

## A Flagship IT Strategy

*Establishing a Vision for  
Information Technology at LSU –  
Developing a Plan for Realizing  
That Vision*

October 2005



**“The history of the New College is the history of its buildings. They began as a magnificent conception, far exceeding any educational experiment which had gone before.”**



**A.R. Woolley**

*in the Clarendon Guide to Oxford*

**“We shape our buildings and afterwards, our buildings shape us.”**



**Winston Churchill**

**“We make our networks and our networks make us.”**

**William J. Mitchell**



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# Fundamental Idea #1

- **The creation of new knowledge and the sharing of information are defining features of a University**
  - **IT enables both the creation of knowledge and sharing of information**
  - **IT is, in fact, essential to the successful accomplishment of these two goals**

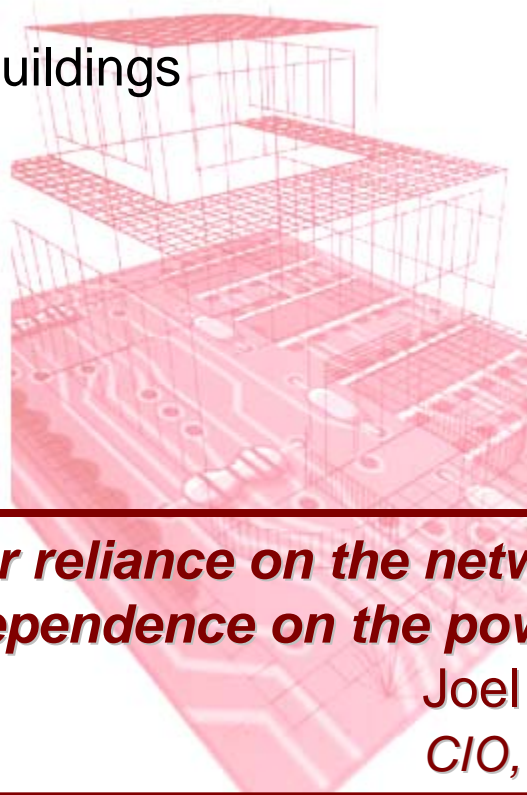
***“Information technology continues to transform our world. As such, it is a fundamental, strategic component to fulfilling the mission of a public university in the 21st century.”***

Myles Brand

President, Indiana University 1994-2002

# Fundamental Idea #2

- **Information technology is a **key strategic asset** to the University**
  - Just as key as its buildings
  - ... as its finances
  - ... as its curricula
  - ... as its research
  - ... as its faculty
  - ... as its students



***“To a great extent our reliance on the network is roughly comparable to our dependence on the power grid.”***

Joel Hartman

*CIO, Univ. Central Florida*

# IT is the Great Enabler

- IT *enables* our professors to **teach** more effectively, and more broadly
- IT *enables* our students to **learn** faster and better, and acquire new skills more effectively
- IT *enables* our scientists to open up new (and expand older) frontiers of **research**
- IT *enables* the enrichment of the **student experience** as a part of overall University life
- IT *enables* our institutions to be **managed** more efficiently and effectively and improves the quality of decisions

# LSU NATIONAL FLAGSHIP AGENDA

## The Flagship IT Goal

- To provide excellent IT infrastructure and services ...
- To be a leader, *in absolute terms on a national basis*, in the creative use, application and provision of information technology ...

***will best position Louisiana State University to be a leader nationally among public universities in teaching and learning, research, the student experience, outreach, community service, regional economic development and promotion of life-long learning.***



# Motivations

**We should set out to transform LSU from a university *simply tolerating* technology to one that *truly embraces* it to enable research, teaching, learning, the student experience, and operational productivity.**

Today, information technology is certainly one of the most critical tools in higher education, and the great universities of the future will be those that have an exemplary IT infrastructure and embrace IT services.



