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INTRODUCTION

In every healthy organization there must be a continual review of its goals and the operational philosophies for achieving success. As information technology (IT) is a strategic component in reaching Purdue’s institutional goals, this enterprise function must find its balance in leadership, service, partnerships, and fiscal responsibility. When strategically balanced in a campus-wide plan, information technology will both drive and support the innovative and cutting-edge initiatives that will position faculty, staff, students and other University constituents not only to achieve the goals of today and tomorrow, but to reach beyond and foster the information technology of the future.

This was so in 2002 when a dynamic vision for IT’s role in discovery, learning and engagement led to an IT strategic plan for creating a world-class digital information infrastructure. It is equally true in 2010 as the current University budgetary challenge places a greater focus and emphasis on this institutional process of organizational review and renewal. Within this framework, President Córdova has asked that a comprehensive campus-wide plan for Information Technology be developed. The plan must include efficiencies that generate significant cost savings while providing high-quality IT services to meet the University’s strategic goals. A response to the President’s charge is provided in this report.

To address this initiative, a Campus Information Technology Plan (CITP) Committee was appointed. The committee’s response to the President’s charge is provided in this report.

TARGET GOALS

This effort focused on an updated Information Technology plan for the West Lafayette campus where the enterprise IT function will be seen as an integrated, University-level service under the Office of the Vice President for Information Technology (OVPIT). The plan is proposed to include:

- An integrated governance model;
- Cost-saving approaches generating $15M recurring over time;
- Strategies to ensure responsiveness to IT needs of all units.

OBJECTIVES OF PROPOSED PLAN

The proposed plan provides for an integrated governance model to ensure that IT infrastructure, applications, and services are not duplicated, unless there are compelling and exceptional reasons for doing so and with the approval of OVPIT. The governance model will include a mechanism to review new IT systems, services, or infrastructure to ensure that integration within the University framework for IT, security and economic efficiency considerations are taken fully into account.

It is anticipated that this plan will generate cost savings of $5M in FY2011 and recurring cost savings of at least $10M by the end of FY12, and will provide approaches for growing this savings to a recurring $15M per year into the future.
The plan will embrace all of the IT personnel and programs on Purdue’s West Lafayette campus. The committee benchmarked against IT governance at other Big Ten and peer universities and attempted to capture, incorporate and build on the best practices to enhance student success, support Purdue’s aggressive research agenda, and deliver essential administrative and service operations in the most efficient and effective ways possible.

**GOVERNANCE PLAN – Executive Summary**

**Conditions Leading to the Review**

- The IT enterprise at the University grew in an organic and distributed fashion across campus in which IT needs were met through the formation of local IT groups at all levels.
- Over the last several years there have been several signals that a comprehensive IT review is warranted.
- Campus IT representatives have worked together on new initiatives including a strategic sourcing and management initiative called SMARTcomputing, and an initiative seeking synergy across the units called Building IT Synergy (BITS). Despite these efforts, subsequent evaluation confirms that unnecessary IT duplication and under-resourced efforts, unnecessary expenditures, poor coordination and limited integration continue to exist.

The committee deemed several key guiding principles to be critical to good information technology governance going forward. These were:

- Client centered – tightly and formally linked to the needs of the clients of information technology;
- Effective – delivering solutions that meet the client needs, in the view of the client;
- Agile – able to adapt quickly to an ever changing environment;
- Responsive – having ownership of the clients information technology needs and their quick resolution;
- Affordable – sensitive to the cost effectiveness of solutions;
- Appropriately co-located - staff distributed close to the client to foster responsiveness and understanding.

**Governance Recommendations**

To implement a new governance process, to address the current shortcomings and to attain the guiding principles, several action steps are recommended. These are:

**Organizational Structure** (see Figure 1):

- In each academic unit (school, college, Libraries) identify a single responsible party for all information technology staff and issues in the unit.
- Identify a small number (3 or less) of these school and college unit leads to represent the needs and expectations of the whole in deliberations with the OVPIT.
- Start the process of melding together the information technology organizations of the university business processes and administrative units into a single integrated organization, reporting to the OVPIT, but separate from the common good services provided by ITaP.
**Governance Plan** (see Figure 2):

- Establish a framework for making consistent decisions, which support the university’s strategic initiatives.
- Reduce the costs and complexity through integrated processes.
- Improve coordination and communication to eliminate duplication of services.
- Direct the use of common-good services to leverage greater impact and return on investment.
- Strengthen the campus information security model through greater consistency.
- Form a strategic IT governance organization, with size less than 10, to …
  - Ensure strategic alignment and set institutional priorities and effectiveness metrics;
  - Establish accountability and authority to ensure that the necessary organizational and governance models are in place;
  - Institute an integrated view into the campus IT enterprise for ensuring both local and institutional effectiveness;
  - Establish accountability and authority to ensure that the necessary organizational and governance models are in place.
- Form a representative operational IT oversight organization, with size less than 15, to …
  - Organize a cross-representative team of campus IT leadership charged to govern the creation and ongoing evolution of IT common good services;
  - Further develop a framework of processes and best practices for building and governing IT services within the integrated IT community. This could be an evolution of the Building IT Synergy (BITS) program.
CATALOG all potential common good services, ensure these services have the requisite client feedback processes, ascertain unit participation in the common good service, and as deemed appropriate by the operational IT oversight committee, encourage participation in the common good service.

ENSURE all information technology domains have suitable client feedback systems to ensure progressive, effective and affordable delivery of services.

**Figure 2: Governance Plan**

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**EXECUTIVE OVERVIEW**
COST SAVINGS PLAN – Executive Summary

Conditions Leading to the Review
The Campus Information Technology Plan (CITP) Cost Savings Subcommittee (CSS) was formalized to make recommendations for efficiencies in information technology across the West Lafayette campus.

The subcommittee was charged with identifying cost savings approaches that will generate at least $15M recurring over time while providing high-quality IT services to meet the University’s strategic goals. CSS focused on the target of $10M recurring by fiscal year 2012; the last $5M recurring will develop over time. The actual savings in IT energy consumption, IT-related strategic sourcing and the impact of potential consolidation will have a significant impact on the strategies selected for the last $5M.

Cost Saving Recommendations
Initial themes. Several clear themes emerged from the strategies adopted by Purdue's peer institutions, those proposed by professional IT consultants, MORT IT and ideas generated within the campus community. The subcommittee explored and recommends the following initiatives to maximize the opportunity to realize this financial goal:

- Data center management
- Print management
- IT strategic sourcing
- Software license management
- Desktop energy savings
- Assess impact of cost saving initiatives
- Computing lab management
- License agreement management
- Virtualized desktop infrastructure (VDI)
- Renegotiation of current major IT contracts
- Video conferencing solutions
- Process to assess future initiatives

These recommendations provide a high-level definition and proposed course of action found in the full Cost Savings Report (page 19). Implementation details will vary depending on the final decision and the timing of the CITP implementation.

Several of the initiatives that have the highest savings potential will happen only through significant coordination across traditional boundaries. The strategic and operational bodies within the new IT governance structure will need to prioritize the recommendations and charge multidisciplinary teams to implement recommendations. The financial plan for some initiatives may include non-recurring funding to help remove the barrier of up-front costs. The strategic governance group should develop a pool of funds to invest in initiatives that show high potential for sustainable efficiencies. Teams of IT professionals, financial professionals, and other stakeholders will provide the needed expertise to establish detailed cost savings estimates for initiatives that show significant promise.

The list of ideas is finite, but CSS expects the spirit of this activity to continue as a part of ongoing IT business at Purdue. The new IT governance structure will provide the platform to share ideas across traditional boundaries. The structure will also create accountability for implementation results.

