The University of Florida's Strategic Plan for IT

Final Report and Recommendations

Appendices

April 2011

Contents

Strategic Plan for UFIT 2011-2012

Introduction

The ability of the University of Florida to execute its mission of teaching, research, engagement and patient care depends on effective collaboration and services for faculty, students, staff, and external stakeholders. Information technology (IT) will continue to play a vital role in shaping the future of the university, enabling new forms of education, discovery, and outreach, and also making administrative and support systems more effective and cost efficient.

This strategic plan is the first stage of a continuous strategic planning effort to address short- and long-term IT alignment with the mission of the University of Florida. A special consideration of this plan is to focus on the strategic directions and initiatives that will result in large positive outcomes university-wide and which can be completed or initiated within the next eighteen months, in addition to long-term initiatives that must be started within this time frame. These initiatives must be effective, improve the quality of IT services for all stakeholders and use university resources efficiently,

Principles

Following the recommendations of the UF Information Technology (UFIT) Action Plan, Vice President & CIO Elias G. Eldayrie initiated an ongoing strategic planning effort to serve the needs of UF based on a set of three principles guiding the UF IT organization:

1. **Efficiency.** Resources and services provided by UFIT to faculty, students, staff and external stakeholders must facilitate effective execution towards the UF mission in a cost effective and a nimble way.
2. **Responsiveness**. The UFIT organization must be accountable to the needs articulated by stakeholders and provide quality IT systems and services that address these needs.
3. Innovation. The UFIT organization must leverage innovation to facilitate positive outcomes, improve the quality of services and reduce the cost of IT to the organization. create competitive advantages for UF.

These principles are applied towards the following goals:

1. Advance teaching, research, engagement and patient care in support of the university mission.
2. Support strategic goals set by university leadership.
3. Reduce costs of IT services, systems, and infrastructure by increasing efficiency--while maintaining or increasing effectiveness.
4. Improve the ability of faculty, staff, students, and the greater university community to perform their work by improving responsiveness and facilitating access to IT services.
5. Deploy innovative systems and services that reduce costs, increase effectiveness, and make UF more competitive and productive.

6. Establish the necessary awareness, training and education programs to ensure that faculty, staff and students have the necessary competencies to use IT resources effectively.
7. Protect the confidentiality, integrity and availability of the university's IT resources.

Who participated

To ensure representation from all university constituents, a systematic approach was taken that included interviews with academic and administrative leaders, retreats with IT leadership and management across the university, focus groups with faculty and students, comparisons with peer institutions, and an analysis of trends in industry and education. This strategic plan for UFIT was formally vetted by the Governance for IT Policy Council, representing a broad array of constituents across the university.

Focus Areas, Expected Outcomes, and Strategic Actions

The university IT community must serve the mission of the university and be structured so that the most beneficial outcomes may be achieved. To do so we must ensure that:

1) Expected outcomes are clearly articulated.
2) Actions undertaken ensure alignment with the expected outcomes.
3) Resources can be adequately allocated or reallocated.
4) Necessary competencies for delivering the expected outcomes are in place.
5) End-users of UFIT services are included at all appropriate levels.

1. Education and Outreach

Teaching and technology are inextricably intertwined. The challenge is no longer to introduce technology to teaching, but to optimize the use of technology in the dissemination of knowledge. The teaching platform may be the traditional classroom, distance education, or the service, extension and clinical domains. It is important for UF to provide a dynamic organizational structure that realizes the synergies of centralization and the creativity of distribution in the use of technology for education and outreach. The university must maintain a structural flexibility that responds to changing needs and opportunities that improve mission-related outcomes.

Expected Outcomes

Strategic initiatives focus on the following outcomes:

1. Provide effective IT services that improve the knowledge acquisition process in terms of content comprehension, acquired skills, long term retention, and critical thinking.
2. Increase the efficiency of knowledge acquisition activity-related benefits while reducing costs.
3. Establish an innovative continuous improvement model that encourages and enables new and improved modes of instruction.
4. Increase opportunities for access to knowledge acquisition in both existing and new areas.

Strategic Actions

In order to achieve these outcomes, the following strategic initiatives are planned:

1. Provide support for UF's course management system
    - Provide enhanced conversion services of learning materials into Sakai.
    - Enhance current Sakai features.
    - Develop training modules in the use of Sakai.
2. Provide support for teaching and technology
    - Expand instructional design services.
    - Enhance Web development and web programming services.
    - Introduce testing mechanisms that meet current student evaluation needs.
    - Assess the effectiveness of teaching with technology.
3. Develop and implement mobile technology services
    - Implement user-friendly Web interfaces and mobile applications for learning.
    - Create training modules in the use of mobile technology.
4. Provide support for distance learning programs to include:
    - Provide services for marketing and feasibility studies.
    - Deliver program design services and consulting.
    - Offer consulting services for business plan development.
5. Create an innovative environment that requires evaluation and continuous improvement to include:
    - Develop best practices and standards where appropriate.
    - Generate opportunities for faculty to leverage new developments in technology and related pedagogy.

Table 1
Strategic Actions for Education and Outreach

Action	Supported Outcomes
Provide support for UF's course management system	1, 2, 4
Provide support for teaching and technology	1, 2, 3, 4
Develop and implement mobile technology services	1, 3, 4
Provide support for distance learning programs	2, 3, 4
Provide an innovative environment that requires evaluation and continuous improvement	2, 3, 4

2. Research Computing

The goal is to establish UF as an international leader in the use of information resources in research and scholarship. Competitive, quality research and scholarship in the 21st century requires significant information resources to obtain funding, execute discovery, produce scholarly works, and manage research activities. The need for computational infrastructure will continue to increase. While pre-eminence cannot be achieved in 18 months, we propose to focus our 18- month effort to advance our goal of research leadership.