# Primary Concept

*Within prudent and reasonable resources, and in line with institutional priorities, provide an environment that features “IT Abundance” ... wherein IT is advanced, current, and readily available to support faculty, staff, and students in their achievement on of the mission of the institution.*

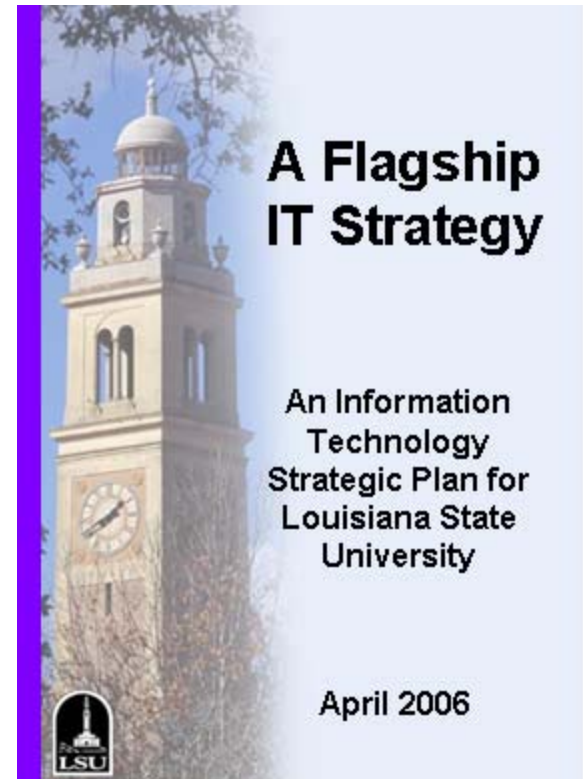
**IT Abundance**

*To be excellent in providing for IT Abundance, not as its own end, but as a way in which the mission of the institution is ultimately served.*

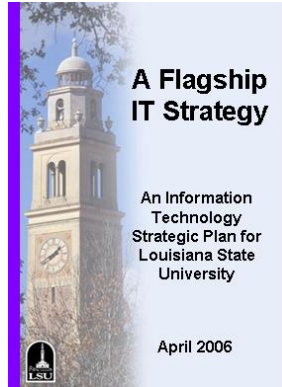


# Developing a Flagship IT Strategy

- What it looks like ... What it is and is not
  - What about the IT Master Plan?
  - Flagship IT Foundations
- Whose plan is this? **YOURS!**
  - Task Forces
- Process and Next Steps



# What Does a Flagship IT Strategy Look Like??



- It **is** a thought-provoking list of outcomes – describing the community’s vision for an IT environment that enables overall success of the Flagship Agenda
  - *It is a companion document to the LSU Flagship Agenda!*
- It **is** a forward looking set of recommendations and proposed areas for action, which will serve as a blueprint for the CIO ***and*** the community to continue the next phase – implementation planning and scheduled implementation
- From such a strategy, the IT future of LSU will emerge over the next five years

# What it IS and is **NOT**

- ***It deals with the ‘What’ and ‘Why’***
  - ***NOT*** with the ‘How’ and ‘When’
    - *‘How’ and ‘When’ come later in the implementation planning*
- ***It shies away from specific technology focus***
  - *Technology is ever-changing; the needs to be addressed by technology are more stable and long-lasting*
- ***It assumes a given premise –IT Abundance***
  - *Hence, it is **not** constrained by resource concerns*

# What it IS and is **NOT**

- ***It shies away from discussions of priorities***
  - *Priorities are a fact of our life in higher education; but we must not dwell on the order in which we make advancement*
  - *Priorities will certainly impact implementation planning, but that comes later*
  - *Priorities are a sign of IT Scarcity – and potential synergies are lost if an imposed order of implementation is dictated*
- ***It is forward looking – states goals of where we want to be in a 5-6 year timeframe***
  - *It is **not** a re-hash of past mistakes, or a ‘clean-up’ of ITS shortcomings (that’s an operational, not strategic matter)*
- ***It is a plan for all of LSU***
  - *It is **not** a document simply focused toward the central IT organization and CIO*