Cost Savings Analysis
Identifying new revenue streams and opportunities for increasing our operational efficiency are challenging tasks. Implementing recommendations and reflecting a recurring general fund budget change as a direct result is more difficult. In many areas, IT budgets are embedded in unit budgets. This is complicated by that fact that IT does not have a universal definition that is widely accepted.
Given these complexities, the approach for capturing the revenue and costs savings is not a simple task. Every attempt has been made to recommend a strategic approach that achieves the stated financial target while being responsive to the differences across units; both in terms of how the units are budgeted and the different stages of progress in identifying and implementing operational efficiencies.

The proposed strategy will be implemented in three stages as summarized below. Explanations of each of these savings opportunities, as well as a fuller analysis of the cost savings plan are provided in the Cost Savings Report (page 19) and the Financial Approach section (page 29).

**Stage One (through June 30, 2011):**

- ITaP: efficiencies (recurring) $3.2M
- Computing Labs: consolidation (recurring) $500K
- Energy: data center consolidation energy savings (recurring) $300K
- Institutional IT Enterprise Savings (non-recurring) $1.0M
- Total Year One Savings = ($4M recurring + $1M non-recurring) $5.0M

To stimulate and accelerate high potential recurring savings in future years, a non-recurring investment of $1M is proposed to offset up-front costs of the highest priority initiatives as determined by the new IT strategic governance and operational oversight bodies. The recurring savings generated from this nonrecurring investment will fund the recurring resources to establish this ongoing cost savings strategy labeled S³ Incentive Program.

**Stage Two (through June 30, 2012):**

- S³ Incentive Programs: savings from prior year non-recurring investments (recurring) $1.0M
- Reinvestment into S³ Incentive Program (recurring) ($1.0M)
- Institutional IT Enterprise Assessments (recurring) $5.0M
- Energy: IT energy savings from implementation of numerous strategies (recurring) $1.0M
- Total Year Two Savings = ($6M recurring + unconstrained non-recurring) $6.0M+

**Stage Three (July 1, 2012 and beyond):**

In stage three, the IT enterprise will benefit from a coordinated and governed process for continuous evaluation of new cost savings and/or revenue generation ideas. The financial approach includes the creation of a recurring pool that will allow for annual non-recurring investments for cost savings or revenue generation strategies that have the potential for recurring return or cost savings. Through a combination of coordination, governance and strategic investments, the $15M recurring target will be met over time.

**IMPLEMENTATION PLAN**

The governance structure must be formally recognized, authorized and established as soon as possible. The proposed cost-saving strategies are built on the infrastructure and oversight provided by the governance plan. Proposed cost savings will not be achievable without the governance structure.
firmly in place. Key implementation steps are as follows. A more detailed schedule is provided in the Implementation Timeline section of this report (page 32).

By May 1, 2010  President approves structure and appoints Strategic Governance Committee (SGC)
May 1 - Jun 30, 2010  Governance structure implemented
By Aug 1, 2010  Common good services and cost-saving initiatives identified and launched
Jul 1 - Jun 30, 2011  Savings (stage 1) identified and recorded
Jul 1 - Jun 30, 2012  Savings (stage 2) identified and recorded
Ongoing  Savings (stage 3) identified and recorded

COMMUNICATION STRATEGY

In response to the committee’s charge for “substantial opportunities for involvement and input from faculty, students and staff,” a number of strategies were used to reach out to these groups and the entire campus community. Because of the aggressive timeline for the project, these vetting strategies were often in tandem with the committee’s work. This approach provided the advantage of ongoing input as the recommendations were developed. These strategies included the following:

**Website:** A web page was developed on the SNS website that provides substantial information about the initiative and an ongoing feature for feedback. Feedback was continually monitored and assessed by the committee.

**Targeted Group Presentations:** A letter was sent to vice presidents, deans and student leadership with an invitation to speak to groups in their units about the initiative and the committee’s work to date. Twenty-one of these targeted presentations were conducted by the committee members.

**Forums for IT Staff:** Three forums were held to specifically address the IT staff. Separate forums focused on the ITaP staff, academic IT staff and administrative IT staff. The forums were well attended and were both video-streamed and recorded. Q&A sessions followed each presentation; questions submitted in advance were documented with responses and posted on the website.

**Frequently Asked Questions (FAQ):** An FAQ document was drafted and updated as needed and placed on the website to address common questions and to clarify information related to the initiative.

**Draft Executive Summary:** A draft report of the committee’s final recommendations was posted on the website for feedback. Feedback was reviewed and considered in the final report.

**News Articles:** Information from interviews, forums and the website were used in a number of articles written about this initiative including the Journal and Courier, Exponent, Inside Purdue, Purdue Today, and Business @ Purdue.
CAMPUS IT PLAN COMMITTEE

Committee membership consisted of faculty, staff including IT leadership, and students from a broad range of academic and administrative units to provide campus-wide representation and perspective:

Emily Arentson, Graduate Student, Foods and Nutrition
Mimi Arighi, Director, Veterinary Teaching Hospital
Dave Carmichael, Director, Engineering Computer Network
Wei Cui, Professor of Physics
Melissa Dark, Associate Dean of Research and Strategic Planning, Technology
Ellen Gruenbaum, Department Head, Anthropology
Eckhard Groll, Professor of Mechanical Engineering
Steven Hare, Director, Administrative Computing, Science
G. Logan Jordan, Associate Dean, Management
Julie Kercher-Updike, Associate Vice President for IT Customer Relations, ITaP
Connie Lapinskas, Assistant Provost for Financial Affairs (Chair)
Chris Martin, Sustaining New Synergies Task Force
Sandra Monroe, Assistant Vice President for Student Services
Rabindra Mukerjea, Executive Director for Strategic Planning & Assessment
Jaylene Nichols, Secretary, SMAS
Alan Rebar, Sr. Associate Vice President for Research and Executive Director of Discovery Park
Miguel Rivera, Undergraduate Student, Science
Terry Schroeder, Assistant Director, Business Services Computing
Carol Shelby, Senior Director for Environment, Health and Public Safety
Patrick Smoker, Department Head, Ag Information Technology
Sam Wagstaff, Professor of Computer Science
 Viewing your data...
The committee deemed several key guiding principles to be critical to good information technology governance going forward. These were:

- Client centered – tightly and formally linked to the needs of the clients of information technology;
- Effective – delivering solutions that meet the client needs, in the view of the client;
- Agile – able to adapt quickly to an ever changing environment;
- Responsive – having ownership of the client’s information technology needs and their quick resolution;
- Affordable – sensitive to the cost effectiveness of solutions;
- Appropriately co-located - staff distributed close to the client to foster responsiveness and understanding.

Thus, “common good” tools and services that are increasingly scalable are to be subsumed under a central management – a redesigned “new ITaP” that serves these principles. Also serving these principles will be unique or specialized tools and services of “local” importance that are to be managed in a distributed manner, with networking practices as desired.

**GOVERNANCE RECOMMENDATIONS**

**The four domains.** In reviewing utilization of Information Technology on campus, the subcommittee agreed on the following categorization of four broad “domains” of use shown in Figure 1 below. In each of these areas, there may be a need to restructure and purposefully coordinate responsibilities heretofore structured differently.

Service Areas include the units that are responsible for the underlying business processes of the University (i.e., financial, housing, student affairs, enrollment management, registrar, etc).

Common Good Services refer to those services that currently are, or could eventually be, scalable and provided centrally. It is important to note that some of these services are shared by all (e.g., networking).

Colleges/Schools/Libraries include the units that house our faculty and are responsible for instruction and research.

Interdisciplinary Center Computing is both a targeted service for the common good of the schools and colleges and an active focus for complex interdisciplinary IT research occurring within and across colleges. Finally, this service area, which has been emerging rapidly with the growth of large-scale interdisciplinary research through research centers, is recognized as a major area requiring special attention to unique sets of needs and priorities (e.g., Discovery Park and the Rosen Center for Advanced Computing in ITaP).