Expected Outcomes

Strategic initiatives focus on the following outcomes:

1. Improve opportunities for research and scholarship.
2. Improve competitiveness in securing external funding.
3. Enable radical collaboration between UFIT personnel, computational faculty, and the research community across UF and beyond.
4. Increase accountability of IT staff, especially in support of Research Computing, to the faculty they support.

Strategic Actions

In order to achieve these outcomes, the following strategic initiatives are planned.

1. Collaborate with the Office of Research and the Smathers Libraries to provide research faculty with information resources and services, including:
    - Assist researchers and principal investigators by expanding their UF organizational knowledge.
    - Provide access to timely information about UF investigators and research. An example is the VIVO project at UF with funding from NIH. It is building information resources to help faculty and researchers publish their interests and expertise and find matches for potential collaboration. The UF libraries are currently running VIVO as a resource.

- Promote awareness of national research resources. For example, we can utilize the Sunshine Grid project, which has a component to build a statewide database with information about resources and expertise available and how to access them.
- Increase opportunities for research teambuilding via online tools.
- Assist with meeting funding agency requirements that depend on IT resources. For example, the data management plan recently required by NSF.
- Expand library technological resources in support of UF's research community. We can, for example, build and maintain the infrastructure that helps researchers deliver reliably on the commitments in the data management plan by running the web servers, providing expert staff to assist with curation of the data, and providing convenient tools to upload data to national data repositories -- all time-consuming tasks currently imposed on the researchers.

2. Develop and deploy fundamental infrastructure and services for research and scholarship, including:
    - High-end computational resources
    - Collaboration and messaging platforms
    - Multi-domain authentication mechanisms
    - A data storage architecture that supports data curation and reuse
    - Visualization tools
    - Software licensing services
    - High performance networks
3. Collaborate with the Office of Research and Finance and Accounting to develop auditable mechanisms that help sustain and grow information resources for research:
    - Flexible funding mechanisms to provide faculty with diverse needs and means to make use of resources. For example, some projects have the funds to pay for computation at hourly rates, while others can only pay for equipment acquisition.
    - Flexible staffing and management models that will allow faculty to have partial FTE access to the expertise available at the University. Some projects can allocate FTE in the budget, while others may need a different mechanism to allocate the required staff time.
4. Develop governance structures that align the activities and goals of Research Computing with those of researchers to focus on solving research problems by collaborating from the early planning stages with existing efforts that both support research and require research computing support, such as ICBR, CTSI, EPI, CTRIP, Digital Worlds, CHREC, ACIS, etc.
5. Ensure accountability of IT staff who support research computing to the faculty they are supporting in the form of input in the annual evaluation process. Some mechanisms are satisfaction surveys and the analysis of service requests through automated ticket systems.

Table 2
Strategic Actions for Research Computing

Action	Supported Outcomes
Collaborate with research service providers to inform research faculty about available services and resources	1, 2, 3
Deploy fundamental infrastructure and services for research	1, 2, 3
Collaborate with business units to sustain and grow information resources for research	1, 2, 3
Develop a governance structure that aligns Research Computing with needs of researchers	4
Make IT staff accountable to researchers	4

3. Information Security & Compliance

The value of a strategic plan for information security is to reduce the risk to the institution while not hindering its mission. Too much risk reduction impedes productivity, engenders resistance to compliance, and limits the effectiveness of IT in serving the institution. Too little risk reduction allows the potential for asset damage and data loss, creating liabilities for the institution, its faculty and staff. The appropriate balance requires a strategic multi-year plan, which incorporates a quality improvement process and compliance and policy assessments.

Expected Outcomes:

The expected outcomes from the implementation of this strategic plan are:

1. Protection of the ability of the university, its faculty, staff, and students to conduct education, research and service and to provide patient care.
2. Reduction of risk to the institution, and its faculty, staff, and students, by protecting the confidentiality, integrity, and availability of information assets.
3. Education of faculty, staff, and students concerning information security policies, standards, and data protection practices through appropriate training.
4. Establishment of enforceable policies in order to maximize compliance with laws, regulations, and generally accepted practices.

Strategic Actions:

In order to reach these expected goals, certain specific actions enumerated in Table 5 are recommended.

1. Staff and operationalize the Information Security & Compliance office
    - Develop a data encryption strategy.
    - Develop an incident management program.

- Develop a patch management program.

2. Develop a risk management and compliance framework
    - Develop processes to assess and manage risks.
3. Develop an information security policy and standards framework
    - Create formal process for policy development, approval, implementation, compliance, and maintenance.
    - Develop a data classification framework.
4. Develop an education and awareness program
    - Identify training priorities.
    - Develop training programs.
    - Assess awareness improvements.
5. Develop a monitoring program
    - Develop and implement a process to inventory and classify information assets.
    - Develop a vulnerability management program.
    - Develop an intrusion detection and prevention program.
    - Conduct third party penetration testing.

Table 3
Strategic Actions for Information Security and Compliance

Action	Supported Outcomes
Staff and operationalize the Information Security & Compliance Office	1,2,3,4
Develop a risk management and compliance framework	1,2,3,4
Develop an information security policy and standards framework	1,2,3,4
Develop an education and awareness program	3,4
Develop a monitoring program	1,2

4. Web Services

The World Wide Web has become the most important channel by which information is sought. It is not only a source of information, but also a means by which stakeholders communicate and collaborate in a social context and as communities of interest. The web serves not only internal stakeholders (faculty, students and staff), but also plays a major role in serving external clients and friends. Prospective students, alumni, donors, extension, clinical and other clients rely substantially on the UF web presence to maintain their relationship with the university.