# What about the existing IT Master Plan?

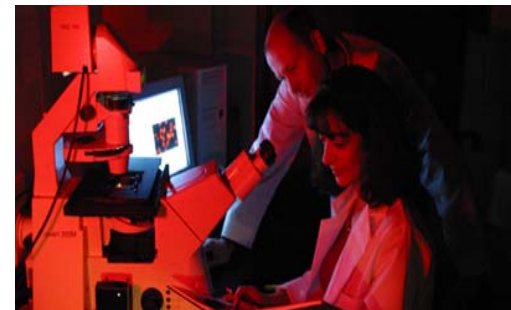
- Has some good elements that could be re-used in the new Flagship IT Strategy
  - Serves as good background information
- Too focused on the central IT organization; not focused on institution-wide IT actions
  - Contains ‘clean-up’ items that are operational, not strategic
- Too focused on specific technologies
- Not outcome driven – more focused on specific tasks
- Displays an acceptance of ‘IT Scarcity’; not bold in advancing IT
- Does not well articulate substance and reasoning behind recommendations and action items
- Not well accepted nor implemented

# Why now is the time

- Administration has a focus on IT enablement
  - CIO placed at the 'cabinet' level
  - Chancellor and Provost engaged in IT enablement
- CIO committed to building infrastructure and providing top-notch services based upon community need
- Some early demonstrations of how things could be (Pelican, TigerWare) are generating interest and hope
- ***As budget issues loom, this is the perfect time to spell out exactly what needs to be done, so that IT can be appropriately represented and advanced, even in tight budget times***

# Flagship IT Foundations

- **Developing a Sound IT Infrastructure**
- **Supporting Teaching and Learning**
- **Supporting the Student Experience**
- **Supporting Research**
- **Managing Institutional Information**



# Flagship IT Foundations

## Sound IT infrastructure

*Build a sound foundation and assure sound fiscal planning permits the maintenance of that infrastructure at state-of-the-art levels. Areas for Review/Recommendation*

- **Desktop/Departmental/Central computing resources**
  - Modernization and **life-cycle** funding for equipment
- **Availability of a Standard Software Stack (S<sup>3</sup>)**
- **Support (central and distributed) for IT use**
  - Adequate levels of staff and staff compensated to retain
- **Network Access**
  - Solid high-performing campus networks and internet connectivity, wireless, and high-speed remote access,
- **Security, Privacy, and Protection**
  - Sound policies for IT use
  - Highly secured environment, but cognizant of unique openness required in higher education
- **Disaster Recovery & Business Continuity Planning**
  - Plan for 'Katrina-like' impacts, both direct & indirect





# Sound IT Infrastructure

## Possible Action Items

- Life-Cycle Replacement Planning & Funding
- Base level of funding per FTE for IT
- Modernizing the stock of desktop computers
- Site licensing for most popular software tools, and simple direct distribution systems to make that software available in the broadest possible manner
- Investments in the human-component of IT infrastructure (support of IT environment) should be increased
- Funding models for campus networking, internet access, and access to advanced networks
- Reliable access on campus and off
- Expanding/Enhancing Wireless networks and services

# Sound IT Infrastructure

## **Possible Action Items - Continued**

- Support for multimedia and streaming media (i.e., video networking)
- Developing clear and forceful policies to protect LSU's network and environment
- Implementing adequate security mechanisms that support aforementioned policies
- Addressing copyright and intellectual property rights protection with regard to security mechanisms
- Complete a disaster recovery & business continuity plan and implement needed infrastructure, systems, and methods to address potential needs for campus-wide, city-wide, and region-wide disaster impacts

# Sound IT Infrastructure

## Possible Action Items - Continued

- A support model recognizing the value of locally-based support, augmented by strong central coordination and level-2 assistance should be designed and implemented
- Local IT support staff should be trained and certified, using industry-standard tools and processes
- Online IT-enabled support environments should be developed and implemented to support pervasive access to IT help information  
7x24
- Access to IT training materials should be broadened beyond student learning, to help advance life-long learning of LSU faculty and staff
- IT infrastructure that supports distance learning initiatives should be planned and developed in close collaboration with the academic entities responsible for this form of education

# Flagship IT Foundations

## Support for Teaching & Learning

Capitalize on the use of IT by teaching faculty and students alike in advancing the pedagogical process at LSU. *Areas for Review/Recommendation:*

