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# Campus IT Strategic Plan

February 2013

***Vision:***

***The University of Iowa information technology community uses open, collaborative processes to provide IT services and technologies that add measurable value in fulfilling the University's teaching, research and service missions.***

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## Introduction

Two things stand out about Information Technology (IT) at The University of Iowa:

1. IT is vital to the University's successful achievement of its mission; and
2. IT infrastructure and services are delivered in a distributed, but increasingly coordinated, manner.

Given this state of IT at Iowa, a campus-wide IT strategic plan became a necessary tool to guide our investments in and directions for IT. Developing this plan in collaboration with all of the campus IT providers and users was also necessary to remain faithful to the collaborative nature of IT campus support.

### How this Plan was Developed

The first ever Campus IT Strategic Plan was developed in 2006 and 2007. In 2010, the original plan was reviewed to assess alignment with the university's new strategic plan. The assessment revealed that the overall strategic direction was still in alignment, so the decision was made early on to use the first IT strategic plan as a starting point instead of starting from scratch.

Information Technology Services held a strategic planning retreat in January of 2011. During this event, the group thought all the goals in the previous plan were still valid and needed only minor revisions. They proposed modifying the structure of the plan to allow for departmental goals in addition to the campus-wide goals. Finally, this group proposed new strategies for the goals as many of the strategies from the earlier plan had been completed.

In February of 2011, the Campus IT Leaders held a strategic planning retreat. During this session they also validated the goals and made additional suggestions for revisions to those goals. The Campus IT Leaders also proposed and strongly supported the addition of a new goal related to outreach and engagement. That goal is included in this plan. The Campus IT Leaders also revised the strategies proposed by the ITS planning group and added some of their own.

Through the spring and the summer the goals and strategies were revised and refined as others reviewed the goals and strategies.

During the review of the previous IT Strategic Plan, there was near-universal agreement that the Action Plan portion of the plan was not helpful or effective. However the need of linking the high level goals and strategies to the day-to-day work was still present. The IT Security Office had used what they called a "roadmap" to fill this gap and felt it was an effective tool, so ITS adopted this approach and presented it to the Campus IT Leaders as a way to list and track the specific project needs to make progress on the strategic plan. These roadmaps would be unique for each planning unit on campus and would allow them and others to see what projects are planned or underway in support of the IT Strategic Plan.

### How this Plan is Organized

The University's IT community is a highly complex organization of locally and centrally provided people, services and infrastructure. To be successful, this plan must recognize

that complexity. Some actions addressed in this plan will be undertaken by central IT units for everyone; other actions will be taken locally by all IT service providers in a coordinated manner; still other actions will be specific to each unit based on that unit's needs, as determined by the local IT providers. This combination of campus-wide and local actions reflects the successful, distributed nature of IT on our campus.

Because of its distributed nature, this plan does not attempt to describe all IT actions in one place. Instead, it provides the high-level vision, guiding principles, goals and strategies that can bring the campus together in a coordinated, strategic effort. Other units will add their own goals and roadmaps to provide localized plans based on a common set of core goals and strategies.

Document(s)	Content
Campus IT Strategic Plan	IT vision, guiding principles, goals and strategies for the entire University. Also provides the common core elements for units to build their own strategic plan.
Individual unit Strategic Plans	Strategic plans for individual units based on the 6 common goals and associated strategies.
Roadmaps	Unit-specific actions to support the strategies and goals in the Campus IT Strategic Plan and local unit strategies; roadmaps are to be completed by both central and local IT units

While this Campus IT Strategic Plan itself will guide our efforts for the next 3-5 years, the campus and unit roadmaps provide us the opportunity to revisit our success in meeting our goals more frequently and adjust our actions as needed to improve. IT is constantly changing; to provide value, we must continually adapt to these changes to meet the needs of University users. This annual planning process builds on the collaborative nature of IT on our campus and will give us additional opportunities to share plans, success stories and lessons learned.