Expected Outcomes

The main expected outcomes from implementing this strategic plan are to:

1. Increase university engagement of external and internal clients and friends.
2. Promote an image of the university as being in the vanguard of academia.
3. Facilitate access to university-related services and information.
4. Promote a common, high quality, user experience across the UF web domain.
5. Ensure that usability, security and legal requirements are met across UF web resources.

Strategic Actions

In order to achieve these outcomes, the following strategic initiatives are planned:

1. Redesign the UF web presence (ufl.edu)
    - Create a user-centric web page that provides clear and effective navigation and searching.
    - Develop standards, recommended practice and tools for web content developers.
    - Establish enabling support infrastructure and streamline publishing process for web content providers.
2. Review and update existing web-related policy, and propose policy in areas that require but may currently lack policy
3. Facilitate internal and external communication through multiple channels:
    - Expand and formalize the use of social networking to reach external and internal clients.
    - Facilitate and encourage the University community and stakeholders to produce material and keep material up to date.
    - Promote services and knowledge of the university to internal, external and global audiences.
4. Develop mobile web and apps:
    - Develop a mobile web presence consistent with ufl.edu.
    - Develop standards, recommended practice and tools for mobile web and app content developers.
    - Identify applications as significant, widely used or critical in relation to support requirements and response times.
5. Provide centralized communication services:
    - Institute campus-wide on-demand blog and wiki services for the UF community.
    - Facilitate rapid publishing without requiring users to possess detailed technical knowledge.
    - Provide consulting, support and training services.

Table 4
Strategic Actions for Web Services

Action	Supported Outcomes
Redesign the UF web presence (ufl.edu)	1, 2, 3, 4
Review and update existing web related policy, and propose policy in areas that require but may currently lack policy	4, 5
Facilitate internal and external communication through multiple channels	1, 2, 3, 4
Develop mobile web and apps	1, 2, 3, 4
Establish centralized communication services	1, 2, 3, 4

5. Administration

The business of running the university, stewarding its resources, and ensuring effective business practice requires complex IT systems that are secure, reliable, and reduce operational and administrative costs. Of particular importance is the need to integrate data from diverse centralized and distributed sources, retrieve meaningful information from UF's data systems, and improve existing business processes.

Expected Outcomes

The strategic initiatives addressed in this plan focus on the following outcomes:

1. Improve decision making at all levels of the university by providing more efficient access to data.
2. Improve and streamline existing business processes to facilitate IT operations and training, achieve cost reductions, and ensure their continuous operation.
3. Provide intuitive and flexible access to content and services.

Strategic Actions

In order to achieve these outcomes, the following strategic initiatives are planned:

3. Develop a business intelligence (BI) strategy and implement the related systems and services (See Appendix 1, Section I)
    - Develop the required middleware to integrate or federate data from multiple sources (See Appendix 1, Section IA).
    - Introduce a set of BI tools that can be deployed and used coherently across the university (See Appendix 1, Section IB and IC).
    - Provide repositories for institutional data (See Appendix 1, Section ID).
    - Create a data warehouse with secure access tools for use by the university community (See Appendix 1, Section IE).
2. Improve business processes and workflow management (See Appendix 1, Section II)
    - Review and inventory software and systems used across campus to identify unmet service needs (See Appendix 1, Section II A).

- Centralize and standardize hardware, storage, and software platforms for services that can be integrated, provided at a lower cost, or improved (e.g., print, accounts payable, grants, accounts receivable, budgeting) (See Appendix 1, Sections IIB, IIC, IID, IIE, IIF).
- Replace current manual processes with efficient online processes (See Appendix 1, Sections IIC, IID, IIE, IIG, IIH, III).

3. Integrate budgeting into the campus RCM initiative (See Appendix 1, Section IV)
4. Improve student service systems leading to consolidation and integration (See Appendix 1, Section V)
    - Create an authoritative, canonical data source for all student information (e.g., admissions, financial, transcripts and student records) currently managed in both academic and administrative units.
    - Develop a student system that integrates all services currently provided by multiple student-related systems.
    - Integrate the student system with existing enterprise-wide computing systems.
5. Improve the UFIT user experience (See Appendix 1, Section III)
    - Apply usability principles to UFIT systems: consider the wide range of end-user technical knowledge and system capabilities when developing new or enhancing existing university systems.
    - Make IT systems accessible through highly mobile devices.
6. Maintenance (See Appendix 1, Section VI)
    - Perform maintenance to ensure IT systems and applications are kept current, supported and operating effectively and efficiently.

Table 5
Strategic Actions for Administration

Action	Supported Outcomes
Develop a business intelligence strategy and implement the related systems and services	1, 2
Improve business processes and workflow management	2, 3
Integrate budgeting into the campus RCM initiative	2
Improve systems used in student services	1, 2, 3
Improve usability of IT services and access through highly mobile devices	3
Perform maintenance to ensure IT systems and applications are kept current, supported and operating effectively and efficiently.	1,2,3

6. Shared Infrastructure

UFIT systems and services run on a shared IT infrastructure that must be robust, reliable, and secure. Both Enterprise Systems and many Distributed IT Units share the same platforms or similar technologies.

Key components of the shared IT infrastructure include computing servers and storage, voice and data networks, and central data centers. As IT becomes more pervasive in teaching, research, outreach and administration, UF's computing infrastructure is stressed to provide the levels of performance required by students, staff and faculty. Traffic on the data networks is increasing, as is the load on central servers, storage, and databases. Data centers on campus are nearing full capacity. Departmental server rooms spread all over campus are energy inefficient. Servers sitting in corners and closets create a security risk.