- Faculty & Staff Engagement
- Laptop Ownership Requirement(s)
- Imparting Basic IT Skills
- Modern, Technology-enabled Classrooms
- Content Development – IT enablement
- Course Management Systems
- Digital Libraries & the Scholarly Record



# Support for Teaching & Learning

## Possible Action Items

- Consider if creative use of IT is properly encouraged in the instructional processes and guidelines for faculty review in the Colleges
- Establish 'commons' concepts of IT centers that are conducive to advancing relationships between instructor and student through the use of information technology
- Provide faculty with the tools and support to use IT to more effectively teach
- Provide students with the tools and support to use IT to more effectively learn
- Address the issue of ownership of laptops by students – should such be required versus encouraged and facilitated

# Support for Teaching & Learning

## **Possible Action Items – Continued**

- Address course management systems provision and support at LSU
- The University's vision and goal for digital libraries should be tightly integrated with IT planning and provision efforts
- Digital library infrastructure should be developed that will provide a common technical and organizational base for new and ongoing digital library programs.
- Planning for deployment and upkeep of classroom technology, exercising leadership in classroom design and use
- Address basic training needs for faculty and students – provide essential 'boot camp' skill level for all

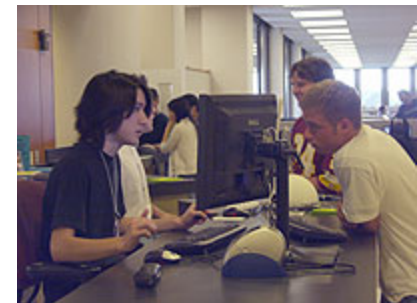
# Flagship IT Foundations

## Supporting the Student IT Experience

**Provide rich, diverse, and pervasive IT environment for Students.**

### ***Areas for Review/Recommendation:***

- Encouraging student ownership of laptop computers
- Future of 'fixed location' computing labs/facilities
- Student Tech Fee future – amounts, uses and processes
- Consistency of Campus and Residence Halls IT environments and services
- Impact on Greek and Off-campus Student IT environments
- Impact on 'The Mobile Student IT User'
- Student-life enrichment – file sharing, gaming, and other 'legal' recreational activities
- 7x24 Support for Student IT use
- IT Career Development Opportunities for LSU grads



# Support the Student IT Experience

## Possible Action Items

- Developing programs and methods with vendors to ease acquisition of laptops and other forms of IT hardware
- Development of 'commons' facilities, centralizing and enhancing provision of public computers in main locations on campus
- Use of e-mail Kiosks and 'info-stations' providing stop-and-check facilities; distributed printing and other related peripheral infrastructures and services
- Complete integration of residence and campus IT infrastructures, and services
- Development of connectivity and support models for Greek Houses
- Coordinating 'LSU-affiliate' pricing for off-campus high-speed internet/broadband services
- Advancing the level of student IT environments beyond 'pedestrian' basics to use of more advanced IT tools (such as high performance computing) in both traditional scientific disciplines and non-traditional curriculum



# Support the Student IT Experience

## **Possible Action Items - continued**

- Evaluation and consideration of appropriate level of student tech fee to maintain student-focused initiatives, and appropriate uses of the funding in support of advancing the student IT experience at LSU
- Review of methods for achieving distributed growth in student-serving discipline-specific IT efforts, especially in light of an advancing overall IT infrastructure on campus
- Developing – in concert with overall IT support development – 7x24 support for students using IT
- Increasing investments in support of IT, not just provision of capital and expense-item IT goods & services
- Internship programs in IT to make opportunities for graduating LSU students to get ‘head-start’ in IT careers (and at the same time, increasing the support on campus for students)
- Expansion of IT services beyond pedagogical purpose – role of IT in general student life experiences and recreational activities

# Flagship IT Foundations

## Support for Research



Provide the tools that are conducive to the advancement of the LSU research agenda.

