

UNIVERSITY OF ILLINOIS

UNIVERSITY ADMINISTRATION

**ORGANIZATIONAL ASSESSMENT OF
ADMINISTRATIVE INFORMATION TECHNOLOGY**

ASSESSMENT REPORT

April 2, 2007

**ORGANIZATIONAL ASSESSMENT OF
ADMINISTRATIVE INFORMATION TECHNOLOGY**

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EXECUTIVE SUMMARY

Project Background and Scope

In the fall of 2006, the University Administration Division of the University of Illinois President's Office requested that the Pappas Consulting Group Inc. (PCG) perform an assessment of the organization of administrative information technology services within the division. The goal of the study was to determine the best recommended structure for the delivery of administrative information technology services to the University of Illinois by the various offices within the division.

The scope of the study included each of the offices within UA that provides administrative technology, reviewing most all of the component parts of IT development and delivery, and addressing various general planning questions that UA felt needed to be addressed. Early on in the study process, several planning criteria and principles were established. These included goals for administrative technology that were identified by the Project Steering Team, as well as several IT service principles that were established by PCG. These criteria and principles guided the overall assessment of the current UA environment.

This assessment comes at an appropriate time for UA. The University under UA's leadership completed an implementation of the SunGard/SCT Banner ERP system with the student, financial and human resources modules all coming online. In addition, a new data warehouse was installed along with the Banner implementation, a *concurrent* undertaking not pursued by many other higher education institutions. As these significant implementations were occurring, UA has continued to develop a variety of functional departmental business systems to enhance support for the constituents utilizing their services. There is clearly an impressive array of talent in place dedicated to bringing better administrative technology services to the University's operation. Yet this is also an appropriate time to evaluate what all of these changes have brought forth, and what restructurings may be appropriate going forward. In that spirit, the Organizational Assessment of Administrative Information Technology Report offers an analysis, assessment, and a total of **81** recommendations for action to be considered by University Administration.

Fundamental Technology Considerations for UA

At this time in University Administration's evolution with providing technology services, UA finds itself in the midst of several conflicts and issues with which IT providers are grappling nationally. Three key areas affecting UA are:

- Continuing transition from many stand-alone systems to a shared ERP system for major administrative functions.

Two years ago University Administration completed a migration to a single SunGard-SCT Banner system. This was a major system implementation achievement for which the University takes deserved pride. The University, and UA in particular, are now working through the aftermath and impacts of that very consuming effort. These impacts show up in a variety of ways, and some of the key ones are delineated in the assessment report. It is important that UA personnel understand that these outcomes are entirely typical with a major conversion in a technology environment such as has been made.

- Distributing technology support to departmental areas.

A number of technology applications are being developed and maintained in functional departments rather than in the central IT unit. The decision as to where such applications should be supported should be based upon the combined answer to 10 criteria that are delineated in the report, and should be determined applicable to the University of Illinois and each individual technology application. The report identifies two specific recommendations for applying these criteria to current and future departmental applications.

- Operating a large systems environment versus the small systems environment.

The world of a large system environment and the small system environment are inherently quite different. UA will need to better balance these two approaches in a more complementary manner than is currently in place.

Overarching Issues

There are several overarching issues affecting technology service delivery within UA that need to be addressed.

1. First and foremost for UA, there is a need for a clear statement of the University's expectation for administrative technology, endorsed by senior leadership and matched to a reasonable and deliberate funding plan. This is the most pressing need to be addressed by the President, Chancellors, and Vice Presidents.

2. The lack of such an integrated University-level Administrative Technology Vision points to an apparent gap in properly aligning UA's administrative technology with the goals and strategic objectives of University and campus leadership.
3. In the past, technology project teams have sometimes become permanent organizational units. In other instances, systems that originally started as small focused projects have become more significant permanent activities with larger technical staffing. This has led to some confusion in technology roles and responsibilities, or difficulty in containing technology activities to a proper scope.
4. At the present time within UA, each functional technology unit and AITS proceeds virtually on its own in identifying and implementing technology solutions to the business needs that have been prioritized. Decision making is frequently attempted as a "committee of peers" from every corner of UA, often resulting in too protracted discussions, too compromised outcomes, or unnecessary duplication of effort.
5. As IT support has been distributed across UA, a number of technology positions have been created to house the technologists involved. There has been no methodical process to establish an appropriate human resource structure of technology roles, titles, and a salary framework across the various UA technology units.
6. At the present time, there is no "Integrated Administrative Operational Calendar" collected and maintained by the functional users and technology areas. Having such a consolidated calendar that shows major administrative functional and system events would be very helpful to functional and technical personnel in illustrating the degree to which administrative activities are interdependent.