## **The Value of Information Technology at The University of Iowa**

Information Technology (IT) is vital to The University of Iowa. It extends broadly across the campus and is central to the daily life, courses, research and work processes of virtually every UI student, faculty and staff member. Investments in IT are strategic in nature and link directly to many of the goals in *Renewing the Iowa Promise: Great Opportunities – Bold Expectations*” The University of Iowa’s strategic plan for 2010-2016.

Most day-to-day campus activities involve the use of IT in some form. This ubiquity, however, can sometimes lead to taking IT for granted. It is not uncommon for users to overlook the value that IT provides and its contributions to University success.

Current technology trends show no sign of abating, and advancement will likely continue at an accelerated rate. When strategically selected and implemented, technology has the potential to increasingly add value, innovation and opportunity to The University of Iowa.

### **How IT provides value to The University of Iowa**

- 1) IT allows an instructor to use new teaching approaches to help students be more successful. Course management systems allow instructors to provide material to students using multiple methods that better meet students’ individual learning needs. The use of rich media in and out of the classroom allows for a more engaging and active learning experience than with traditional methods alone.
- 2) IT enables collaboration between students, faculty, researchers and the community. Shared group Web sites are a common, easily accessible repository of material; e-mail allows for asynchronous communication; and videoconferencing provides an enhanced experience for communication at a distance.
- 3) IT allows researchers to explore new techniques and thus new areas of inquiry. Computer simulations enable researchers to perform experiments that are otherwise unachievable without technology. Visualization of complex data sets allows researchers to extract information in less time-consuming ways.
- 4) IT enhances communication inside and outside The University of Iowa. E-mail has largely replaced paper memos, and websites often substitute for printed reports and brochures.
- 5) IT automates or reduces the time and cost of manual activities, allowing faculty, staff and students the capacity to engage in more valuable activities. Word processing has replaced typewriters, electronic workflow has replaced the physical exchange of paper forms between offices, and online admissions and registration systems reduce students’ efforts pertaining to those activities.
- 6) IT provides ways to store, manage, share and obtain large amounts of information and make it easily accessible when needed. Modern financial systems provide easier access to information than paper reports, and publishing data in the University data warehouse provides access to information that was previously difficult to obtain.

***An IT strategic plan is an excellent way to facilitate decisions about IT so the campus can continue to receive value from the use of IT.***

## Vision

Information Technology at The University of Iowa continues to increase in importance, value, complexity and integration relative to the functions and operations of the University. Given its increasing role, it is essential that the varying aspects of IT be assembled under a common vision:

*The University of Iowa information technology community uses open, collaborative processes to provide IT services and technologies that add measurable value in fulfilling the University's teaching, research and service missions.*

To fulfill the key elements of this vision, the University IT Community will:

### **Access to information**

Develop IT infrastructure, services and support to provide the *right information to the right people at the right time.*

### **Value**

Provide measurable value in fulfilling the University's mission of teaching, research and service through projects and services tightly aligned with, and in strong support of, the goals of departments, colleges and the University.

### **Use of technology**

Provide accessible support, education and training for faculty, staff and students so they can effectively use technology in pursuit of individual, collegiate and University goals.

### **IT Community**

Share and promote this vision of IT within the IT Community and throughout the University, and work together across organizational boundaries to provide effective IT infrastructure, services and support to the University.

### **Governance**

Establish clearly defined roles, responsibilities and accountability in the decision-making process. When balancing consensus vs. authoritative decision-making processes, strong preference will be given to engaging the affected constituencies in a broad sense, gathering the right input and ensuring all stakeholders have a chance to be heard. Using a process that is transparent and that cultivates wide-ranging support will yield the best possible decisions.

### **Planning**

Develop, implement and follow an annual planning process that openly reviews progress toward past goals and sets goals at many levels (e.g., departmental, collegiate, division, campus). Widespread sharing of, and collaboration on, planned activities will be aggressively pursued. These plans will recognize the value of the greater good and incorporate it wherever possible.