Expected Outcomes

The strategic initiatives addressed in this plan focus on the following outcomes:

1. Provide Shared IT Infrastructure to meet the needs of central administrative systems, distributed IT units, and end users.
2. Consolidate and standardize the IT infrastructure to reduce costs through economies of scale.
3. Replace or retire IT infrastructure at regular life cycles to assure reliability and performance.
4. Expand and enhance IT infrastructure capacity in response to increasing user demand.
5. Evaluate and implement new technologies in support of innovative applications.

Strategic Actions

In order to achieve these outcomes, the following strategic initiatives are planned:

1. Improve the Computing Infrastructure used by enterprise systems –
    - Add, upgrade, replace or retire servers and storage as needed to support new or enhanced applications such as Finance, HR, Portal, Warehouse, Student, and Sakai.
    - Migrate PeopleSoft-based enterprise systems from DB2 to Oracle.
    - Migrate enterprise systems backups from tape-libraries to disk-appliances.
    - Evaluate the potential benefits and cost savings of outsourcing Student E-mail.
    - Install a dedicated new server and storage platform for the Hyperion Budgeting System.
2. Improve the Network and Telecommunications Infrastructure campus-wide –
    - Upgrade and improve the network infrastructure across the core, LANs, and WANs.
    - Build 2 new 10 gigabit network links between the main campus and the East Campus.
    - Complete the Wall-Plate network refresh at 40,000 ports. Replace 8,000/yr thereafter.
    - Complete the telephone system conversion to VoIP at 8,000 lines on the main campus.
    - Expand campus wireless network density in classrooms and public spaces to 3500 APs.
    - Expand the Emergency Notification System to 500 VoIP speaker-phones in classrooms and public spaces, and 20,000 VoIP desktop phones in office buildings.
    - Install a vendor agnostic Distributed Antenna System to improve mobile device access.
    - Explore new technologies to improve network security and capacity – NAC, IPAM, IPv6.
3. Expand Data Center Infrastructure facilities and capacity –
    - Build a new Data Center off campus for Disaster Recovery of Enterprise Systems.
    - Build a dedicated room in the new Data Center for High Performance Computing.
    - Re-deploy space liberated on campus for additional departmental server hosting.
4. Standardize the Computing Infrastructure used to host departmental systems –

- Provide virtual server hosting services in central data centers to maximize utilization of capacity, minimize energy consumption, and reduce security risks.
- Standardize vendors and products to simplify installation and maintenance, to provide bundled services at fixed prices, and to assure agreed-upon service levels.
- Negotiate volume discounts and site licenses to reduce costs.
- Evaluate related centralized services such as Virtual Desktop Infrastructure (VDI).

5. Change the Funding Model from user chargeback to central funding.
    - The IT Infrastructure used by enterprise systems is primarily funded off-the-top via RCM Baseline funding. Continue central funding and resolve any lingering discrepancies.
    - The IT Infrastructure used by distributed IT units is primarily funded via fee-for-service. Continue user chargeback for special products. Change widely used services to central funding. Offer subsidies to stimulate demand for standardized products and services.
    - Change the following services from chargeback to central funding – Exchange E-Mail, SharePoint Hosting, Oracle Database Licenses, and Red Hat Linux subscriptions.
    - Subsidize the following services by cutting the price in half (a 50% rate reduction) – VM server hosting, and TSM data backups.

Table 6
Strategic Actions for Shared Infrastructure

Action	Supported Outcomes
Improve the Computing Infrastructure used by enterprise systems.	1, 2, 3, 4, 5
Improve the Network and Telecommunications Infrastructure campus-wide.	1, 2, 3, 4, 5
Expand Data Center Infrastructure facilities and capacity.	1, 2, 3, 4
Standardize the Computing Infrastructure used to host Departmental Systems.	1, 2, 3, 4
Change the Funding Model from user chargeback to central funding.	1, 2, 3, 4

7. Governance for UFIT

A strong, campus-wide governance structure is essential to ensure transparency and participation by stakeholders, and to align UFIT with the mission of the university. In this context, the governance model will guide UFIT towards an effective and efficient service-oriented organization.

Expected Outcomes

The expected outcomes from implementation of this strategic plan are:

1. Establish an IT advisory structure with broad representation from university stakeholders.
2. Provide UF leadership with clear recommendations on using IT to improve mission-related outcomes and reduce costs.

3. Provide UFIT with advice and feedback on service, systems, and infrastructure improvement
4. Assist UFIT in identifying and setting IT priorities.
5. Create awareness of the value IT brings to the university.

Strategic Actions

In order to achieve these outcomes, the following strategic initiatives are planned.

1. Establish operating Governance committees for UF IT.
2. Develop a data-driven strategy for service deployment, improvement and expenditures.
3. Align IT with campus strategic and action planning.
4. Promote collaboration and partnerships with distributed IT units.
5. Establish an on-going strategic planning effort.

Table 7
Strategic Actions for Governance for UFIT

Action	Supported Outcomes
Establish operating governance committees for UFIT	1, 2, 3, 4, 5
Develop a data-driven strategy for service deployment, improvement and expenditures	2, 3, 4, 5
Align IT with campus strategic and action planning	2, 4
Promote collaboration and partnerships with distributed IT units	3, 5
Establish an ongoing strategic planning effort	2, 4

8. Workforce Development

The success of any organization depends on its individual members. In order for UFIT to become a successful strategic partner and service provider to the university, it must develop and cultivate a culture of service, as well as a sense of community. In addition, a high level of competency of university-wide IT staff is required to ensure UFIT services operate at a level that meets or exceeds user expectations.