**Figure 1: The four domains**
A client perspective: advisory and governance groups. A core principle held by the subcommittee as it crafted the governance plan was that, first and foremost, the provisioning of IT should be focused on the client’s perspective. Consequently, client input, direction and feedback must be critical aspects of the governance structure. Therefore, within the four domains of IT on campus, the subcommittee anticipates a robust set of advisory and/or governance groups (as needed) guiding the various process owners (deans, vice presidents, directors and department heads), and in turn, the IT organizations on the performance, utility and desired future attributes of the IT function. This is represented by Figure 2 below.

Figure 2: A client perspective

Operational oversight. It is expected that many issues can and should be addressed, and decisions made, within each domain at the lowest effective level. As such, this governance recommendation is not intended to supplant the decision making authority of the organizational structure, but guide and advise the structure. Many IT issues cut across the domains. A key goal sought by a revised governance process is to expect improved coordination and communication across the various domains of computing. Currently, lack of a coordinated, campus-wide IT structure makes it difficult to evaluate the efficiency of IT services delivered by the groups functioning now. Any new model must place emphasis on communication and collaborative teamwork that will ensure that IT services meet critical success factors of each functional unit while also ensuring a high degree of institutional effectiveness.

A number of tactics could improve coordination and communication, but one primary recommendation of this committee is the formation of an Operational Oversight Committee shown in Figure 3. The subcommittee suggests that this Operational Oversight Committee, chaired by the Chief Information Officer (CIO), is drawn from our current ranks and composed of a mix of knowledgeable IT professionals and business process owners (clients) from the four domains. Members of the group should not have a parochial view of information technology but possess broad perspective of the university and its needs. The Operational Oversight Committee will balance the efficiency of a single solution with the need to remain flexible and agile, and promote IT experimentation within the enterprise.

A primary charge for the Operational Oversight Committee will be to ensure ongoing efficient and effective integration across the four IT domains. The committee would collaboratively form decisions regarding the utilization of common good services and develop metrics and monitor the performance of those services. The committee would also ensure that the actions of IT in all the domains are not
unnecessarily redundant. The committee would also be responsible for identifying best practices and centers of excellence within and across domains and assessing the transference of these best practices across campus. Some recent examples of this type of integration on a focused level include BITS and SMARTcomputing.

In the process of monitoring performance metrics across the domains, evaluating and making judgments on “opt-outs” of common good solutions, and monitoring new service needs, it is anticipated that gaps or shortfalls will be identified. In these situations, the Operational Oversight Committee would call together process owners with the appropriate IT domains to engage in a process that leads to resolution. It is expected that analysis and recommendations concerning shortfalls, will be conducted quickly, typically within 60 days. It is also expected that BITS and SMARTcomputing processes be further developed to play a primary role in the development, continuous improvement and decommissioning of common good IT services. Finally, the subcommittee recognizes that not all staff in IT organizations meet our definition of IT staff nor has all IT staff been identified by our analysis. One task for the Operational Oversight Committee will be to continue the process of identifying IT staff throughout the enterprise and give those staff an IT organizational home.

Figure 3: Operational Oversight Committee
**Strategic governance.** Beyond the Operational Oversight Committee, the subcommittee recommends the formulation of a high-level Strategic Governance Committee as shown in Figure 4. This committee of limited size (10 or fewer) will have representation from the University’s senior executive leadership including the CIO, as well as representatives of the client groups. The committee’s purpose would be to provide strategic guidance to ensure that IT investments and operations align with institutional priorities, ratify policy decisions and approve broad spanning budgetary allocations in the area of IT. Representatives to the Operational Oversight Committee may serve ex officio on the Strategic Governance Committee. This level of the governance structure is represented by Figure 4.

Figure 4: Strategic Governance Committee
GOVERNANCE IMPROVEMENTS

These recommendations are based on the guiding principles described above and build on the premise that there is a distinction between reporting relationships, governance and service provision. They are interrelated, but can be designed independently to obtain the optimization desired. This model seeks to create a collaborative approach to IT management which would offer a value-added framework dedicated to the creation of quality IT services that are both technically and administratively sound. This model places emphasis on communication and collaborative teamwork to ensure that IT services meet critical success factors of the functional unit while also ensuring a high degree of institutional effectiveness. It facilitates management of the overall IT effort towards institutional priorities, provision of quality services, and utilization of shared expertise, process optimization, and continual improvement.

**High-Level Strategic Governance Committee.** This committee will be attentive to input by a cross-section of executive roles to ensure strategic alignment and set institutional priorities and effectiveness metrics. It would establish accountability and authority to ensure that the necessary organizational and governance models are in place to provide an integrated view into the campus IT enterprise for ensuring both local and institutional effectiveness. **High-Level Strategic Governance** would establish and facilitate mission clarity for an integrated IT organization under the Office of the Vice President for Information Technology (OVPIT).

**Shared Operational Oversight Committee.** This committee would organize a cross-representative team of campus IT leadership and client based representatives charged to govern the creation and ongoing evolution of IT common good services. It would further develop a framework of processes and best practices for building and governing IT services within the integrated IT community. This could be an evolution of the Building IT Synergy (BITS) program.

The **Shared Operational Oversight Committee** would also be expected to consider and evolve the concept encompassed in the campus SMARTcomputing program which facilitates ongoing management, governance and continued improvement of these services after they have gone into production.

In the end, collaboratively governed IT operations will foster and facilitate new and strategically aligned services under the auspices of distributed IT leadership and will ensure that appropriate expertise is leveraged.
Libraries IT is a unique case in our proposed governance model. Libraries IT provides both common good services and library-specific services that support Libraries collections and services, and the research and instruction of 44 Libraries faculty. Recognizing the large faculty element within the Libraries we have placed library-specific IT in the AITL domain. The tension this might create between common good service elements will be mitigated by transitioning the Libraries’ IT common good service components into the DCM domain or potentially the New ITaP as clarification of distinctive roles evolve in the future. This is consistent with the Libraries’ strategic goal (and actions) to migrate common good service elements that do not need to be provided specifically by Libraries IT, such as lab provisioning and server hosting, to the common-good service organization.

Appendix B Core Principles
As a first step, the subcommittee discussed the critical attributes of IT governance that any recommendation should incorporate.

First, the IT organization should have clear goals, objectives and expectations that tie the IT function to the University strategic plan. The processes, outcomes and metrics for the organization should clearly reflect the tenets of the Sustaining New Synergies plan – launching tomorrow’s leaders, discovery with delivery and meeting global challenges.

Second, the IT organization must be focused on the needs of its IT clients, our faculty, staff and students. Attentiveness to these clients and the services and processes they need to conduct their work
are critical to an effective, integrated IT organization. The organization must be inclusive in seeking input and responsive and accountable to the clients; communication with all clients and across the IT organization is critical. Effective practices should be recognized, communicated and fostered across the enterprise.

**Third, the IT organization must exhibit clarity in structure, responsibility, effectiveness and efficiency.** Reporting lines and accountability must be clear and the functioning of the IT units must be transparent to both clients and IT professionals across the organization. Performance of the units, their effectiveness and their efficiency must be incentivized, objectively measured and reported. Continuous improvement should be a hallmark of the organization.

**Finally, the IT organization must practice an informed intelligence about the processes and services its work supports.** The IT organization must anticipate needs and required changes in service and be adaptive and agile in its response to altered or evolving requirements. The IT organization must support innovation, reasonable experimentation and diversity of approaches that lead to the creation of quality IT services that are administratively sound. To remain transformative and resilient, the IT organization will also be expected to understand when reasonable exceptions might need to be made.