The report includes seven recommendations addressing the above overarching issues.

Office of Business & Financial Services

The Office of Business & Financial Services supports a large portfolio of IT-based activity reflecting UA financial activities. A review of the appropriate locale of support for each of its application systems is called for in a recommendation within the *Fundamental Technology Considerations for UA* section of the report.

There are no changes recommended in the current technology functions for University Student Financial Services & Cashier Operations or for the University Payroll Systems Support units. The functions in those units are predominantly coordinative and liaison in function, and are appropriate to be in place there.

There are **three** recommendations for organizational changes in the I-Card unit, which is a small but critically important function within the overall UA systems environment. There are **six** recommendations for action within the Business Information Systems unit to address structure and operational concerns.

University Human Relations

University Human Relations is currently in transition for its scope of responsibilities, with much of the daily transactional activity being devolved to the three campuses. The devolution of the transactional activity is not foreseen as causing a significant reduction in the IT support workload. UHR has a moderate portfolio of IT-based activity in support of the human resource function at the University. A review of the appropriate locale of support for each of its application systems is called for in a recommendation within the *Fundamental Technology Considerations for UA* section of the report.

Given the nature and the union groups and structures in place at each of the campuses, there are extensive differences in employment structures, operating rules, compensation, etc., particularly with the inclusion of the University's medical school and hospital. These campus structural differences often translate into significantly different requirements for system development. There are **five** recommendations for action within the Human Resources Information Systems unit to address structure and operational concerns.

Facilities Planning and Programming

Facilities Planning and Programming currently in-sources much of its technology support to AITS. We endorse this model for the needs of the FP&P department, given its scope and size. There are **three** recommendations for action for the Facilities Planning & Programming department to enhance its technology support.

Planning and Budget

The Planning and Budget department maintains responsibility for the University Data Warehouse through its Decision Support unit, formed out of the project team that implemented it. This Data Warehouse was developed concurrently along with the Banner implementation. The scope of responsibilities for the project team was held intact and located in the Decision Support group, with some limited database management support provided by AITS. There are **seven** recommendations for action for the Planning and Budget department to address staff structuring and operational concerns.

Administrative Information Technology Services

AITS has very capable personnel in the department for developing and supporting administrative information systems. The critical challenge to AITS will be its ability to align that experience with a changing technology landscape that is occurring at the University of Illinois as well as nationally. Technologies, and the environments in which

they are delivered, are changing rapidly. The ability of AITS to build upon its traditional technology strengths, while adapting these same strengths to a new way of achieving them, will define success or failure for AITS in the next decade.

As University needs grow for supporting a diversity of technology services, AITS needs to resolve whether its mission will include offering a variety (though not unlimited) package of services, or whether it will operate within a more narrow service spectrum. Whether University leaders and managers view AITS (and UA) as an enabler or a hurdle in achieving campus goals and objectives will ultimately create support (or not) for AITS's endeavors.

There are **six** recommendations for action directed to functional IT offices that have a direct impact on AITS. There are **eighteen** recommendations for action for AITS to address mission, staff structuring and operational concerns.

University Reporting

The topic of reporting needs for the University transcends any one functional or technology area. In today's University administrative environment, "reporting" is a multi-dimensional activity, involving more and more individuals, reflecting increasing needs to manage from a data-driven perspective, and with increasing demands for such output.

Unfortunately, most higher education institutions have been slow to recognize the new criticality of this activity, its increasing legal ramifications, and to organize it properly. This appears to also be the case at the University of Illinois. At the present time, there are a number of personnel and offices engaged in fulfilling the University's various reporting functions. However, there is no overall framework or unifying mechanisms in place to clarify reporting roles, reduce duplication of efforts, and ensure that reporting needs are being met at all levels of reporting. Further, there is a need to establish clearer rules regarding "official data" and how it is disseminated. There are **eight** recommendations for collective action for restructuring this activity into a more comprehensive framework.