Expected Outcomes

The main expected outcomes from implementation of this strategic plan are to:

1. Improve customer service.
2. Increase collaboration amongst IT staff across the university.
3. Develop a highly qualified staff, current in IT advances.
4. Improve responsiveness and work towards operational excellence.
5. Identify and implement technical and business process improvements.

Strategic Actions

1. Improve communication and participation of IT professionals in UF IT initiatives.
2. Provide needed services as identified by customers and effectively communicate regarding these services.
3. Create cross-functional teams to develop new services and assess value of existing ones.
4. Establish a process to assess customer experience and continued improvement for all services provided by UFIT.
5. Develop data-based IT value reporting.
6. Develop a comprehensive training program for university IT staff that enhances growth, learning and development as an ongoing process.

Table 8
Strategic Actions for Workforce Development

Action	Supported Outcomes
Improve communication and participation of IT professionals in UFIT initiatives	2, 5
Provide needed services as identified by customers and effectively communicate regarding these services	2, 3, 5
Create cross-functional teams to develop new services and assess value of existing ones	1, 2, 4, 5
Establish a process to assess customer experience and continued improvement for all services provided by UFIT	1, 4
Develop data-based IT value reporting	1, 5
Develop training program for university IT staff	1, 3, 4, 5

Appendix 1: Administrative IT Advisory Committee Priority Recommendations

The Administrative IT Advisory Committee members reviewed priorities from both a macro and micro perspective. Thus we've clustered our recommendations around common themes (Business Intelligence, Business Process Improvement and Workflow Management, Human Interface Development, Budgeting System, Comprehensive Student Services and Maintenance) that address specific frontline issues as well as campus-wide issues. Additionally, we've incorporated information on projects currently in the IT pipeline in development and/or under consideration. The list of priorities includes both short-term (18 months or less) and long-term (2-5 years) projects.

Guiding Principles – *of the concepts identified below, Business Intelligence, how to effectively expose data for improved decision making, Process Improvement, ensuring that existing practices are being streamlined and enhanced, and User Interface, providing intuitive and flexible methods to access content and services, are foundational and should always be considered as a part of any IT initiative.*

Business Intelligence: *This would include projects that improve the ability to retrieve comprehensive university information through the coherent development of BI tools to integrate systems, including items such as forecasting analytics, document imaging, middleware software, etc.*

Specific priorities include:

- **"Middleware" systems and/or databases that integrate data from multiple sources** – example, tying academic program data to financials, space use, research productivity, faculty effort, and student credits. Data live in multiple systems, many of which define academic "program" differently.
- **Coherent development of Business Intelligence tools and systems across UF.** This would allow us to provide information in more effective ways to more users. Allow for same" Version of the Truth."
- **One UF Network.** Collaborative research requires the ability to access and store data from various parts of the University (and other universities). Single Sign On (SSO) authentication should be utilized.
- **Document Imaging and Storage Repository Systems**
    - Develop a secure, controlled storage repository for large data sets (on or off campus). Data sets for physical and biological research programs are becoming extremely large, needing ever-increasing storage capacity (approaching petabyte).
    - This can be a significant cost-saving alternative to printing and storing, but many find the cost of storing data prohibitive. An enterprise system would be helpful.
- **Develop data warehouse for accurate data on students, faculty and staff/employees and provide training on how to use it. Ability to retrieve comprehensive employee/student information without making individual requests from HR and other campus sources**:

  Example data requested:
    - List of all faculty tenured and/or promoted in a particular year with names, titles, departments, and mailing addresses
    - List of all current faculty with faculty ranks, departments, colleges, mailing addresses
    - List of all newly hired faculty, names, departments, titles, contact information
    - List of all faculty holding the title of "chair" of a department
    - List of all faculty currently holding the title "Distinguished Professor"
    - List of all staff in the Division of Student Affairs
    - Consistent or systematic information entries in directory/phone book

Projects currently in the pipeline:

- Cognos 8 Upgrade
- Student Data Warehouse
- BI Enhancement
- HRMS conversion to Oracle

Business Process Improvement and Workflow Management: *This would include projects that improve existing business processes through the use of automation in order to streamline or replace current practices, and includes the use of transactional and approval workflow management.*

Specific priorities include:

- **Centralize/standardize software and hardware for consistency of training, maintenance and support** (certain exemptions for high-end computing or research computing).
- **Consolidate and/or eliminate printing devices and other computer peripherals** - save money and more sustainable use of utilities.
- **Centralize Account Payable functions on campus and acquire e-payment solutions for vendor payments.** Currently UF vendors bill approximately 450 UF departments. Efficiency could be gained by having vendors bill a central accounting office for payments, use e-scanning technology to communicate with departments. UF savings in time and effort could be substantial if departments only have to verify and approve an invoice online.
- **Centralize Grant Proposals.** All proposal submissions should be entered and tracked in the PeopleSoft Grants Module. Colleges, departments and centers need these metrics to make business decisions. This is also a reporting requirement for CTSI.
- **Explore use of PeopleSoft Account Receivable and Billing modules for auxiliaries.** This would enable recording account receivables in the UF accounting system, and possibly eliminating or integrating information from shadow systems.
- **Explore or inventory the use of business software used across campus (Quicken, Great Plains, etc.) to evaluate specific needs of units and what might help them to function more efficiently.**
- **Approval.ufl.edu.** The approval/tracking system used by all academic departments for courses and new degree programs needs to be updated so it can be searchable and tied to the State's common course numbering system. A more robust system like Approvals could be applied to a number of campus processes in addition to Academic Learning Compacts, Faculty Senate Agenda Items, and other processes already being handled by the Approvals process.
- **Workflow and process enhancements are needed in conjunction with more online form processes and approval systems.**
- **Provide and support research productivity tools (e.g. hub zero and the like).**

Projects currently in the pipeline:

- Self Service Payroll Deduction
- Online Promotion and Tenure

Human Interface Development: *This would include projects that improve user interfaces to IT systems and data via web, portal and mobile applications and devices.*

Projects currently in the pipeline:

- UF Mobile Applications

Budgeting System: *This would include projects that assist colleges and units in the preparation and management of their annual budgets, providing the ability to analyze and forecast revenues and expenditures in a more detailed and granular fashion.*

Specific priorities include:

- Integrate RCM into budget process. Clarify the mechanics of how this would work.