**Appendix C Approach**

The following guidance was provided to the committee members as they considered the IT governance review: 1) Utilize the MORT report on IT Organization Structure; 2) Include all IT personnel and units on the West Lafayette campus; 3) Develop a process and criteria for recognizing IT units outside of ITaP; 4) Benchmark against IT governance at Big Ten and peer universities; and 5) Focus on efficiencies while maintaining effectiveness in meeting strategic goals.

**Appendix D Review Process**

Members read the MORT report on structural IT governance along with current journal articles on improving IT governance in higher education. Based on the findings from Educause’s Center for Applied Research (ECAR), it was clear that governance, organization and leadership consistently stand among the top 10 issues of strategic importance facing IT organization and management at other colleges and universities.

Repeated themes throughout the readings were statements that effective IT strategic planning and governance are critical factors as institutions look for ways to collaborate, innovate, control costs and establish external partnerships.

Committee members reviewed Big Ten and other peer universities and gave brief presentations on the institutions shared principles and governance, describing who participates in the governance and what decisions are made at each level of the governance structure. Web searches revealed that every major peer is reviewing its IT governance for decision making and also reviewing resource allocations for IT. Not surprisingly there are a variety of ways in which governance can work, having both distributed and centralized organizations. However, robust mechanisms for client input are considered very important in all instances.

Reviewing Purdue’s current governance structure resulted in highlighting examples of integration across the campus units, BITS and SMARTcomputing. Extended discussions evolved as distinctions were made between reporting relationships, service provisions, and governance structures. Information was shared
indicating that some best practices exist in the Purdue enterprise but are not always widely known about or utilized. As the subcommittee formulated a model most appropriate for Purdue, conversations focused on enhanced communications, increasing effectiveness and efficiencies, implementing performance accountability, and streamlining of shared services.

Combining the knowledge gleaned from peer reviews, and reviews of some of Purdue’s current IT practices, the subcommittee set about expanding the model proposed in the MORT report and created a modified organizational structure as well as a proposed new governance structure.

Appendix E Purpose and Goals of Governance
IT is an enterprise utility spanning all missions of the University and engaging nearly every stakeholder. IT is becoming increasingly more complex and organizations are becoming more reliant on IT. As IT continues to become more ubiquitous, complex and embedded into the institution, the need to properly govern the utilization of IT resources becomes more imperative. The purposes of IT governance are to articulate accountability throughout the enterprise, aligning IT with mission-critical institutional priorities and strategic goals, improve communication and collaboration towards leveraging IT assets to advance the institution’s competitiveness in mission-critical areas, and reduce redundancy to ensure effective and efficient management and adequate resourcing of integrated campus-wide IT services in support of the above.

IT governance focuses on the governance principles, priorities, and processes for making decisions, while actual decision making and day-to-day operations are the purview of management. In fulfilling these purposes, an IT governance framework explicates the decision rights and accountability framework, i.e., a governance model that conveys who makes what decisions, who provides input and analyzes issues, who sets priorities and who settles disputes when there is no clear consensus. Thus, an effective IT governance framework can revolutionize how information assets are leveraged as an enterprise asset, aims toward timely, informed decisions, balances institutional and local-departmental needs and recognizes that governance of IT is a shared responsibility purposefully integrated into the academic, administrative, and operational aspects of the institution. This ensures that policy outcomes and business solutions that advance the state of IT are closely aligned with mission-critical priorities and strategic goals of the institution.

Appendix F Governance Committee

Committee membership

<table>
<thead>
<tr>
<th>Name</th>
<th>Role/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logan Jordan, co-chair</td>
<td>Associate Dean of Administration /Krannert School of Management</td>
</tr>
<tr>
<td>Pat Smoker, co-chair</td>
<td>Department Head, Agriculture IT</td>
</tr>
<tr>
<td>Emily Arentson</td>
<td>Graduate student, Foods and Nutrition</td>
</tr>
<tr>
<td>Melissa Dark</td>
<td>Associate Dean of Research and Strategic Planning / College of Technology</td>
</tr>
<tr>
<td>Eckhard Groll</td>
<td>Professor of Mechanical Engineering</td>
</tr>
<tr>
<td>Ellen Gruenbaum</td>
<td>Department Head / Anthropology</td>
</tr>
<tr>
<td>Sandra Monroe</td>
<td>Assistant Vice President for Student Services</td>
</tr>
<tr>
<td>Rab Mukerjea</td>
<td>Executive Director of Strategic Planning and Assessment / President’s Office</td>
</tr>
<tr>
<td>Alan Rebar</td>
<td>Senior Associate Vice President for Research and Executive Director of Discovery Park</td>
</tr>
<tr>
<td>Terry Schroeder</td>
<td>Assistant Director for Business Services Computing</td>
</tr>
</tbody>
</table>
### Appendix G Glossary of Terms & Acronyms

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVPIT</td>
<td>Office of the Vice President of Information Technology provides leadership for planning and coordinating central IT resources and is responsible for further developing the computing and telecommunications systems on the West Lafayette campus.</td>
</tr>
<tr>
<td>Distributed IT</td>
<td>Referring to those IT groups, not directly connected to OVPIT, which are housed, budgeted and managed within individual administrative and academic units on the West Lafayette campus.</td>
</tr>
<tr>
<td>DCM (Administrative IT)</td>
<td>Each of the University’s administrative vice presidents has a manager or director who is responsible for IT within their organization. Historically, these individuals have been referred to as Departmental Computing Managers although that is not indicative of position titles. The Departmental Computing Managers meet monthly as a group monthly to share information, discuss common problems, generate ideas for future technology solutions, identify issues with current, planned and needed services, initiate and provide resources to plan and execute multi-department projects and forward recommendations to appropriate senior staff.</td>
</tr>
<tr>
<td>AITL (Academic IT)</td>
<td>A forum made up of Academic IT Leaders to provide communication, collaboration and a unified vision for the advancement of IT unique to Purdue’s academic units.</td>
</tr>
<tr>
<td>ITaP</td>
<td>Information Technology at Purdue the IT group historically reporting directly to the Office of the Vice President for Information Technology.</td>
</tr>
<tr>
<td>(NEW) ITaP</td>
<td>It is expected that the proposed organizational structure changes will result in a new focus on common-good services for the group currently referred to as ITaP. It will likely be necessary to rethink structure, roles and perhaps the title of this group.</td>
</tr>
<tr>
<td>IT (Information Technology)</td>
<td>As defined by the Information Technology Association of America (ITAA), IT is &quot;the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware.”</td>
</tr>
<tr>
<td>BITS (Building IT Synergy)</td>
<td>A framework of templates, processes and best practices for building and governing IT services within the integrated IT community. It is designed to foster and facilitate new and strategically aligned services and improve existing services under the auspices of the distributed leadership.</td>
</tr>
<tr>
<td>SMARTcomputing</td>
<td>The implementation model for shared IT services that develop out of BITS. It facilitates ongoing management, governance and continued improvement of these services after they have gone into production.</td>
</tr>
<tr>
<td>IT Community</td>
<td>Client groups formed by the IT governance model.</td>
</tr>
<tr>
<td>IT Organizational Structure</td>
<td>Formal framework within which the institution’s IT organization arranges its lines of accountability, authority and communications, and allocates responsibilities and duties.</td>
</tr>
<tr>
<td>IT Governance</td>
<td>IT governance is a subset discipline of institutional governance focused on IT systems and its performance, risk-management and decision-making processes.</td>
</tr>
<tr>
<td>IT Service Provisioning</td>
<td>The process of preparing and equipping IT-based services to allow them to initiate (new) services to their clients or alter the state of an existing service or capacity.</td>
</tr>
<tr>
<td>Common-good IT Services</td>
<td>Those IT services that are generally defined as common, or otherwise used by a broad majority of the clients located on the West Lafayette campus.</td>
</tr>
<tr>
<td>Domain</td>
<td>Used in this document to describe the service areas (DCM, AITL, ITaP, Interdisciplinary Centers Computing).</td>
</tr>
<tr>
<td>ACCESS</td>
<td>Advanced Computational Center for Engineering and Sciences</td>
</tr>
</tbody>
</table>
CONDITIONS LEADING TO THE REVIEW

The Campus Information Technology Plan (CITP) Cost Savings Subcommittee (CSS) was formalized to make recommendations for efficiencies in information technology across the West Lafayette campus. The subcommittee was charged with identifying cost savings approaches that will generate $15M recur over time while providing high-quality information technology (IT) services to meet the University’s strategic goals. CSS focused on the target of $10M recur by fiscal year 2012 with plans to address the last $5M recur going forward.