University Technology Management Team

The technology environments from campus to campus are very different, and each campus has different priorities relative to their mission and strategic objectives. That diversity makes it difficult to get the same level of need across campuses and commitment on joint activities. The University Technology Management Team does not look for the same solution, but for a common framework that allows each campus to pursue its best solution while not *precluding* each other's technology direction or shared participation. UTMT coordinates common technologies, but does not prevent any campus from meeting its needs. The current role of UTMT appears to be an appropriate mechanism for the University. There is **one** recommendation for additional focus within its scope of work.

Information Technology Priorities Committee

The Information Technology Priorities Committee identifies areas that may need consultation regarding project proposals, approves and prioritizes projects informed by its various subcommittees, allocates ITPC funding resources from a special set-aside pool, and approves projects to go forward. The ITPC structure includes Human Resources, Financial, and Student subcommittees for pre-screening project proposals.

The Pappas Group's criteria for the success of an ITPC type of priority-setting function is that its choices be viewed as reasonable judgments and conclusions within the University's overriding mission(s) and goals. As such, a community perspective that ITPC speaks for the University as a whole and in its best interest is crucial.

In the course of our interviews, concerns were predominately reported around issues of: process; input into decision-making; decision-making outcomes; questions on project content; and implementation concerns.

The Pappas Group's observations on the ITPC include:

1. A fundamental concern is that there does not seem to be in place a working statement as to where the University of Illinois wants to position itself with respect to administrative technology, and the priority for administrative technology within the University environment.
2. The strategic goals and plans of University and campus leaders and managers do not seem to be accounted for in the project proposal process.
3. The projects being approved and the membership of the ITPC itself reflect too internal of an UA view of the University, and too large a separation between perspectives of "administrative computing" and "academic computing."
4. Some level of technology development across the University is assumed to be happening in all manner of ways *going around* ITPC, undoubtedly sometimes in less than desirable ways.
5. ITPC puts a great deal of emphasis on requiring enterprise-wide agreement for project approvals. However, common technology solutions that do not meet uncommon business needs are very expensive to the overall institution. ITPC's overwhelming emphasis on common solutions across the campuses needs reevaluation.
6. Better tracking and recognition of required maintenance projects and small enhancements is needed to more accurately budget what are truly discretionary development projects.

There are **twenty-one** recommendations for action for ITPC to address mission, structure, scope, and implementation concerns.

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1. PROJECT BACKGROUND AND CHARGE

In fall 2006, the University Administration Division of the University of Illinois President's Office requested that the Pappas Consulting Group Inc. (PCG) perform an assessment of the organization of administrative information technology services within the division. The goal of the study was to determine the best recommended structure for the delivery of administrative information technology services to the University of Illinois by the various offices within the Division.

Currently, University-wide administrative information technology services are provided by a variety of units within University Administration, including:

- Accounts Receivable (University Student Financial Services & Cashier Operations)
- Administrative Information Technology Services
- Business Information Systems (within the Office of Business and Financial Services department)
- Payroll Systems Support
- I-Card Office (within the Office of Business and Financial Services department/Treasury unit)
- Decision Support (within the Planning and Budget department)
- Human Resources Information Systems (within the University Human Resources department)

The assessment study requested that this current organizational profile for technology activity be reviewed, and recommendations be prepared as to structural changes that might be appropriate to enhance the delivery of administrative technology services by the Division.

2. PROJECT SCOPE

The defined scope of the project included a review of the administrative technology activity occurring within each of the offices listed above. PCG was asked to look at the administrative technology services inclusive of the following aspects of technology operations:

- application development and support
- data management
- enterprise data warehouse
- decision support
- report development and support
- hardware support
- server support
- desktop support
- enterprise architecture
- security
- facilities
- project management methodologies
- internal priority setting and work distribution
- disaster recovery/business continuity
- performance monitoring and customer satisfaction measurements

In addition, PCG was asked to respond to the following series of overarching planning questions regarding administrative IT structuring:

- Is the current organizational structure optimal or nearly optimal for providing support? If not, what are the areas of concern and/or suggested revisions?
- Is a single point of management oversight (e.g., CIO) needed University-wide? If so, should that cover all of these services or a subset of these services?
- Is a single point of management oversight (e.g., CIO) needed for University Administration? If so, should that cover all of these services or a subset of these services?
- In what cases would distinctive needs require different organizational structures to provide support and services?
- In what areas is it important to have standard University-wide policies? In what areas is it important to have standard University-wide procedures? In what areas are guidelines sufficient?
- In what areas is it important to have common University-wide technical roadmaps that include both administrative services (University Administration level) and academic services (Campus level)?
- In what areas is it important to have standard University Administration policies related to IT? In what areas is it important to have standard University Administration procedures related to IT? In what cases are guidelines sufficient?
- When implementing IT solutions, such as workflow, document management, etc., and considering both effectiveness and efficiency, including cost efficiency, in what cases is it important to have a single solution and in what cases is it

important to have multiple solutions that are customized to particular applications or units?

- In considering structure, funding models, policies and solutions and services, what impact do the recommended approaches have on the potential for cost savings? On agility in supporting administrative groups at the university or campus levels? On agility in supporting the academic community (e.g., faculty, students, and academic unit staff)? Are the right incentives in place for balancing agility and cost savings?

These overarching questions will be answered in the course of the discussion of this report and its recommendations.

It should be noted that there were several aspects of administrative IT services that were determined not to be inclusive in this project scope:

- the study did not attempt to assess any qualitative aspects of the technology products, design, implementation, appropriateness, etc., i.e. the *content* or *selections* of the administrative technologies employed by University Administration;
- the study was not a performance evaluation of the services delivered by University Administration from an end user customer service vantage point; end users of University Administration technology services were therefore not included in our data gathering to assess their perspectives of the effectiveness of administrative technology service delivery;
- the study did not evaluate the scope of responsibilities for administrative technologies currently assigned to University Administration, such as questions of 3rd party outsourcing or the distribution of technology responsibilities among the campuses and University Administration;
- the study did not assess the effectiveness of the internal operations of the various technology units or the component subunits thereof, versus focusing on their structure, internal and inter-departmental interactions, and overall operating methods; and
- the study did not evaluate each individual business application regarding the appropriateness of its being in a departmental technology unit, versus looking at the quantitative or overall scope of such activity; such a review is recommended as a go-forward step for UA (see [Recommendation 5-1](#)) based upon criteria that have been recommended in this report (see [Section 5-2](#)).

3. PROJECT APPROACH

Input to this assessment study was garnered from various sources. The project commenced by reviewing a comprehensive summary document prepared by the several technology units/providers as to their scope of operations and technologies employed, along with University and UA technology unit organizational charts.

Subsequent to this factual review, a week-long on-site visit was made to the University Administration offices in Urbana-Champaign to conduct group and individual interviews. Meetings were held with the Project Steering Team, with the Vice President for Administration and his Associate Vice Presidents, with the Information Technology Priorities Committee (ITPC), the University Technology Management Team (UTMT), and with technology directors and key managers in the various departmental technology units. The focus of this data gathering was to create an understanding of the structure of technology provision currently in place in UA, i.e. the broad view of *who* is currently doing *what* in providing technology services versus an in-depth review of those services.

Following this phase of data gathering, additional documents and reports were requested for further understanding and analysis. A second set of week-long on-site interviews was then conducted with UA Associate Vice Presidents and IT directors and managers to follow up more in-depth on issues, questions, or topics that arose from the initial interviews.

Subsequent to this round of in-person interviews, additional factual information and clarifications were requested from appropriate UA personnel. At this same time, selective information pertinent to several key issues arising from this study was solicited from selected higher education institutions deemed to be comparative or relevant to areas of concern within University Administration. The results of this comparative data gathering are reflected in our analysis and recommendations, and are described in Section 15 of this report.