Projects currently in the pipeline:

- Hyperion Pilot
- Effort Reporting

Comprehensive Student Services: *This would include projects that effectively integrate the various systems and associated data currently being used to provide a multitude of student services into a comprehensive set of applications utilizing a shared database, eliminating redundant data files and thereby creating one "Version of the Truth" for use by the University Community.*

Specific priorities include:

- Resolving the issue of the student records system and its future. Establish direction and future of student systems. Currently student information is entered into multiple systems across campus. (Three major systems are Registrar, Student Financial Aid, and University Financial Services).Our present system requires students and staff to access different systems across campus, which in turn necessitates numerous complex interfaces instead of one common database/system.
- Better integration of Graduate Information Management System (GIMS), NERDC, ISIS and PeopleSoft, etc. Reducing the number of locations departmental staff has to go to in order to review student information may improve efficiencies. Closer integration of Student Records in the Registrar's Office, datasets in the Office of Institutional Planning and Research, and the Graduate Information Management System (GIMS) will improve efficiencies and data accuracy.

Projects currently in the pipeline:

- Evaluation and research on the current use of these systems in the higher education landscape

Maintenance: *This would include projects that ensure IT systems and applications are kept current, supported and operating effectively and efficiently, reducing the risk of outages and failures and extending new or improved system functionality to users as it becomes available.*

Specific priorities include:

- **Greater network capacity.** Response times can be very slow, which sometimes hampers productivity.
- **Upgrade of Human Resource Management System (HRMS)** – no upgrades since original implementation in 2004. We are on version 8.8, and 9.1 is now available.
- **Explore functionality in PeopleSoft Treasury module for assistance with bank reconciliations, cash management, etc**. Additional functionality is now available due to recent PeopleSoft upgrade. Current processes involve many "work around" solutions.

Projects currently in the pipeline:

- myUFL Financial System Upgrade
- Campus Solutions Tools 8.5 and Oracle 11g Upgrade

Appendix 2: Education and Outreach Advisory Committee Priority Recommendations

Teaching and technology have become inextricably intertwined, and the challenge is no longer introducing technology to teaching but the optimal use of technology in the dissemination of knowledge. The teaching platform may be the traditional classroom, Distance Education or the extension of clinical domains. In every instance the dissemination of knowledge involves teaching and technology. A strategic plan addressed to these functions should focus on the following outcomes:

A. **Effective** –Improvement of the knowledge acquisition process in terms of content comprehension and skills enhancement.
B. **Efficient** – Improvement of the cost-benefit relationship in the knowledge acquisition activity.
C. **Innovative** – Employ a continuous improvement model that encourages and enables new and improved modes of instruction.
D. **Accessible-** Provide increased access to the knowledge acquisition event in terms of both existing and new areas.

1. Provide support for CMS, LMS to include:
    - Conversion to Sakai
    - Enhancement of Sakai
    - Training modules in the use of Sakai
2. Provide support for teaching and technology to include:
    - Instructional Design Services
    - Web development and web programming services
    - Testing
    - Assessment
3. Development of Mobile Technology to include:
    - Implementation of user-friendly interfaces and mobile apps.
    - Training modules in the use of mobile technology.
4. Provide support for Distance Learning to include:
    - Marketing and Feasibility
    - Program Design
    - Business Plan Development
5. Provide an innovative environment that requires evaluation and continuous improvement to include:
    - Best Practices
    - New development
6. Provide a dynamic organizational structure that realizes the synergies of centralization and creativity of distribution. Maintain structural flexibility that accommodates mission evaluation.

Items to be completed or substantially underway within 18 months:

1. Establish a Teaching/Learning Center aka a Teaching/Technology Center
    - Location plus outreach
    - Demonstration plus consultation
    - Work with Academy of Scholars in this effort
2. Establish a structure to enrich and propagate Sakai
    - Re-establish Sakai Advisory Committee with a user/interface focus
    - Enhance current features
    - Add missing features: third party authoring tools, ePortfolios
    - Develop systematic training modules
3. Provide portable outreach services for distant education
    - Current challenges: online testing, access for students with disabilities
    - Quality maintenance strategy
4. Mobile applications and Teaching and Outreach
    - Work across topical domain to identify:
        - Critical applications
        - Responsibility and benefits
5. Develop information flow and density by establishing or redirecting the following interest groups
    - Instructional Designers
    - Web Designers/Developers
    - Course Management –Advisory Group
    - Technological Innovative Group
6. Refine and develop the organizational structure for alternative platforms. Currently responsibility is lodged in three local organizations -- AT, DCE, College X -- and any number of external organizations such as Compass Knowledge, Appolidon, etc.

Appendix 3: Information Security and Compliance Advisory Committee Priority Recommendations

The value of a strategic plan for information security is to reduce the risk to the Institution while not hindering its mission. Too much risk reduction impedes productivity, engenders resistance to compliance, and limits the effectiveness of IT in serving the institution. Too little risk reduction allows the potential for asset damage and data loss, creating liabilities for the institution, its faculty and staff. The appropriate balance requires a strategic multi-year plan, which incorporates a quality improvement process, and compliance and policy assessments.