COST SAVING RECOMMENDATIONS

Initial themes. Several clear themes emerged from the strategies adopted by Purdue's peer institutions, those proposed by professional IT consultants, reports from the IT Management Operations Review Team (MORT) and ideas generated within the campus community. The subcommittee first explored these initiatives:

- Data center management
- Computing lab management
- Print management
- License agreement management
- IT strategic sourcing
Process for exploring themes. For each of these initial themes, a task group used some combination of reaching out to IT professionals in the content area and/or diving deeper into existing reports and recommendations that already existed. Leveraging existing resources was a key component of the CSS strategy given the compressed timeline. Details of each initiative were documented in a standardized recommendation template to ensure consistency in the subcommittee's assessment of each issue. Although CSS made significant progress assessing each initiative, it stopped short of suggesting detailed implementation plans.

Further themes. The subcommittee split some of the existing initiatives into finer sub-initiatives and pursued some additional areas. The second round of initiatives were:

- Virtualized desktop infrastructure (VDI)
- Software license management
- Renegotiation of current major IT contracts
- Desktop energy savings
- Video conferencing solutions
- Assess impact of cost saving initiatives
- Process to assess future initiatives

Our recommendations provide a high level definition of and proposed course of action for the initiatives. Implementation details will vary depending on the final decision and the timing of the CITP implementation. Details for each recommendation will be shared with implementation teams after the initiative has been approved for action.

Data Center Management

Situation: A data center is a facility to house computer systems and their components. As technology has spread throughout campus, data centers have been created in an ad hoc fashion to meet the immediate needs of departments and colleges. These facilities were developed by adapting existing rooms, placed in the corner of laboratories or offices, or included in new building projects. The resulting patchwork of small data centers has increased the complexity of providing adequate utilities to buildings, managing the institutional utility costs and meeting the continuing growth of Purdue’s cyber-infrastructure.

CSS recommendations:

- Identify existing data centers;
- Anticipate the future need for data centers;
- Establish standards and processes for creating new ones;
- Develop plans for consolidating existing data centers and for a data center energy plan.

Computing Lab Management

Situation: With nearly 280 computing labs on the West Lafayette campus, Purdue makes a significant investment to supply, manage and upgrade labs, both centrally and at the unit levels. There is currently no overall plan that addresses the changing needs, emerging technologies, funding or space within these labs.

Three categories of computing laboratories emerged from an inventory taken late last year. General Purpose Open Computing Labs are defined as spaces providing access to computers for individual or group work on a non-scheduled, walk-in basis. Instructional Computing Labs are spaces providing instructors access to computing resources for the purpose of instructing students, usually on a scheduled
basis. These computing labs are considered instructional whether they are scheduled for one class or multiple classes. Specialized Computing Labs are spaces typically providing non-standard hardware configurations, specialized or customized software, or space needs that are not provided centrally.

Estimates of the number of computers and labs are as follows:

- General Purpose Labs – approximately 1,200 computers in 60 rooms
- Instructional Labs – approximately 3,500 computers in 180 rooms
- Specialized Labs – approximately 800 computers in 40 rooms

**CSS recommendations:**
Review and analyze campus computing labs to determine the optimal number, management, and type of labs maintained. This effort will attempt to strategically locate high-quality computing labs and embrace innovative approaches to learning while striving to consolidate or repurpose underutilized labs to save equipment and support costs along with space recovery for other uses.

**Print Management**

**Situation:** Management of print equipment, materials and procedures is distributed across campus, even at the office level, and varies greatly. Campus-wide adoption of effective practices could bring substantial savings while protecting or even improving needed services.

**CSS recommendations:**
- Identify opportunities to consolidate printers, copiers, scanners, and fax machines into networked, multi-function machines (energy savings and strategic sourcing);
- Evaluate service/maintenance contracts for printers, copiers and faxes, and use output to create recommendation for consolidating and/or reducing service/maintenance contracts (strategic sourcing);
- Propose a standardized printer and multi-function machine and maintenance contract factoring in efficiency rating (energy and strategic sourcing);
- Propose a strategy for sustaining progress in proactively managing printing after initial implementation of core ideas;
- Investigate the advantage of providing a service to manage printers;
- Establish a strategic sourcing program for paper and toner for desktop and networked printers;
- Add print release stations to networked printers;
- Add print release stations to increase security and promote a greener Purdue by reducing wasted paper and toner;
- Reduce the number of single user desk side printers;
- Identify effective print management practices such as dual sided and monochrome printing and establish them as defaults for printers;
- Implement a system for tracking the number of pages printed by individual. As noted in the student-based print management system, on average Purdue is printing approximately 40% fewer pages per day as a result of print tracking;
- Analyze ways the number of pages could be reduced over time (less printing).

**License Management**

**Situation:** Given IT’s significant role in the University's strategic goals, and the newly formed Purchasing Strategic Sourcing department, Purdue has an opportunity to leverage the dynamics and synergies of IT
procurement, University strategic goals and strategic sourcing. To do so, a central IT discipline and focus is needed.

CSS recommendations:

- **Centralized License Agreement Management**
  
  IT Strategic Sourcing - Ideally, this would be positioned under the responsibility of Purchasing Strategic Sourcing and would be responsible for all IT contract life cycle administration. This would involve developing strategic sourcing opportunities, developing strategic partnerships and the administration of contract life cycle management (RFx, negotiations, contract execution, contract performance, renewals, terminations and the management of an online software license database) of all IT related contracts.

  Centralized software management and license administration - In order to be able to save money on software purchases, it is imperative that Purdue have a centralized software database that allows IT planners to identify existing license agreements, right size licenses based on need, and identify the kind of licenses that are most cost effective. As part of the purchase process, IT will be expected to check with this database to determine if there is an existing agreement or if there may be some benefits as well as registering the new purchase in the database. The other part of this recommendation is for some IT governance mechanism to oversee the offering of license servers on campus so that application usage can be well understood and that as usage drops, licenses can again be right-sized, which could include being discontinued. All of this helps with staying in compliance as well as paying what is owed, not overpaying. It also allows the University to get the best pricing for all of campus.

- **IT Contract Renegotiation**
  
  Currently, contracts are reviewed and renegotiated on their anniversary dates. They are renegotiated by the individual, group, or Contracts and Licensing. In the future, there needs to be a process that includes negotiation to the “payees” satisfaction, a point of IT approval for contract, licensing, hosting, in-house support, and associated centralized data collection. Contracts and Licensing currently maintains a portfolio of more than 900 software contracts for a total of more than $8,000,000 with various IT related vendors. As soon as practicable, review all contracts and licenses maintained by the Contracts and Licensing group, prioritize based on annual renewal costs and likelihood of savings, and then renegotiate.