4. PLANNING CRITERIA AND PRINCIPLES

In the course of our discussions with the Project Steering Team in our first on-site visit, several areas of responses emerged to form a backdrop for targeting the outcomes of this technology organizational assessment. From the perspective of the Project Steering Team, “success” in the delivery of IT services reflects a combination of:

- efficiencies
- cost-effectiveness (given limitations on IT budgets vis-à-vis need)
- optimized budget allocations to meet University needs
- effective communication with University customers and within UA
- quality customer services from the customer’s perspective

In utilizing technology opportunities to support the administrative functions of the University, University Administration does not aspire to be on the cutting or bleeding edge of technology innovation. Rather, University Administration is seen as best positioned to be at the back edge of the “early adopters.” More specific aspirational goals will vary depending on subject area; e.g., there is a high priority for quality student services. As was stated, “We should be competent, accurate, available, and paperless.”

A further planning factor that emerged was the issue of utilization of “best practices.” PCG believes that it is very important that institutions continually monitor trends, developments and advancements within the various endeavors and operations of higher education. Decisions to adopt such specific developments must be subjected to more stringent criteria that reflect the individual institutional character. In applying best practice thinking to this organizational technology assessment, PCG is guided by its belief that:

The “Best Practice” is not some universal or admirable solution which should simply be imported into an organization. The true best practice is to first identify the various options that are available, and then determine which of those options best aligns with the mission, strategies, priorities, operating environment, finances, and culture of each individual institution.

Further, in our Proposal to University Administration’s Request for Proposal, we stated several “Guiding Principles” which we observe in our assessment of information technology structuring in a multi-campus environment, and which we restate here:

- each university (and university system) has a unique culture, history, mission, and emphasis that must be respected;
- the academic enterprise is an environment of widely diverse activities and growing entrepreneurship that must be supported;
- from institution to institution, different operational and management philosophies are utilized around operational issues such as budgeting, cost controls, centralized/shared/distributed services;
- the need for cost efficiencies must also take into consideration the increasingly critical need for timely and effective services to the business/academic units, the end-user clients, and the desktop;
- the tools available today allow technology services to be fulfilled by a variety of university personnel and offices, and can enable many offices and end-users to be self-sufficient with their technology services;
- in a multi-campus/system environment, it is even more critical to balance service designs and delivery mechanisms needed to fulfill multi-campus system policy and aggregate management needs with the support needed for the unique missions, priorities, resources, and performance objectives of each campus (i.e., Chicago, Springfield, and Urbana-Champaign);
- information technology is now intimately embedded in most all university functions, therefore technology delivery and operation must be successful in order for these functions to achieve their objectives; and

- in determining organizational models for technology, there can be no one answer that works for all institutions; what is important to learn from other examples is the formulation of a model that properly incorporates the character, strategic priorities, operating environment, and business requirements of the University of Illinois.

Our analysis and recommendations presented in the following sections are based upon these planning criteria and principles.

5. FUNDAMENTAL TECHNOLOGY CONSIDERATIONS FOR UA

At this time in University Administration's evolution with providing technology services, UA finds itself in the midst of several conflicts and issues with which IT providers are grappling nationally. Three key areas affecting UA are:

- Continuing transition from many stand-alone systems to a shared ERP system for major administrative functions;
 - Distributing technology support to departmental areas; and
 - Operating a large systems environment versus the small systems environment.
1. Transition from many stand-alone systems to a shared ERP system for major administrative functions:

Two years ago University Administration completed a migration of approximately 140 stand-alone systems to a single SunGard-SCT Banner system. The implementation effort was completed on time and in budget for the accepted system specifications. This was a major system implementation achievement for which the University takes deserved pride.

The University, and UA in particular, are now working through the aftermath and impacts of that very consuming effort. These impacts show up in a variety of ways:

- Users are no longer able to work autonomously within their own system designs, data definitions and management, system projects priority-setting, and functional business and system production scheduling. Things must now be viewed and decided from more of an enterprise impact perspective.
- Cooperation and collaboration, often in the form of committee-based decision-making, are becoming the norm. Interdependency is now more of a reality of doing business.

- Data is far more likely to be shared across offices and divisions, both in report form and real-time access.
- System needs that were postponed during Banner's long-term implementation process are now backlogged and more starved for attention.
- Some users are still transitioning to the new look and new approach to their transaction processing.
- Many technical professionals are finding that their jobs have been changed, both in the technical skill set required and also the project management and user facilitator requirements. In AITS, the prior mainframe environment, organizational structure, practices, procedures and services are now being called into review.