The expected outcomes from the implementation of this strategic plan are:

1. Protection of the ability of the university, its faculty, staff, and students to conduct education, research and service and to provide patient care.

2. Reduction of risk to the institution, and its faculty, staff, and students, by protecting the confidentiality, integrity, and availability of information assets.
3. Education of faculty, staff, and students concerning information security policies, standards, and data protection best practices through appropriate training.
4. Establishment of enforceable policies in order to maximize compliance with laws, regulations, and generally accepted practices.

In order to reach these expected goals, specific actions enumerated in Table 5 are recommended.

Table 5
Strategic Actions for Information Security and Compliance

	Supported Outcomes	Time Horizon
Staff and Operationalize the Information Security & Compliance Office • Develop a Data Encryption Strategy • Develop an Incident Management Program • Develop a Patch Management Program	1,2,3,4	18 months
Develop Risk Management and Compliance Framework • Develop Processes to Assess and Manage Risks	1,2,3,4	18 months
Develop Information Security Policy and Standards Framework • Create Formal Process for Policy Development, Approval, Implementation, Compliance, and Maintenance • Develop a Data Classification Framework	1,2,3,4	18 months
Develop Education and Awareness Program • Identify Training Priorities • Develop Training Programs • Assess Awareness Improvements	3,4	18 months
Develop Monitoring Program • Develop and Implement a Process to Inventory and Classify Information Assets • Develop a Vulnerability Management Program • Develop an Intrusion Detection and Prevention Program • Conduct Third Party Penetration Testing	1,2	18 months

Appendix 4: Research Computing Advisory Committee Priority Recommendations

Our goal is to establish UF as an international leader in the use of information resources in research and scholarship. Competitive, quality research and scholarship in the 21st century requires significant information resources to obtain funding, execute discovery, produce scholarly works, and manage research activities. The needs for computational infrastructure will continue to increase. While pre-eminence cannot be achieved in 18 months, we propose to focus our 18-month effort on moving us toward our goal of research leadership. Outcomes from implementation of this strategic plan are to:

1. Improve opportunities for UF research and scholarship, and the competitiveness of UF researchers in securing external funding. Provide information resources to support knowledge of the organization, its investigators and research resources, national research resources, funding opportunities, team building, software licensing and grant writing.
2. Develop and deploy fundamental information resources for research and scholarship, including high-end computational resources, library resources, collaboration and messaging resources, multi-domain authentication mechanisms, data storage, curation and reuse, visualization, and high performance networks.
3. Restructure information resource support of research to enable radical collaboration among UFIT personnel, computational faculty, and the research community across UF and the world. Establish a task force to develop new funding models, staffing and management models, and governance structures. A dramatic increase in resources will be required.
4. Create new opportunities for faculty to manage their proposals, grants, research personnel and scholarly works. Create a research management dashboard, including an investigator's resources and work, along with information access about each, and tools for managing each.

Appendix 5: Shared Infrastructure Advisory Committee Priority Recommendations

UF IT systems and services run on a shared IT infrastructure that must be robust, reliable, and secure. Both Enterprise Systems and many Distributed IT Units share the same platforms or similar technologies. Key components of the shared IT infrastructure include: computing servers and storage; voice and data networks; and central data centers.

Critical Issues

Shared IT infrastructure services are expected to:

- **Meet needs** of central administrative systems, distributed IT units, and end users.
- **Reduce costs** by using standard technologies to leverage economies of scale.
- **Refresh and replace technology** platforms at regularly scheduled life cycles.
- **Expand and enhance technology** platforms to improve responsiveness to users.
- **Discover and deploy new technology** platforms to enable innovative applications.

Strategic Initiatives

In order to address these critical issues, the following strategic initiatives are proposed. Many of these initiatives are already underway.

1. Upgrade the Computing Infrastructure used by Enterprise Systems

- Add, upgrade, or replace servers and storage as needed to support Enterprise Systems upgrade projects in progress or planned, including Finance, HR, Portal, and Data Warehouse.

- Add or upgrade servers and storage as needed to support the Course Management System upgrade project, including the Sakai system implementation, and the Web-CT system retirement.
- Upgrade Mainframe-based servers and storage as they approach end of life. The 4-year life-cycle of a new Mainframe platform roughly corresponds to the time required to migrate the Student System over to PeopleSoft. So a decision re: the Student System will need to be made soon.
- Continue to migrate PeopleSoft-based Enterprise Systems from DB2 to Oracle.
- Complete the migration of faculty and staff Exchange e-mail onto the Exchange 2010 platform.
- Evaluate (again) the potential benefits and cost (savings) of outsourcing student e-mail.
- Install a dedicated new platform upon which to evaluate the Hyperion budget system.
- Migrate the Enterprise Systems backup process and platform from IBM-TSM to EMC-Data-Domain. The ES platforms to be backed up via Data Domain include: Oracle Databases, VMware Servers, Mainframe VTS, and Exchange DPM. Dual Data Domain appliances eliminate tape contention, while performing a 10-to-1 de-duplication of data going into the on-site appliance, and then automatically replicating the de-duped data stream to the off-site appliance.