- **Software License Management**
  
  Currently, any software license management that occurs is done locally, at the department level. We recommend consideration of collaborative software license management to take advantage of the existing software licenses. This will produce a level of savings, due to fewer needs to purchase individual or multiple licenses. In addition, the subcommittee recommends consideration of collaborative purchases of site licenses to capitalize on the potential for strategic sourcing. CSS recommends that consideration be given to collaborating across all units by sharing information regarding software licenses. Tracking and inventory systems should be used to determine when software is no longer being used and put back into the central pool for reuse. Future software requests should be compared against the database to determine whether the needed software license is already on campus. When possible and cost effective, site licenses should be established and contract information maintained in a centralized database.
**IT Strategic Sourcing**

**Situation:** According to data published by the Office of Institutional Research, Purdue employed 15,668 faculty & staff on the West Lafayette campus in fall 2009. Based on a conservative estimate, more than 13,000 of these employees use a computer, software, printer, surge protector, copier and other consumables as a regular part of their job. Currently, employees use a variety of mechanisms for purchases, and the vendor selection is virtually unlimited to the end user. As a result, it is likely that the campus is missing an opportunity to leverage purchasing power. Leveraging the IT spend has the potential of saving the University significant dollars without lowering the quality of equipment and consumables used by Purdue employees. In fact, it is possible that coordinating and consolidating appropriate IT spending may actually increase the quality of products purchased by end users.

**CSS recommendations:** The Sustaining New Synergies Task Force has submitted a request for proposal (RFP) for a consultant with expertise in strategic sourcing to help analyze Purdue’s spending. Because CSS anticipates that IT-related commodities will show up in the high-cost category, it is recommended that the committee stand ready for the output of the group. To maximize the impact of strategic sourcing, the University must have the IT governance structure in place. In the short term, CSS is including strategic sourcing as a component of a number of its targeted recommendations (data centers, print management, license agreement management, etc.). Until a University strategy for strategic sourcing is finalized, CSS will limit this initiative to the subcomponents of other recommendations.

**Virtualized Desktop Infrastructure**

**Situation:** The purpose of the Virtual Desktop Infrastructure (VDI) project is to evaluate the suitability of thin client and virtual desktop technologies to replace some portion of desktop computers. From Information Week magazine, "VDI is a server-centric computing model that borrows from the traditional thin-client model but is designed to give administrators and end users the best of both worlds: the ability to host and centrally manage desktop virtual machines in the data center while giving end users a full PC desktop experience without limitations."

A virtual desktop can be thought of as simply taking a desktop PC and moving it to a central server that hosts a large number of these “virtual” PCs. A thin client replaces the desktop PC providing connections for networking, monitor, mouse, speakers and keyboard and managing some portion of the interaction with the virtual desktop to enhance performance and provide a user experience similar to that of a desktop PC.

Potential benefits of VDI include but are not limited to reduced total cost of ownership when compared to desktop PC deployments, level of reduced energy consumption, ease of virtual desktop and thin-client management, session mobility to allow users easy of access from multiple locations, reduced level of help desk requests, and a more secure environment when compared to PCs.

**CSS recommendations:** A detailed recommendation will be developed at the conclusion of a VDI pilot project, most likely in May 2010. If the VDI approach is determined feasible beyond the pilot, a cost analysis comparing VDI to desktop PC deployment will be developed, user groups will be defined for which this technology is most appropriate, and campus organizations will be encouraged to consider this approach to save money, energy, and management effort using these technologies.
**Desktop Energy Savings**

**Situation:** There are approximately 20,000 computers on desktops on campus. When plugged into electrical outlets, these workstations and associated monitors consume energy.

**CSS recommendations:** This recommendation proposes an energy reduction solution by managing the amount of time a machine is running during a 24-hour period, i.e., manage the number of hours a computer is turned on during a 24-hour period and minimize the amount of energy consumed when the computer is not in use. This could include maximizing the number of hours the computer is in use by lending its computing cycles to the pool of resources used for research computing (CONDOR pool) or shutting down the machine. An optimal solution would be to actively manage turning the machine off when not in use for periods of time (actual time to be determined but not less than one hour). In addition, CSS recommends establishing an RFP for software to manage machine up-time.

**Video Conferencing Solutions**

**Situation:** Currently the West Lafayette campus lacks a campus-wide strategy to deliver video conferencing. Capabilities are limited to video conferencing solutions on a departmental basis. Where effective video conferencing solutions have been established, they typically are not shared beyond the school/college area.

**CSS recommendations:** There is potential in saving travel expenses by establishing video conferencing capabilities accessible to any group or department on campus. Classrooms could be scheduled and the Internet used to make a video conference meeting. We recommend a group of rooms at the University be made available for scheduling by any department. Any video conferencing solution should be easy to use. Expanding and advertising the Adobe Connect site license for this purpose and providing some basic training could go a long way toward this solution.

**Assess Impact of Cost Saving Initiatives**

**Situation:** As noted in the governance section, the current IT structure resulted from expanding demands and specialized needs found in diverse groups at the institution. The lack of IT governance caused various IT units to seek alternative solutions to common good needs and resulted in building areas of expertise around new core technologies such as server virtualization, storage, etc.

**CSS recommendations:** The subcommittee recommends the governance structure and cost saving initiatives found in this report be used to yield opportunities to reduce unnecessary IT redundancies, duplicated and under-resourced efforts, unnecessary expenditures, poor coordination and limited integration.

As Purdue develops the new model placing emphasis on communication and collaborative teamwork, this should yield opportunities to leverage resources and skills. There are a number of cost savings ideas that will require resources to investigate and implement and that may result in the creation of new positions. Other cost saving strategies are expected to generate savings that may be realized through reductions in positions that no longer meet IT operational needs.

CSS proposes that this cost savings realization phase be postponed until year two of the planned implementation to provide the governance body sufficient time to fully assess the impact of these
initiatives. An ongoing process should be established to ensure continuous improvement and responsiveness to the evolving needs of the IT client.

**Process to Assess Future Initiatives**

**Situation:** Throughout the process, the cost savings subcommittee solicited input from a number of stakeholders. Through forums, web-based feedback channels and individual conversations, new ideas emerged throughout the process. This spirit of continuous improvement is an important part of IT governance going forward. The culture must recognize this as the standard way to approach business at Purdue. While the timeline did not allow assessment of all ideas, Appendix A (page 26) includes a list of suggested ideas that deserve future assessment and could play a role in meeting the $15M target.

**CSS recommendations:** CSS recommends that members of the governance structure review the list to prioritize those initiatives that they find merit further investigation. A process should be established to facilitate input into a fresh list of ideas on an ongoing basis to promote continuous improvement.

**IMPLEMENTING THE PLAN**

Several of the initiatives that have the highest savings potential will happen only through significant coordination across traditional boundaries. The strategic and operational bodies within the new IT governance structure will need to prioritize the recommendations and charge multidisciplinary teams to implement recommendations. The financial plan for some initiatives may include non-recurring funding to help remove the barrier of up-front costs. The strategic governance committee should develop a pool of funds to invest in initiatives that show high potential for sustainable efficiencies. Teams of IT professionals, financial professionals, and other stakeholders will provide the needed expertise to establish detailed cost savings estimates for initiatives that show significant promise.

**PROPOSED IMPLEMENTATION SEQUENCE**

Many high-potential ideas were generated and captured during the planning process. These ideas are in different phases of assessment. Many of the ideas that have risen to the recommendation stage benefited from work that was done last fall as part of the Management Operations Review Team (MORT) initiatives. The recommended implementation sequence timeline is driven largely by the chronology of assessment. Those ideas that have high potential for success and that are further along in the assessment process are reflected earlier in the proposed implementation sequence.