**Infrastructure**

Provide a reliable and secure IT infrastructure that facilitates the deployment of IT services according to campus-wide needs. The infrastructure will be cost-effective and will work to enable other services rather than constrain them.

**Cost-effectiveness**

Recognize that IT is an enabler of other University activities and is not a goal unto itself. Services will be cost-effective, and IT investments and decisions, both one-time and ongoing, will be made with complete analysis.

**Execution**

Align operational activities with strategic and tactical plans in ways that efficiently provide progress, step-by-step, toward goals. The successful execution of IT strategies requires carrying out day-to-day activities with focus and efficiency.

## External Environmental Scan

The rate of change in IT presents many challenges and opportunities for academic institutions. In conjunction with the IT strategic planning process, This environmental scan is an effort to identify the major issues, barriers, advances and risks the University faces as we implement this plan. These topics include: changes in the IT sector, the commoditization and consumerization of technology, security, funding and research issues, emerging technologies, increased assessment of learning, administrative technologies and demographic changes.

Numerous issues will impact the implementation of policies and the use of IT at The University of Iowa; however, there are a few trends with the potential to have the greatest influence:

- The increased affordability and integration into daily life of personal technologies is leading to higher expectations from students, faculty and staff with regard to University IT uses and policies. This trend also has security implications as the number of technology users is increasing at the same time security risks are growing.
- The trend of increased public and regulatory attention on technology usage may be linked to the greater integration of technology into society. The media and local, state and national governments are putting greater pressure on institutions to be accountable for the security and reliability of their IT infrastructure and usage of new IT services and technologies.
- Technology trends such as storing sensitive and important information outside of university control, the extensive use of personal devices for work related activities, and the increased use of and access to data about employee and student activity, will need to be addressed, and the University will need to develop policies for their adoption.
- Grant-funding agencies' requirements will demand increased collaboration between researchers and easier, electronic access to research data. Researchers and IT providers will need to work closely together to fulfill these requirements and assure that University researchers remain competitive.
- The use of aggregated services, so called "Cloud Services" use shared resources to deliver IT services. The use of these services promises to provide low-cost, high available services in ways that the consumers of the service are removed from some of the operational complexities. As these services mature the University of Iowa will have to be ready to take advantage of services that are attractive.
- The current economic environment will continue to put pressure on IT operations to both reduce their costs and to use IT to enable cost reductions in other activities.
- Along with increased efficiency for cost reduction, there will be pressure to deliver more IT services without corresponding increases in funding.
- The trends in higher education, namely the use of active learning in the classroom and hybrid on-line/in-person courses will continue to have an impact on the use of technology at the University of Iowa.



## Challenges of Strategic Decisions

Achieving the vision for IT at The University of Iowa requires strategic decision-making to ensure optimal value for students, faculty and staff. The pervasive use of technology, along with its importance in nearly all University functions, contrasts with the limited resources available. The challenge lies in making real-world decisions that properly balance competing, desirable dimensions.

Some of these competing dimensions are listed below. Most represent a spectrum, so that the optimum choice is not one or the other but something that best balances the two extremes. Other dimensions are best resolved in a direction that differs from the way they are most often portrayed. We have used these dimensions of decision-making to inform the guiding principles outlined on the following pages.

- 1) Consensus vs. Efficiency in decision-making
- 2) Standardization vs. Customization
- 3) Centralized vs. Distributed
- 4) Innovation vs. Stability
- 5) Proprietary vs. Open source
- 6) Resource priorities for teaching and learning vs. Research vs. Administrative needs
- 7) Single vendor integration vs. Vendor diversity through interoperable standards
- 8) Reengineering processes vs. Reengineering systems
- 9) Cost-effectiveness for IT providers vs. Cost-effectiveness for IT consumers
- 10) Purchased applications vs. In-house developed applications

## Guiding Principles

We acknowledge that the following guiding principles do not completely reflect today's culture at The University of Iowa. Rather, we believe they will guide us in moving forward toward our vision of IT.

