BACKGROUND

Louisiana State University has embarked on its "Flagship Agenda" from a position of many advantages, and should now seek to establish a position of information technology leadership that is consistent with the institution's growing strengths in line with that agenda.

Since 1860, LSU has served the people of Louisiana, the region, the nation, and the world through extensive, multipurpose programs encompassing instruction, research, and public service. One of only 25 universities nationwide holding both land-grant and sea-grant status, LSU is the flagship institution of higher education in the state of Louisiana.

Research at LSU is conducted by faculty in academic departments and through institutes, offices, centers for advanced studies, and other special units. The University brings in more than $120 million annually in outside research grants and contracts and, at any given time, is contributing to more than 2,000 sponsored research projects.

LSU conducts two semesters, a summer term consisting of one or more sessions, and a three-week intersession each year. Curricula leading to bachelor's degrees are offered in 71 major fields, master's degrees are offered in 72 major fields, and doctoral degrees are offered in 54 major fields. Enrollment peaks in the fall semester at more than 30,000 students, including more than 1,600 international students and nearly 5,000 graduate students. In addition to traditional teaching programs, LSU serves nontraditional students—people whose educational needs cannot be met through full-time resident college study—through the Division of Continuing Education.

The creation of an IT abundant environment is integral to LSU's success in achieving national flagship status. The National Flagship Agenda calls for the development of University programs, and the generation and support of first-tier research. Whether recruiting top students or retaining solid research programs, LSU's success is reliant upon its technology and infrastructure being, not merely adequate, but nationally competitive. The National Research Council's report *Preparing for the Revolution: Information Technology and the Future of the Research University* (2002) predicts that technology will continue to evolve at an increased pace over the next several decades and that the impact on the research university will be "profound, rapid and discontinuous." Furthermore, the report cautions top-tier research universities to outline how it will respond to and utilize emerging technologies in order to adapt, grow, and continue to excel.

Planning for the future in the midst of so much uncertainty and change is difficult. Nevertheless, procrastination and inaction are far more dangerous courses of action. Universities that do not plan for the future can expect to lag significantly behind those that do.

It is important that LSU move forward to develop an effective, flexible strategic plan for the use of information technology in research and academic settings, teaching and learning, student life and leadership, and administrative support. It is equally important that the plan recognize the inevitability, ubiquity, and unpredictability of the changes in technology. It must define strategies to "sense" advances in technology, to foster an ongoing dialogue

regarding the opportunities and challenges that these advances present, and to provide options for assimilating new technologies into the environment.

The plan must indeed be a "Flagship IT Strategy" that complements and supports the University's "Flagship Agenda," the seven-year plan to bring LSU to a new level of excellence by the year 2010. The Flagship IT Strategy must provide a path by which LSU can harness the expected changes in information technology to achieve its flagship objectives of (1) increasing research and scholarly productivity and (2) fostering quality and competitiveness in graduate and undergraduate students.

Information Technology at LSU—A History of Success To Build Upon

LSU has achieved many successes in information technology over the past several decades and has been recognized periodically by peer institutions as a leader in selected technology areas. As we move forward to harness information technology in pursuit of the flagship goals, we should build on this history of success and chart new territory as needed to achieve leadership across the board. The information technology achievements of yesteryear that serve as the basis of this bright future should not go unrecognized. The most significant successes followed simple, broad mandates, and covered areas such as:

Administrative Process Automation and Transaction Processing – The 1983 mandate from then-Chancellor James Wharton to build an MIS system led to the development of a highly integrated set of administrative applications that facilitate the day-to-day operations of the University. Applications have been developed to support Institutional Finance, Human Resource Management, Facilities Management, Student Enrollment Management, Student Finance, Student Services, and Information Resource Management functions, among others. The 2001 review of information technology by the National Center for Higher Education Management Systems indicated that LSU "has done an outstanding job of developing in-house software in a very stable operating environment."

Library Management – The mandate from then-Provost Carolyn Hargrave to provide more support for libraries led to the organization of LOUIS: The Louisiana Library Network. LOUIS has recently celebrated its 14th year serving academic libraries in Louisiana. LOUIS provides a host of library services for all Louisiana public and private academic libraries. Services range from catalog automation, federated searching, link resolving, authentication, inter-library loan, electronic resources, and a repository for unique digital images (digital library). Over the last decade, LOUIS has received numerous statewide and national recognitions to include the Louisiana Library Association's Margaret T. Lane Award (2000), Academic Librarian of the Year for the state of Louisiana (2002, 2005), and received the WebFeat President's Innovation Award (2006).

Reliable Delivery of IT Services – IT services are now critical to all aspects of the University as demonstrated by a general mandate to provide robust and reliable 7x24 infrastructure services. The Frey Computing Services Center, occupied in December 1995, is a state-of-the-art facility that serves as the hub for the IT infrastructure and the delivery of services. With 50,000 square feet, including 14,000 square feet of raised-floor machine room, Frey houses 162 full-time employees of ITS, millions of dollars in IT equipment, the Help Desk, a

conference center and a training classroom, and some CCT facilities. It includes redundant power feeds, uninterrupted power service (UPS), a backup generator and chillers, and a fire protection and security system. The Operations staff is on duty 24 hours every day of the year.