2. Upgrade the Network Infrastructure across the Core, LANs, and WANs

- Expand campus wireless network density from 1,000 to 3,000 APs. Focus first on classrooms, followed by public spaces in the center of campus, and then the more remote regions of campus.
- Build 2 new 10 gigabit network links between the main campus and the East Campus Data Center.
- Complete the Wall-Plate LAN technology refresh project, bringing the total number of Wall-Plate ports on the main campus to 40,000. Continue life-cycle equipment upgrades at 8,000 ports/year.
- Complete the Voice-Over-IP (VoIP) migration project, bringing the total number of VoIP lines on the main campus to 10,000. Enhance VoIP telephones to include Unified Communications services.
- Expand Emergency Notification System (ENS) VoIP speaker phones in classrooms and public spaces to 500 locations campus-wide. Extend ENS access to VoIP desktop phones in 20,000 offices on both the main campus and in the Health Sciences Center.
- Install a vendor-agnostic Distributed Antenna System to improve cell-phone coverage.
- Continue to increase network bandwidth as needed to meet user needs.
    - Maintain the Campus Research Network at 20 gigabits.
    - Maintain the campus core network at 10 gigabits.
    - Bring all building connections to the core up to 1 gigabit.
    - Maintain recently upgraded I1 WAN links at 1 gigabit.
    - Maintain recently upgraded I2/FLR WAN links at 10 gigabits.
- Explore new technologies to improve network capacity and security – IPv6, NAC, IPAM.

3. Build a New Data Center on the East Campus (ECDC)

Central data centers (SSRB and CSE) are nearing full capacity. Departmental server rooms in buildings all over campus are energy inefficient. Servers sitting in corners and closets are a big security risk.

- Create a 5,000 sq ft Tier-3 data hall in the ECDC for Enterprise Systems. Split ES server and storage platforms between SSRB and ECDC. Distribute daily processing between these on- and off-campus data centers. Configure each data center to serve as a Disaster Recovery site for the other one.
- Build a 5,000 sq ft Tier-1 data hall in the ECDC for High Performance Computing (HPC). Install new HPC equipment in the ECDC. Over time, retire existing HPC equipment and close the current HPCC.
- Redeploy space liberated in the CSE to provide additional capacity for departmental server hosting.

4. Standardize the Computing Infrastructure used to Host Departmental Systems

- Provide virtual server hosting services in central data centers to maximize utilization of capacity, minimize energy consumption, and reduce security risks.
- Standardize vendors and products to simplify installation and maintenance, to provide bundled services at fixed prices, and to assure agreed-upon service levels.
- Negotiate volume discounts and site licenses to reduce costs. Form buyer's clubs with membership fees to pay for special products. Pay for widely used products off-the-top via central funding.
    - Microsoft Campus Agreement – central funding
    - Microsoft Core Server License – central funding
    - Remedy Help Desk User License – central funding
    - Oracle Database License – membership fees
    - Red Hat Linux Subscription – membership fees
    - VMware ELA Purchases – volume discounts
    - Cisco Network/VoIP Purchases – volume discounts
- Evaluate new centralized services such as Virtual Desktop Infrastructure (VDI).

5. Change the Funding Model from User Chargeback to Central Funding

- The IT infrastructure used by Enterprise Systems is primarily funded off-the-top via RCM Baseline funding. Continue central funding and resolve any lingering discrepancies.
- The IT Infrastructure used by Distributed IT Units is primarily funded via fee-for-service, with measured usage and published rates set to recover costs. Continue user chargeback for special products. But change widely used services to central funding. Offer subsidies to stimulate demand for strategic (standardized) products and services.
- Change the following services from chargeback to central funding:
    - Exchange E-mail
    - SharePoint Hosting
    - Oracle Database Licenses
    - Red Hat Linux Subscriptions
- Subsidize the following services by cutting the price in half (a 50% rate reduction):
    - VM Server Hosting
    - TSM Data Backup

Appendix 6: Web services Advisory Committee Priority Recommendations

The World Wide Web has become the most important channel by which information is sought. It is not only a source of information, but also a means by which stakeholders communicate and collaborate in a social context and as communities of interest. The web serves not only internal stakeholders (faculty, students and staff), but also plays a major role in serving external clients and friends. Prospective students, alumni, donors, extension, clinical and other clients rely substantially on the UF web presence to maintain their relationship with the university.

Expected Outcomes:

The main expected outcomes from implementation of this strategic plan are to:

1. Increase university engagement of external and internal clients and friends.
2. Promote an image of the university as being on the vanguard of academia.
3. Facilitate access to university-related services and information.
4. Promote a common, high quality, user experience across the UF web domain.
5. Ensure that usability, security and legal requirements are met across UF web resources.

Strategic Actions

In order to achieve these outcomes, the following strategic initiatives are planned.

1. Redesign the UF web presence (ufl.edu)
    - Create a user-centric web page that provides clear and effective navigation and searching.
    - Develop standards, recommended practice and tools for web content developers.
    - Establish enabling support infrastructure and streamline publishing process for web content providers.
2. Review and update existing web-related policy, and propose policy in areas that require but may currently lack policy
3. Facilitate internal and external communication through multiple channels
    - Expand and formalize the use of social networking to reach external and internal clients.
    - Facilitate and encourage the university community and stakeholders to produce material and keep material up to date.
    - Promote services and knowledge of the university to internal, external and global audiences.
4. Develop mobile web and apps
    - Develop a mobile web presence consistent with ufl.edu.
    - Develop standards, recommended practice and tools for mobile web and app content developers.
    - Identify applications as significant, widely used or critical in relation to support requirements and response times.

5. Provide centralized communication services
    - Institute campus-wide on-demand blog and wiki services for the UF community.
    - Facilitate rapid publishing without requiring users to possess detailed technical knowledge.
    - Provide consulting, support and training services.

Table 8
Strategic Actions for Web Services

Action	Supported Outcomes	Time Horizon
Redesign the UF web presence (ufl.edu)	1, 2, 3, 4	18 months
Review and update existing web-related policy, and propose policy in areas that require but may currently lack policy	4, 5	8 months
Facilitate internal and external communication through multiple channels	1, 2, 3, 4	12 months
Develop mobile web and apps	1, 2, 3, 4	3 months
Establish centralized communication services	1, 2, 3, 4	6 months