Given the key challenges of strategic decision-making described in the previous section, we adopt the following principles to guide us in making decisions and setting direction for IT at The University of Iowa:

### **GP 1) Technology decisions should include broad input from those most impacted.**

Decisions about the selection, use, support and life cycle of technologies will be made with the involvement of the users and stakeholders who are most impacted by those technologies. Decisions at all levels about IT services and direction will be made in an open manner to promote sharing with others who face similar decisions. The campus, collegiate and departmental plans will guide decisions concerning technology.

### **GP 2) IT professionals should strive to have a thorough understanding of the education, research, scholarship and service needs of their units and the University.**

We do not believe in deploying technology for technology's sake, unless there is ongoing research involved. The best use of technology comes when it directly supports the endeavors of the departments, colleges and administrative units in advancing excellence in education, research, scholarship and service. It is becoming increasingly important for IT professionals to understand these needs in order to make effective IT decisions.

### **GP 3) The University seeks to gain the maximum value within the life cycle of technology deployments and will adopt new and retire old technologies appropriately.**

The University will adopt technologies in ways that optimize value for the campus. Adopting "bleeding-edge" technology most often requires extraordinary resources compared to the value provided and the risk involved. Value to the institution is often greatest when we can apply the lessons learned by others. This often allows us to deploy new technologies and services in shorter time frames, provide more reliable and complete services earlier in the deployment of new technologies, and discover better models to deliver and support the services.

There may also be times when the situation requires us to be more or less aggressive, depending on users' needs and potential benefits, technology risk, costs and other aspects specific to a particular situation. When early adoption of an emerging technology is necessary, the flexibility and agility of these efforts will be supported as pilot technologies and services. Thorough evaluation and planning will be required before deciding to transition these pilots to large-scale efforts.

Likewise, technologies will be retired when the resources required for their support are greater than the value provided. Timely retirement of services is the key method to reallocate resources to new services or make improvements to existing services.

The adoption and retirement of services requires a thorough understanding of the life cycle of the technology. Thus, resources required to deploy, support, train users, renew or refresh, and retire IT services and technologies must be included when planning for and deciding to adopt technologies.

**GP 4) Innovation must continue to be a part of the use and application of technology on campus. Innovation should focus on the application of technology and on how the IT Community collaborates to meet the needs of the campus.**

Innovation is an important part of the IT Community. Even though the University may not often create new information technology or adopt it at the bleeding edge, there are other ways in which innovation is vitally important to our success. One noteworthy example is the collaborative methods the IT Community has developed for jointly providing technologies that better support the needs of the campus. And yet we've merely scratched the surface of the opportunities available. An even more significant opportunity is for IT providers to find uses of IT that enable faculty, staff and students to be innovative in their activities. Enabling the innovative use of technology within the IT Community and in support of University activities creates a high level of value for the campus. Innovation in the ways we work together and in the application of technology to help faculty, staff and students allows IT to have the greatest impact with the limited resources available. Wherever possible, innovation in these areas must continue.

**GP 5) "Integration" and "ease of use" should be expected features of all new systems or technologies.**

Campus applications, systems, communications devices and classroom technologies must be integrated and easy to use so as to provide effective IT systems for the campus. The judgment of "ease of use" should be focused on the holistic user experience across multiple systems, even when these systems are developed and supported by multiple providers. Ease of use and the ability to integrate with other systems are two of the most important aspects of IT systems. We recognize that systems that can reuse, build upon, and integrate with our existing systems provide more value to the University, and we will favor systems with these characteristics.

Electronic information will be available wherever and however it is needed. This information should be available in an integrated fashion wherever possible. Information should not be entered more than once and should be accessible to all applicable systems.

**GP 6) The University should examine opportunities for business process improvements in conjunction with the adoption of software before reengineering administrative IT systems.**

An analysis of existing business processes and an examination of opportunities for process improvement are important precursors for reengineering existing systems or implementing new ones. It is important to analyze the financial, support and service aspects of reengineering business processes compared to reengineering IT systems. This is especially true in large purchased software systems where customization can significantly increase life cycle resource requirements and limit our ability to migrate to other solutions. When we identify a need to implement an application, we will define our ideal process and examine the marketplace for an application meeting those standards. If the closest match does not meet our goals, we will ask this question: Do we modify the

application to meet our ideal process or do we relax our ideals and make process adjustments that fit in with the application?