### *Areas for Review/Recommendation:*

- **Availability of High Performance Computational Resources and support for their use**
  - Cycles & Architectures
  - Massive Data Storage
  - Visualization and Information Discovery Tools
  - Instrumentation Interfaces to HPC/MDS
  - Research Software Support
- **Availability of Collaborative Technologies and support for their use**
- **Access to high-performance research networks**
- **Promoting involvement in key national and international HPC efforts, projects, and initiatives**



# Support for Research

## Possible Action Items

- Developing and deploying state-of-the-art tools and infrastructure supporting collaboration within the University as well as nationally and globally
- Leverage a broad community approach to amassing the largest possible array of high performance computing facilities, and keep them at a level that satisfies the ever increasing demand for computational power.
- Provide facilities and support for computationally and data-intensive research for non-traditional areas as well as tradition areas of scientific computing
- Develop LSU's HPC infrastructure so it has features that are compatible with participation in the emerging national and global cyberinfrastructure
- Encouraging continued and strengthened partnerships between ITS and CCT so as to overall position LSU to advance research nationally and globally in the use of HPC in support of science, and at the same time build HPC capacity for broader campus use in advancing all forms of research
- LSU should continue to advance its involvement and influence in state, regional, national, and global high performance computing and high performance networking initiatives to create opportunities for research at LSU.

# Support for Research

## Possible Action Items - continued

- Acquire high-capacity storage systems capable of managing extremely large data volumes from research instruments, remote sensors, and other data gathering facilities
- Provide access and support to the widest possible range of research software including database systems, text-based and text-markup tools, scientific text processing systems, statistical software analysis, and the complete array of tools – both open source and licensed – to enable productive use of state-of-the-art technologies by researchers at LSU.
- The Office of the CIO and the ITS organization should participate with faculty on major research initiatives where it is appropriate and provides institutional advantage.
- The Vice Chancellor for Research and the CIO, along with the Provost and Chancellor, should investigate ways that funding of IT infrastructure to support research can be readily and consistently provided
- Infrastructure, facilities, and services should be built which advance the use of advanced visualization on campus
- Infrastructure, facilities, and services should be built which advance the use of collaborative technologies on campus

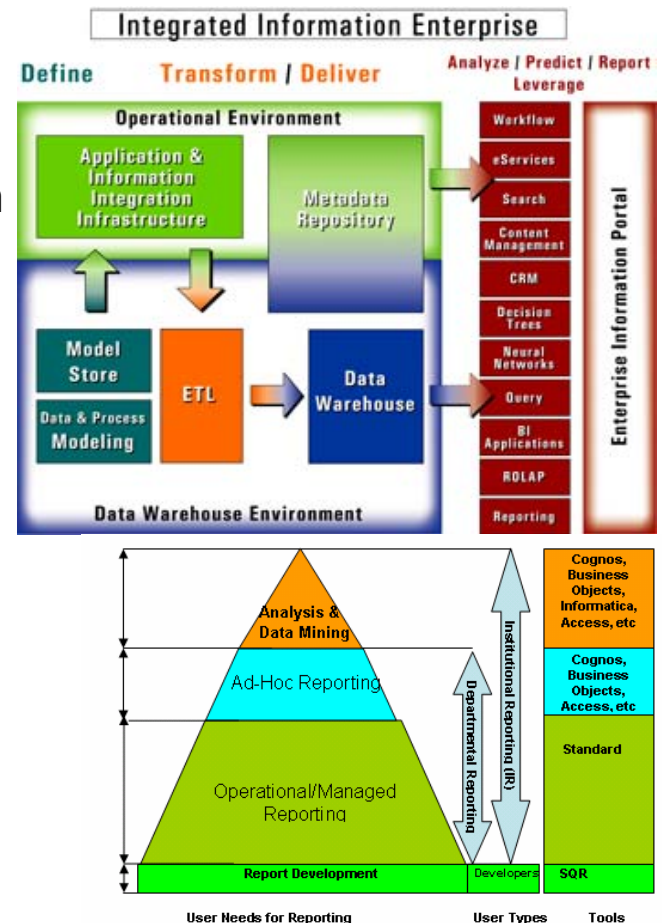
# Flagship IT Foundations

## Managing Institutional Information (Systems)

Providing the key technologies and service to manage LSU's Information Assets.