It is important that UA personnel understand that these outcomes are entirely typical with a major conversion in a technology environment such as has been made. It will take time to work through these technical, organizational and cultural changes. People will need to be continually reminded that many day-to-day difficulties that arise are simply reflections of the above changes in University dynamics and environment, and need to be dealt with cooperatively within such a light.

2. Distributing technology support to functional departmental areas:

Functional offices within UA have had some degree of technical responsibilities for some time now. Many technology responsibilities were previously distributed more so than is the case now, at times at the individual office level, and have since been merged back to technology-focused support units at the Departmental level or through in-sourcing to AITS.

In today's technology environments, there is no longer a question of *should* some computing functions reside within functional departmental offices; the answer is clearly "yes." The more difficult question is *which* technology functions, or pieces of functions, should reside in those functional offices. There is no right or wrong, no singular answer to that question that is applicable to all organizations or all business technology applications. However, "enterprise versus non-enterprise" should not be the controlling determinant alone. Rather, it is our perspective that the answer to the "which" question should be based upon the combination of the following criteria as applicable to the University of Illinois and each individual technology application:

A. Mission Criticality: how critical is this application or function to the ongoing running of the enterprise? The greater the negative impact from the system being in error or inoperative, more consideration must be given to maximizing the *depth of support or expertise* for the application.

B. System Availability: how often does this system have to be available? A 24x7x365 operation distributed to a broad client audience demands a support structure or operating environment far different than a system that is operated during normal office hours for the benefit of a small number of in-house clients.

C. Potential Efficiency Savings: Depending on the extent that finances and resources are prime institutional drivers, issues of “common solutions” and “cost advantages” will drive decisions to co-locate and merge technical functions. But care must be taken to ensure that the “hidden costs” inherent in this view are surfaced and factored into the assessments of true costs.

D. Service Responsiveness: Some business or technology activities require a quick response to need, or involve rapidly changing business conditions, reflective of the nature of the client group or the functional business activity. In these instances, support processes must be established that emphasize responsiveness over normal cost considerations (i.e., business or opportunity costs versus quantifiable dollar costs). This responsiveness may have to be provided through locating support resources closer to the business function, or having support processes that are easy to expedite around the “normal” support processes.

E. Level of Support Required: Some business applications, once developed, require a minimal amount of support thereafter. Others may require frequent maintenance due to the nature or competitiveness of the business function. Planning and forecasting the frequency and level of support required must be considered.

F. Technical Expertise: different business and technical systems require different levels of technical expertise. Some require a unique technology skill set; others a more general, universal skill set. Some skill sets come at a high cost for unique personnel talent; other skills are quite common and can be easily obtained and/or replaced within a department’s budget.

G. Depth of Staffing: Many business technologies operate 52 weeks per year. Most technologists do not work 52 weeks per year. And when a technologist leaves, in higher education it typically takes a minimum of three to six months to replace that individual. The necessary depth or overlap of staffing available to support the system for the periods when it is running must be considered, unless there are contingency plans in place that allow for the system to go unsupported for periods of time.

H. Component Product Structure: Some business technology solutions are developed and implemented as one integrated whole (typical with many turnkey systems). Other systems are more easily separable in their various technical parts. Therefore some systems may lend themselves to distributing their support requirements among several solutions or offices, based upon evaluating each component part against the above criteria, rather than “all or nothing” choices.

I. Supervision: As technologists need to be supplied with peer group contact in some manner, so also does a technologist need a technology-knowledgeable and qualified supervisor overseeing his/her work and evaluating that performance. That person must be able to provide professional (and in some instances technical) guidance, respond to requests for financial investments or training in technology, and know when to challenge and when to accept the recommendations of the technologist. This supervisory skill set is not always present in functional offices.

J. Career Path: Technology changes. Most (though not all) technologists seek to evolve their skills with those changes, and seek a common forum of other technologists for sharing their technology thinking and activities. The scope of their interest may also change. Yet the department may change its areas of emphasis for technology, or its level of investment, which may not be in keeping with one's individual career goals. The ability of a functional department to provide a career path and/or a manager/peer group that understands the technologist's world must be considered.