### Proposed Implementation Sequence

<table>
<thead>
<tr>
<th>Recommendation topic</th>
<th>Pre-CITPC work</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Phase 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data centers</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Computing labs</td>
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<tr>
<td>Print management</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renegotiation of major IT contracts</td>
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<td></td>
</tr>
<tr>
<td>Virtualized desktop infrastructure</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software license management</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desktop energy savings</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT strategic sourcing</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video conferencing solutions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Future ideas</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
The list of ideas is finite, but CSS expects the spirit of this activity to continue as a part of ongoing IT business at Purdue. The new IT governance structure will provide the platform to share ideas across traditional boundaries. The structure will also create accountability for implementation results. Success in realizing operational efficiencies in IT will allow dollars in all parts of the organization to go further.

APPENDICES

Appendix A Additional potential cost saving initiatives gathered through feedback*

- Leverage hub technology for application sharing and review funding model
- Sell intellectual property (e.g., Signals)
- Sell advertising on screen savers
- Discontinue renting space at Ross
- Sell services and other technologies (e.g., video conferencing, e-mail, etc.) to local schools
- Maximize implementation of server virtualization
- Establish more effective energy management practices (green) for computing, establish a policy for all machines to be turned off at night, hibernate, or used in Condor pool, use central managed services to wake-up machines for patching
- Use the CONDOR pool in lieu of purchasing additional servers
- Review cost models and service levels (e.g., back-up, file storage, co-location, etc.)
- Establish recruiting, hiring, training and career path for IT personnel
- Standardize job descriptions, skill levels and pay scales
- Review outsourcing and in-sourcing opportunities (e.g., web hosting, e-mail services for athletics and alumni)
- Offer a low-end machine through SMARTcomputing
- Augment staffing with student labor
- Redesign IT areas around services instead of departments
- Leverage existing inventory systems
- Integrate help desk services across campus
- Assess consulting services and determine if the functions can be brought in house for less
- Reduce number of phones
- Investigate the use of cloud computing
- Review telecommuting opportunities
- Conduct an administrative review of IT
- Implement a strategy to recognize and reward sharing effective practices across units
- Review current processes and practices and eliminate duplication and redundancy
- Record and provide online training options
- Assess ownership and lifecycle of unused and retired equipment
- Extend services to the regional campuses
- Expand SMARTcomputing to include software deployment for the University as a whole
- Expand the use of community clusters
- Consider open source software
- Investigate managing our own certificate authority
- Analyze opportunities to collaborate and coordinate instrumentation groups across campus
- Consider digital phones (VoIP)
- Establish policy that each desktop or server on campus must meet minimal energy consumption standards
- Scale back to a 1 year warranty on desktop computers
- Create centralize storage options for departments
- Eliminate 10baseT lines
- Maximize server utilization to reduce new purchases
- Investigate the use of duel monitors vs. single wide-screen monitor
- Leverage IT resources across campus (e.g., departmental applications, hiring tools, performance management systems, skills and people)
- Investigate a cheaper alternative to current hard drive destruction procedures used to resell computers

*Non IT related suggestions were forwarded to the Sustaining New Synergies Task Force. For future reference, all feedback collected as part of creating this report will be maintained in the CSS working documents.
Appendix B Core Principles
- Creation of a plan that will seek collective leverage of Purdue’s total investment in IT.
- Transparency and inclusivity in the effort to develop the optimal approach for meeting the $15M challenge.
- Quick pace of work to meet the Campus IT Plan Committee deadlines.
- Focus of efforts on those savings that yield maximum return, although there are many areas of cost savings.
- The strategy behind cost savings will focus on redesigning and streamlining processes, strategic sourcing and energy savings.
- IT Governance will enable the IT enterprise to maximize cost savings.
- Steps to seek as much campus-wide feedback as is feasible.

Appendix C Approach
This subcommittee sought opportunities for cost savings while maintaining and improving IT capabilities. In other words, CSS kept a keen eye managing the natural tension between efficiency and effectiveness. The following ideas guided the approach:
- Responsiveness to IT needs of all units is to be ensured; CSS is not seeking a one-size-fits-all approach, as needs across units differ.
- Input for identifying cost saving initiatives will be based primarily on the MORT IT reports, input from the IT community as represented in the MORT IT Org report, input that was gathered in late fall from the sustainability Web site and input gathered recently through CITP feedback mechanisms.
- The approach will be to recommend and define cost saving or revenue generating initiatives, identify potential impacts, and establish high-level cost/revenue estimates for proposed initiatives.

Appendix D Review Process
This subcommittee was charged with working quickly and carefully. All members were asked to complete a pre-reading assignment prior to our first meeting. The goal of the pre-reading was to familiarize all subcommittee members with bodies of work that have already been done in the IT domain and to become aware of the recommendations that were collected through the Management Operations Review Team (MORT) efforts and the Sustaining New Synergies Web feedback process. This activity allowed a very diverse group to start with a common information base. In its first meeting, the subcommittee used the pre-reading and professional experience of the IT personnel in the group to generate a list of high-potential initiatives. Members discussed the initiatives in terms of 1) potential financial impact, 2) viability to implement, and 3) timeliness.
Appendix E Energy Saving

Electricity Draw of Standard Electronic Devices
Tested on March 12, 2010
All readings in Watts

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Location</th>
<th>Active-In Use</th>
<th>On-Not in Use*</th>
<th>Standby Mode</th>
<th>Login Screen</th>
<th>Screen Saver</th>
<th>Notes</th>
<th>1 hrs use @ $0.048/kWh</th>
<th>1 hrs not in use @ $0.048/kWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell Phone Charger</td>
<td>Sony Ericsson</td>
<td>FREH SNS Area</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0.000206</td>
<td>$0.000000</td>
</tr>
<tr>
<td>Laptop</td>
<td>IBM Thinkpad T43</td>
<td>FREH SNS Area</td>
<td>65.00</td>
<td>56.00</td>
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<td></td>
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<td></td>
<td>$0.003120</td>
<td>$0.002688</td>
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<tr>
<td>Monitor 17&quot;</td>
<td>Dell 1704FPVT</td>
<td>FREH SNS Area</td>
<td>31.00</td>
<td>31.00</td>
<td>0.00</td>
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*Power Readings for On-Not in Use are similar to those when waiting at login screen and with screen saver on

Appendix F Cost Savings Committee

Committee membership

<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Julie Kercher-Updike</td>
<td>Associate Vice President / IT Customer Relations in ITaP</td>
</tr>
<tr>
<td>Chris Martin</td>
<td>Sustaining New Synergies Task Force</td>
</tr>
<tr>
<td>Mimi Arighi</td>
<td>Director of Veterinary Teaching Hospital</td>
</tr>
<tr>
<td>David Carmichael</td>
<td>Director of ECN and Information Technology / Engineering</td>
</tr>
<tr>
<td>Wei Cui</td>
<td>Professor of Physics</td>
</tr>
<tr>
<td>Steven Hare</td>
<td>Director of Administrative Computing / Science</td>
</tr>
<tr>
<td>Jaylene Nichols</td>
<td>Secretary / SMAS</td>
</tr>
<tr>
<td>Miguel Rivera</td>
<td>Undergraduate student / Science</td>
</tr>
<tr>
<td>Carol Shelby</td>
<td>Senior Director Environmental Health and Public Safety / Physical Facilities</td>
</tr>
<tr>
<td>Sam Wagstaff</td>
<td>Professor of Computer Science</td>
</tr>
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</table>
Campus Information Technology Plan
Financial Approach

STRATEGIC FINANCIAL APPROACH FOR IT

Identifying new revenue streams and opportunities for increasing our operational efficiency are challenging tasks. Implementing recommendations and reflecting a recurring general fund budget change as a direct result is even more difficult. In many areas, information technology (IT) budgets are embedded in unit budgets. This is complicated by that fact that IT does not have a universal definition that is widely accepted. Given these complexities, the approach for capturing the revenue and costs savings is not a simple task. Every attempt has been made to recommend a strategic approach that achieves the stated financial target while being responsive to the differences across units; both in terms of how the units are budgeted and the different stages of progress in identifying and implementing operational efficiencies.