**GP 7) Open standards and interoperability are important and highly valued characteristics.**

It is in The University of Iowa's best interest to develop systems that are interoperable and do not depend solely on a single vendor. While open standards are best suited for the University, industry standards are the next best choice. Our IT systems should rely on proven, open standards and interoperable implementations. We will avoid technologies that lock us into a single vendor or that prevent easy migration from one system to another. The complexity of today's IT vendor landscape and the myriad of sometimes inoperable standards mean there are times when the need for functionality may require the use of a proprietary solution.

**GP 8) Applications will be adopted when available and built or integrated when necessary.**

Our first choice is to buy, adopt and implement off-the-shelf applications that meet our needs. However, we recognize there are times when building our own systems to strategically differentiate The University of Iowa may be an advantage. There are also cases where integrating different best-of-breed software systems can provide the benefits of traditional build or buy implementation methods. The decision to build, buy or integrate is not made lightly or without a thorough analysis of the options. When building our own systems, we should make every effort to participate in community source efforts to both share our expertise and reap the benefits of others' contributions.

**GP 9) Security and privacy of electronic information will be highly valued and all systems and infrastructure will meet required levels of security and privacy.**

The University has an obligation to keep sensitive information private and to keep systems secure for reliability, availability and to prohibit unacceptable use. In order to meet these obligations, security standards must be maintained at all levels. It is important that all systems meet these standards, since even one system or application without proper security can become a threat to the operation of other campus systems. In meeting these standards, we should strive to provide security in ways that are as unobtrusive as possible.

**GP 10) IT infrastructure will be designed and implemented to provide a foundation for other services, using sustainable maintenance and funding models.**

The infrastructure required to support information technology must be secure, reliable and cost-effective. Capital planning for replacement or renewal is an important part of sustaining the IT infrastructure. The infrastructure will support basic services across the campus and provide those services for all departments and classrooms. For this purpose, IT infrastructure includes the fiber in the ground, the wiring in the walls, the servers supporting applications, middleware, classrooms and other equipment and services broadly needed to provide applications. Equally important to providing a solid foundation, the infrastructure must be interoperable and consistent.

**GP 11) The people who provide and support the technology are more important than the technology itself.**

We value our employees' diversity, knowledge and commitment. We will strive to provide an engaging, competitive and positive work environment. It is through their individual creative effort that we will achieve organizational success.

**GP 12) IT services will be delivered using a balance of central and local providers working together to provide the most effective delivery of IT services to the campus.**

IT services, infrastructure and support are delivered through a combination of centralized and local resources. This hybrid approach is a strength of The University of Iowa, and it must continue in order to leverage the unique strengths and business needs of the many local and central IT providers. Achieving a balance among these providers requires collaboration, with each delivering the portion of the service that best fits their strengths. Some factors influencing the balance for any one service are listed in the table below.

<b>Toward Local</b>	<b>Toward Central</b>
<b>The optimum balance for the provision of IT services is more toward the local end of the spectrum when:</b>	<b>The optimum balance for the provision of IT services is more toward the central end of the spectrum when:</b>
The service requires flexibility and adaptability to meet local needs	The service benefits from economies of scale
The service is unique or has significant variability among departments	The service is more "utility-like" in nature
There is value to service providers, staff, faculty, students or the public in having a consistent service with peer units at other institutions	There is value to service providers, staff, faculty, students or the public in having a consistent service across the campus
The service requires significant individualized support	The service requires highly specialized skills and relatively small efforts at the local level
A new service is not expected to grow to campus-wide use	The service increases in value as the breadth of campus use increases
A new service is expected to grow, but the transition to an enterprise service is not well understood	The service is expected to provide significant integration with other IT systems
There are minimal security and/or compliance issues and low institutional risk exposure	The service exposes the institution to high risk
A central system does not allow for customization	A centrally delivered service is responsive to local needs
It is more important to be agile at the local level than at the central level	Many campus units depend on the service
The information in a system needs to be consistent within one discipline and across institutions	The information in a system needs to be consistent on a campus-wide scale
<i>Example: Desktop User Support</i>	<i>Example: HawkID (Identity Management)</i>

