of colleges, schools and units
• Coordinates comprehensive planning of University divisions with regards to information technology, including the establishment of priorities
• Serves as liaison between administrative and academic computing activities
• Attracts and retains quality staff
• Maximizes information technology resources
• Fosters contacts with faculty in developing and distributing instructional technologies

Qualifications

• Minimum of five years of administrative experience appropriate to this position at the level of director, dean, or vice president
• Record of support for innovative information technology activities
• Extensive knowledge and experience in computing, telecommunications, budget development, comprehensive planning, distributed educational programs, and management
• Demonstrated excellence in leading collaborative and cooperative information technology initiatives and projects drawing on resources and interests at a diverse campus with multiple distributed operations
• Formal education commensurate with responsibilities
• Demonstrated ability to initiate and sustain positive relationships with faculty, staff, and students

Academic Information Technology Advisory Committee
Responsibilities

• Instructional technologies
• Research technologies
• AU home page policy guidance
• Subject matter experts to explore new areas of technology in instruction and research
• Represent constituencies
• Evaluate and recommend projects and initiatives to enhance instructional technology
• Set priorities for instructional and research information technologies
• Distance education initiatives
• Other duties as assigned by Provost and Executive Vice President

Membership

• Provost or designated representative (chair, ex officio)
• Associate Provost for Information Technology and Chief Information Officer (ex officio)
• VP Student Affairs (ex officio)
• Dean (selected by Provost)
• Dean of Libraries (ex officio)
• VP Research (ex officio)
• VP Outreach (ex officio)
• Director, ACES (ex officio)
• Department head or chair (selected by Provost)
• Undergraduate student (selected by Student Government Association)
• Graduate student (selected by Graduate Student Council)
• Director, Students with Disabilities (ex officio)
• Faculty (selected by University Senate)
• Faculty (selected by University Senate)
• Faculty (selected by University Senate)
• Faculty (selected by University Senate)

Administrative Information Technology Advisory Committee

Responsibilities

• E-mail policies and procedures
• OASIS
• HRS
• FRS
• Web page policies and procedures (except AU home page)
• Explore new areas of administrative technology
• Establish policies to maximize end-user functionality
• Represent needs and requirements of administrative systems constituencies
• Establish administrative systems priorities and act as arbitrator in disputes involving administrative systems
• Other duties as assigned by Provost and Executive Vice President

Membership
• Executive Vice President or designated representative (chair)
• Associate Provost for Information Technology and Chief Information Officer (ex officio)
• VP for Administrative Services (ex officio)
• VP Student Affairs (ex officio)
• Assistant VP for Facilities (ex officio)
• Dean (selected by Provost)
• Bursar (ex officio)
• Assistant VP for Business and Finance (ex officio)
• Director, HRS/FRS
• Director, OASIS
• Student (selected by Student Government Association)
• Faculty (selected by University Senate)
• AUM representative for HRS/FRS
• Administrative and Professional representative (selected by Administrative and Professional Assembly)
• Staff (selected by University Staff Council)
• Department Head (selected by Provost)
• Executive Director, University Relations (ex officio)
• Executive Director, Planning and Analysis (ex officio)

Information Technology Services Council
Responsibilities
• Insure cooperation between central and distributed
• Guarantee input from distributed technical doers into central decisions affecting local, distributed users
• Help set and keep current a minimum level of acceptable support of distributed units by central information technology
• Represent needs of colleges, schools, departments, divisions, and units
• Coordinate and communication information technology projects
• Provide forum for two-way communication between local and central information technology providers
• Recommend management techniques to reinforce a service and accountability culture among information technology service providers
• Provide constant feedback on information technology program effectiveness
• Other duties as assigned by the Associate Provost for Information Technology and Chief Information Officer

**Membership**

• Associate Provost for Information Technology and Chief Information Officer (ex officio)
• College or school information technology directors
• Alabama Cooperative Extension System information technology Director
• Director, AUM Computer Center
• Instructional Media Group
• Director, Telecommunications
• Director, Applications Support
• Director, Technical Support
• Director, Campus Network

**Recommended Actions**

The recommended actions have evolved from suggestions made by Auburn University faculty, staff, and students in focus groups, open forums, committee reports, informal discussions, and e-mail messages to committee members.

• Establish search committee and initiate search for Associate Provost for Information Technology and Chief Information Officer

• Establish Academic Information Technology Advisory Committee, Administrative Information Technology Advisory Committee, and Information Technology Services Council

• Initiate planning to create shared funding, shared responsibility, and shared reporting between distributed and central information technology services personnel

• Implement cohesive enterprise-wide electronic mail and electronic directory system

• Initiate timetable and plan to consolidate the facilities and maintenance of Auburn’s multiple server environment into a central server farm with around-the-clock service

• Develop incentives and rewards for faculty innovation in the use of instructional technologies

• Redesign university course (technology) fee structure to insure its most efficient usage and to bring inadequately supported information technology areas up to minimum university standard
• Initiate study of peer institutions to compare Auburn information technology funding per student and determine if student technology/course fees require adjustment

• Establish a minimum level of training in administrative systems for faculty and staff, reinforced by on-site specialty training keyed to user needs rather than generalized, one-size-fits-all voluntary training sessions

• Devise and implement university-wide technology replacement strategy

• Improve end user communication of information technology capabilities, opportunities, and services

• Develop a cohesive set of policies, procedures, and facilities to manage IT hardware acquisition, maintenance, support, and disposal

• Develop high speed network connectivity to off campus users, including ACES offices, Research Stations, and especially faculty and staff living in the immediate Auburn area

• Develop, fund, and maintain a multimedia production and training facility available for use by all faculty and students in support of the instructional and research missions of the university, with an emphasis on bringing instructional and research information technologies to the users rather than waiting for users to come to central facilities

• Implement information technology orientation for all university faculty, staff, and students

• Develop comprehensive plan to develop and maintain multimedia classrooms and computing laboratories equipped to insure accessibility to all faculty and students

• Convert one-time funding for library on-line services to continuing funding

• Increase professional information technology staffing at the college and division level to achieve minimum levels of support defined above

• Develop policies, procedures, and facilities for the timely, accurate, and uncomplicated archiving of digital information, to include digitizing university records for preservation in accordance with state and university guidelines for record keeping practices

• Establishment of a centralized information technology software and hardware purchasing office to coordinate and maximize procurement
• Establish single university-wide authentication system with redundant layers of network and desktop security and ubiquitous use of encryption

• Develop accounting procedures to track information technology expenditures at the departmental, division, and university levels