The proposed strategy will be implemented in three stages:

Stage One (through June 30, 2011):

In stage one, savings will be recorded and in some cases captured from efficiency efforts that are in progress and showing positive results (early cost saving successes towards the first $5M). In parallel, the new IT strategic and operational governance bodies will develop a model for strategically sharing the responsibility for meeting that portion of the first $10M financial target not captured on a recurring basis during fiscal year 2011 or anticipated in fiscal year 2012. These governance bodies will also recommend targeted non-recurring investments that show promise for future recurring savings.

\[
\text{ITaP: efficiencies (recurring)} = $3.2M
\]

ITaP has already begun implementation of a number of targeted efficiency efforts. The efforts that are being pursued involve eliminating redundancies, consolidating core services and leveraging existing capabilities. These goals align well with those of the IT governance and cost savings initiatives. Recurring savings from these efforts totaling $3M in ITaP’s fiscal year 2011 base budget (plus $200K in related benefits costs) will allow for immediate progress in meeting the initial $5M goal.

This strategic reduction of ITaP’s base budget will fulfill ITaP’s requirement of a potential University level budget reduction in fiscal year 2012 of up to 7%. However, ITaP will be considered for IT strategic assessments in fiscal year 2012 and beyond.

\[
\text{Computing Labs: consolidation (recurring)} = $500K
\]

The plan proposes to decrease the central pool for instructional equipment by $500K to recognize efficiencies captured through targeted reduction of traditional walk-in computing labs.

\[
\text{Energy: data center consolidation energy savings (recurring)} = $300K
\]

The consolidation of data centers shows the potential of significant savings in both hardware expenditures and energy savings. Savings in hardware will be realized in the units and reflected in the Institutional IT Enterprise Assessments reported in stages 1 and 2. Through proposed expansion of the existing pilot program, energy savings of $300K are expected in fiscal year 2011.
Institutional IT Enterprise Savings (non-recurring)  = $1M

The last $1M of the first year target will come from recorded savings demonstrated in units across the IT enterprise resulting from a combination of strategies listed in the cost savings subcommittee report. Many administrative and academic units are currently working on initiatives that will contribute to this savings target.

Total Year One Savings = ($4M recurring + $1M non-recurring)  = $5M

$^3$ (Stimulating Sustainable Savings) Incentive Program – Initial Investment (non-recurring)

To stimulate and accelerate high potential recurring savings in future years, a non-recurring investment of $1M will be made to offset up-front costs of the highest priority initiatives as determined by the new IT governance strategic and operational advisory bodies.

Stage Two (through June 30, 2012):

$^3$ Incentive Programs: savings from prior year non-recurring investments (recurring)  = $1M

In stage two, recurring savings resulting from non-recurring investments made in stage one will be captured.

Reinvestment into $^3$ Incentive Program (recurring)  = ($1M)

The recurring savings from the above investments will be used to create a recurring pool that will allow for ongoing investments in IT efficiency efforts with recurring potential.

Institutional IT Enterprise Assessments (recurring)  = $5M

The model developed by the new IT governance body will be used to guide strategic assessments to IT units across campus. For the sake of illustration, $5M was used as an estimated level of strategic assessments across the IT enterprise. Overall assessments will reflect the reduced cost of IT services achieved through the enterprise efficiencies implemented via the governance model.

Units will have the flexibility to use unit savings in excess of the targeted savings to support local priorities. If no recurring revenue or savings are realized as a result of the new coordinated efforts, then 100% of the financial target will be captured through strategic assessments. The potential of benefiting from up-front investments and the avoidance of assessments beyond identified savings provides incentives for units to actively participate in these efforts.

Energy: IT energy savings from implementation of numerous strategies (recurring)  = $1M

Success in the consolidation of data centers, effective use of virtualized desktop infrastructure, managing desktop energy, and a combination of other energy savings opportunities results in an additional recurring savings in our energy budget of $1M.

Total Year Two Savings = ($6M recurring + unconstrained non-recurring)  = $6M+

Stage Three (July 1, 2012 and beyond):

In stage three, the IT enterprise will benefit from a coordinated and governed process for continuous evaluation of new cost savings and/or revenue generation ideas. The financial approach includes the creation of a recurring pool that will allow for annual non-recurring investments for cost savings or revenue generation strategies that have the potential for recurring return or cost savings. Through a combination of coordination, governance and strategic investments, the $15M recurring target will be met over time.
GUIDING PRINCIPLES FOR STRATEGIC ASSESSMENTS

The proposed staging allows for the strategic and operational bodies of the new IT governance to establish a strategic framework for reducing budgets to meet our financial target. The CITP Committee recommends that the framework reflect the following guiding principles:

- Units have unique attributes and characteristics, so the approach should be responsive to those differences;
- Contributions to operational efficiencies should be recognized (no disincentives for positive contributions);
- Units will share responsibility for enterprise effectiveness and local effectiveness;
- There will be a clear link to the strategic plan;
- The strategy is not tied to a strict formula; output of any formula will be used as guidance for (not a replacement of) strategic decision-making.

FINANCIAL ANALYSIS TO ACHIEVE INITIAL $10M

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Sustainable strategies to allow IT enterprise opportunity for additional savings:

- Print Management
- IT Strategic Sourcing
- License Management
- Virtual Desktop Infrastructure (VDI)
- Selling IP (i.e. Signals, etc.)
- Videoconferencing solutions
- Consolidation of data storage
- Selling advertising on screen savers
- In-sourcing e-mail services and other core services
- Consolidate computing labs

| Academic Areas Total FY10 Budget | $354,641,672 |
| Support Areas Total FY10 Budget  | $240,141,969  |
| Total                            | $594,783,641  |
Campus Information Technology Plan
Implementation Timeline

First and foremost the governance structure must be formally recognized, authorized and established as soon as possible. Proposed cost savings will not be achievable without the governance structure firmly in place. Implementation steps are as follows:

By May 1, 2010
President approves structure and appoints the Strategic Governance Committee.

May 1-Jun 30, 2010
SGC develops strategic governance strategies.
SGC appoints the Operations Oversight Committee (OOC).
SGC appoints representative academic liaisons from the AITL.
OVPIT formalizes governance structure for administrative IT areas.
OOC develops operational governance strategies.

July 1, 2010- Dec 31, 2010
Review administrative IT units for determination of appropriate structure within campus-wide IT organization.

By Aug 1, 2010
OOC establishes and recommends priorities for approval by SGC on governance issues, common good services and cost savings strategies.
Charges are issued to pursue common good services and cost saving initiatives under the oversight of the governance structure.

The proposed cost saving strategies are built on the infrastructure and oversight provided by the governance plan. Very early implementation of the governance structure is critical to realizing savings at the targeted levels. Cost saving initiatives include projects at various stages of thought, study and implementation. Some are well-defined and moving forward while others are only ideas to be explored. Implementation steps for cost saving strategies to achieve the financial target are as follows:

Ongoing
Departmental and unit initiatives are recognized and cost savings documented.

By Jul 1, 2010
Student lab computer pilot project completed and subcommittee develops a recommendation.
Data center pilot(s) completes assessments and develops recommendations.

By Aug 1, 2010
Immediate-term recommendations for student labs and data centers are reviewed and approved for implementation.
Other initiatives outlined in the cost savings report are prioritized based on potential for cost savings and implementation timeline developed.
Groups are charged to move forward with recommendations with target dates.
Process is developed to recognize recurring and nonrecurring savings in FY11 and recurring savings in FY12 and beyond.
Shared principles and criteria for strategic assessments are developed.

By Jan 1, 2011
Strategic assessment for FY12 is recommended based on shared principles.

Annually by Jan 1
Strategic assessment for following year is recommended based on shared principles and criteria established in Governance Process.