# Goals and Strategies

## Introduction to Goals and Strategies

The following six goals describe the key IT improvements that The University of Iowa must make in the next few years in order to achieve our vision. The campus will need to take numerous actions and make additional, detailed decisions that are not explicitly covered by the following goals and strategies. Those activities are an important aspect of making progress toward the strategic directions described in this plan.

### **Goal 1: Advance student success through IT systems and services.**

Strategy 1: Design or redesign learning spaces and classrooms on campus into active living and learning community centers.

Strategy 2: Expand training and support programs for distance and e-learning programs.

Strategy 3: Prepare students for a successful placement and professional career through the use of technology.

Strategy 4: Increase methods and data for tracking student success through the integration of IT systems.

Strategy 5: Explore, evaluate, pilot and foster emerging technologies that enhance teaching and learning.

Strategy 6: Adapt IT services so students can more easily use those services how, where, and using the methods they prefer.

### **Goal 2: Support evolving needs of research, scholarly work, and the creative arts.**

Strategy 1: Cultivate communities that support the IT needs of research, scholarly work, creative arts and the staff that support them.

Strategy 2: Increase visibility and adapt mainstream IT services to better meet the needs of the scholarly and research communities.

Strategy 3: Develop cyberinfrastructure and services that specifically address the needs of researchers, scholars and artists

Strategy 4: Support technology that facilitates both inter-institutional and interdisciplinary research and scholarly collaboration.

Strategy 5: Assist in responding to emerging regulatory and compliance requirements.

### **Goal 3: Support evolving identity management and information security requirements.**

Strategy 1: Support the protection of sensitive information in compliance with regulations and policy.

Strategy 2: Improve the ability to monitor IT networks and systems, and respond to inappropriate activity and risk.

Strategy 3: Strengthen HawkID identity verification to meet evolving campus authentication and external federation service requirements

Strategy 4: Ensure individuals' access to University electronic resources appropriately aligns with their current relationship with the University.

Strategy 5: Continue the integration of electronic and physical identity systems to improve business processes and the security of the campus.

Strategy 6: Develop tools, services and processes to secure mobile devices

#### **Goal 4: Increase the utilization and effectiveness of IT.**

Strategy 1: Increase awareness of available technologies and services.

Strategy 2: Enhance individual skills and ability to use available technology and services.

Strategy 3: Improve access to and simplify usage of institutional data.

Strategy 4: Ensure campus IT services meet accessibility requirements for all users, including those with disabilities.

Strategy 5: Help university leaders understand how IT can be used to advance the university's strategic goals, improve efficiencies, and how IT organizations can serve as strategic partners.

Strategy 6: Ensure UI departments are following IT policies and standards

#### **Goal 5: Provide IT services that meet campus needs in a coordinated and efficient manner.**

Strategy 1: Define and, where appropriate, implement a common-good service model.

Strategy 2: Develop and implement a joint, annual planning cycle for all IT groups on campus.

Strategy 3: Continue to evolve the IT Community and provide collaboration opportunities.

Strategy 4: Provide leadership in understanding campus IT needs and coordinating technology solutions that help meet those needs.

Strategy 5: Improve the efficiency of IT systems and services.

#### **Goal 6: Provide the IT systems and services needed to effectively support the university's outreach and public service mission.**

Strategy 1: Coordinate new and existing public service and outreach efforts to develop and use a common IT infrastructure.

Strategy 2: Use existing and develop new IT systems and services to allow better access to the University's educational, cultural and economic development resources.

Strategy 3: Develop IT systems and services to engage professional communities in the state.