### Areas for Review/Recommendation:

- **Quality University Information Systems** – Student, Human Resources, Financial, Research Administration
- **Common Application Interface**
- **Information Delivery for Decision Support** – Data warehousing
- **Data Administration** – defining policies for the use of data and promoting the collection and maintenance of comparable data in standard formats across campus
- **Technology Architecture and Standards**



# Managing Institutional Information (Systems)

## Possible Action Items

- Prioritizing, coordination, and oversight of information systems development
- Reducing 'backlog' of information systems work to speed implementation of quality systems
  - Develop creative staffing and resource provision methods that optimize the availability of human resources to develop & support systems
  - Examine and wisely select candidate functions for outsourcing
- Implement fully integrated enrollment systems in support of Flagship goals and develop student information systems
- Implement modernized financial and human resource systems
- Develop architectures for information systems that best leverage existing and developing technologies
- Develop a consolidated information delivery environment and build and deploy an institution-wide data warehouse environment

# What are the key challenges?

- **ERP**
  - Current (10-year) backlog of information systems requests
  - The high cost of new systems from ‘the usual suspects’
  - The fact that they focus mostly on getting information in, and little on getting information out in useful forms
- **Waging a Five-Front Campaign**
  - Achieve progress in parallel across all foundations, not serial-ordering of priority establishing ‘competition’
- **Ensuring the plan is community-based & institutionally focused**
  - ***Not*** the IT organization’s plan for LSU, ***but*** LSU’s plan for the IT organization ***and*** the institution more broadly
- **Funding**
- **Globalization**
  - At the same time we’re doing this, so are others

# Key Threats



- **IT security**
  - Here there be monsters!
  - It's like Deadwood circa 1876
- **Institutional funding decline**
  - Need more than ever to 'get current' so as to continue to advance in spite of declining budgets
- **The cost of information systems (ERP)**
  - Has, elsewhere, become the defining focus of IT in higher education
- **Fracturing IT**
  - May achieve focus but ... makes it harder to leverage synergies
  - Causes redundancy of effort and inefficiencies
- **Overcoming a history of dissatisfaction and disappointment**
  - How can we dawn a new day?



# A Flagship IT Strategy

## Who will develop it?

- **The Flagship IT Strategy stands its best chance of success if it is the result of a community-based initiative**
- **Hence, the community – with support and coordination from the Office of the CIO – should be charged with drafting the strategy**

# A Flagship IT Strategy

## Who will develop it?

- **Representatives from the campus community**
  - Faculty – both research and teaching focused
  - Students – both undergrad and grad levels
  - Administration – leadership and staff
  - IT Professionals – both inside ITS and especially from across campus
- **Task forces will be organized with input from Faculty Senate, Student Government, Deans, Provost's Office and Chancellor's Office**
  - One task force for each Flagship IT Foundation area
  - Chaired by respected and insightful leaders from the campus communities (faculty, students, and administration)
  - Populated by involved and interested constituents in the specific areas – approximately 10-20 representatives on each Task Force
  - Ex-Officio representatives from the Office of the CIO and Information Technology Services

# How will it be drafted?

- Task Forces formed in **Fall 2005** and CIO will present vision statement for consideration and discussion in a 'kick-off' session
- Task Forces will meet 3-4 times over the course of 30-45 days to:
  - Review/discuss IT vision, process, and goals
  - 'Brainstorm' areas for recommendation and action
  - Refine discussions into a concise set of specific recommendations and action items for implementation
- CIO will work with Task Force Chairs and staff to consolidate separate recommendations and action items into a coordinated plan document
- Task Forces will be re-convened to review and critique the draft plan document and make final recommendations for the Flagship IT Strategy
- Final plan will be assembled and presented for endorsement by all necessary bodies (University Administration, Faculty Senate, Student Government, Deans & Directors, etc.) (**Spring '06**)
- CIO will commence implementation planning and budgeting, working closely with the Task Force Chairs and membership (**Spring '06**)

# Next Steps

- Form the Task Forces
- Establish a calendar for Task Force Meetings
- Continue efforts to develop ‘demonstration efforts’ to make grabs of ‘low hanging fruit’ while the plan unfolds