Personal Access Web Services (PAWS) – Personal Access Web Services (PAWS) was developed in response to a mandate by then Executive Vice Chancellor James Coleman to improve student computing. PAWS is a services infrastructure that delivers 86,000 unique intranet portals to members of the LSU community. Services accessed through the PAWS portal include enterprise, workgroup, and personal applications that meet the specific administrative, academic, and research needs of each PAWS user. On average, students, faculty and staff execute approximately 1.7 million administrative transactions via PAWS each week, to add classes, view grades, verify financial aid, pay tuition, and certify leave, among others. PAWS was recognized with the 2000 EDUCAUSE Award for Exemplary Practices.

Student Technology Fee (STF) – The mandate to improve student computing that led to the development of PAWS also led to the passage of the Student Technology Fee (STF). Over the last five years, this fee has funded the acquisition of significant components of IT infrastructure now made available to students in public access computing labs and multimedia classrooms across campus. The Students – through visionary investments of their STF funds – have also led to the 'jump-starting' of technologies across campus, ranging from wireless networking to software distribution (via TigerWare, added in 2005). Students have proven to be some of the strongest supporters of the development of a flagship-level IT environment as LSU, and continue to show strong interest in further advancements, such as the Information Commons and broader software licensing.

Networking and Telecommunications – LSU has made great strides in the past decade in providing a modern, stable, and highly flexible network infrastructure, serving the voice, data, and video needs of the campus. Many new protocols and the increasing use of high performance computing have been major factors in increasing bandwidth, reliability, and extra services available through the campus data network. In 2005, ITS expanded the LSU Commodity Internet connection over three-fold, and has worked with State Government in continuing the support connectivity to Internet2 and now to National LambdaRail. As well, through efforts spearheaded by LSU and partner institutions around the state (ULL, UNO, Louisiana Tech, Southern University and Tulane), The Louisiana Board of Regents has overseen the building of Louisiana Optical Network Initiative (LONI). LONI is to be a regional optical network that connects institutions of higher education and state government together using the fastest optical networking technologies, and also serves as a platform for high performance computing. LONI is unlike any other regional optical network in this regard, in that it is also a high performance supercomputing grid enabling research, and as such is recognized nationally and globally for its innovative approach.

Research Computing – In 1999, LSU established the first high-performance cluster in the state of Louisiana with funding from the Louisiana Technology Innovation Fund. The cluster, named Casper, served the state's higher education research community as a development and training platform. Casper supported graduate education and research in parallel technologies as well as traditional research programs in a variety of disciplines. In 2002, LSU implemented

the second-fastest computer (at that time) among academic institutions worldwide: a Beowulf cluster christened "SuperMike." This cluster, acquired by the Center for Applied Information Technology and Learning (LSU CAPITAL), now the Center for Computation and Technology (LSU CCT), significantly enhanced the high-performance computing resources that are available to Louisiana's students and academic researchers in various subfields of information technology. And in 2005, LSU again broke new ground, installing the first-of-its-kind Power5-based supercomputer from IBM, bringing a rich new architecture onto campus to serve researchers.

Advancing Information Technology Strategically At LSU

Recently, the University took several major steps toward broader recognition of the role of information technology with the creation of the role of Chief Information Officer as a member of the University's executive administration team, the appointment of Brian D. Voss to this position in April 2005, and the subsequent restructuring and renaming of the central IT services organization, Information Technology Services (ITS), in September of 2005. One of CIO Voss' first imperatives was the crafting of a community-driven strategic plan for information technology that supported the Flagship Agenda.

Historically, strategic directions for IT have been left almost entirely to the central IT organization. Previous incarnations of IT strategic plans have been sparse and overly focused on short-term technology goals and the specific role of central IT, rather than a holistic approach to developing a long-term strategy, addressing the broader institutional role in IT advancement, and consistent with the university's long-term vision of its broader mission. These previous efforts, while productive in some ways leading to the successes previously highlighted, lacked an overall, coordinated, and comprehensive blueprint for how IT could best advance the broader university strategy. They were tactical in nature, rather than strategic. And they were perceived to have failed by the broader community, in the end, to deliver long-term, strategic impact on the institution.

It is now well understood that a university's IT strategy must be synchronized with that of the university's overall strategy (Pearlson & Saunders, 2006). Thus, while oversight and responsibility for implementing specific technology actions is certainly within the portfolio of the central IT organization, the development of overall IT strategy must be created in partnership with the broader university community and the roles that all parts of the institution must play for it to be successful have to be well articulated. LSU presented its strategic plan, the *National Flagship Agenda*, nearly three years ago; while IT is mentioned within its vision, the University lacked a fully developed IT strategy that mapped the relationship between IT development and the University's progress toward national flagship status. As a companion document to the National Flagship Agenda, this Flagship IT Strategy (FITS) provides the vital blueprint from which to build and measure such progress.