The combined answers to these evaluative questions should lead to individual decisions about how to best support any given business technology application. And those likely answers will be to either support the application, or its various technological components, either: within the specific office; within a consolidated departmental technology service group; in-sourced to an even larger, more centralized technology service group; or outsourced to a 3rd party or the original vendor.

In UA's case, several such decisions have been made or are undergoing discussion. For example, most UA departments have in-sourced their desktop and server support to AITS under a formal Service Level Agreement (SLA) defining expected services and the cost to be paid. We would concur with this direction (subject to some qualifying recommendations presented later in this report) and encourage the completion of this transition along with ongoing monitoring of outcome results.

Recommendation 5-1: Each current departmental application should be reviewed for support placement measured against the above decision-making criteria. Such a case-by-case review would be expected to result in:

- no change in the support location for the application
- a change in the support location for the application, with appropriate transfer of resources
- some restructuring of the departmental support area to better fulfill some of the decision criteria expectations

Recommendation 5-2: With future new technology development, business technologies should have their ongoing support structure determined based upon the above criteria.

3. The large systems environment versus the small systems environment:

Mainframe/large server system environments are not the same as a small system environment. ERP system support is not the same as a departmental application system support. Enterprise-wide systems support to a large number of generic users is not the same as supporting applications intended for a small discreet group of known and specialized users. The truth is, the large centralized IT environment does not, and should not, operate the same as the small systems shop. They are two very different solutions to two very different needs.

Unfortunately, instead of recognizing and appreciating these differences as diverse but *complementary* forms of technology usage, the IT industry has too often treated these as *competitive* forms of technology. Technologists have generally progressed in their careers through one or the other of these environments, and often have not developed an understanding and appreciation for each other's world. Each has its merits, and each will have shortcomings if applied to an inappropriate business or technology need. Both function well and represent good solutions when they are applied to the right need.

This lack of a good understanding of the two environments often leads to a problem of Self-Fulfilling Missions. It is a truism that there is always more technology that can be bought, and more business processing that can be enhanced by additional technology. It is also true that there is virtually always more than one technology solution that can be appropriate to a business need, or one project methodology that can be effectively applied.

In the small technology shops, once a small technology or technology unit has been established there is an inherent danger of continually seeking to re-justify the existence of that unit. There is a natural tendency to expand the scope of the applications beyond their original intent, find new products or new applications to develop, or develop individual business applications from a "single view" mentality rather than a big picture perspective of common technologies and shared resources. In short, such small units or individual technologists can grow beyond their original intent as they seek to fulfill an unlimited technology vacuum. The need for a functional manager to know when to say "no" is critical to managing this phenomenon.

Conversely, in large central systems, standardization typically becomes a driving force. In its efforts to manage what often feels to be an overwhelmingly large volume of diverse activity, common technology solutions and detailed, methodical worksteps become the main tools for controlling potential chaos. What can thereby often be lost in this environment is needed flexibility, and scaling solutions and technology practices appropriate to need. (Large IT units are typically good about scaling *up* for mass solutions, but are not so good about scaling down to fit smaller niche needs.)

In this environment it can be difficult to provide a supportive place for those creative bursts of energy for new solutions, quick responsiveness, and tailored solutions that are periodically needed within an overall institutional technology framework.

Within University Administration, these three overriding technology considerations and their difficulties are very much in evidence. Budget cuts over the last few years while unfunded demand for new services has been growing have created an increasing requirement to operate cost-effectively. But being responsive to changing business requirements while the University is moving towards a more decentralized, mission-diverse and entrepreneurial operating environment works against a one-size-fits-all solution.

*The ability of UA to successfully deliver technology support to the University's administrative operation will rest in its ability to avoid an either/or answer to its technology organization. Rather, it must seek to **balance** these central versus departmental options in a manner that best matches need to solution, cost effectiveness to responsiveness, and ultimately the ability to meet the business goals and strategies of University leaders.*

6. UNIVERSITY ADMINISTRATION – OVERARCHING ISSUES

There are several overarching issues affecting technology service delivery within UA that need to be addressed.

1. First and foremost for UA, there is nowhere in evidence a clear statement of the University's expectation for administrative technology, endorsed by senior leadership and matched to a reasonable and deliberate funding plan. This is the most pressing need to be addressed by the President, Chancellors, and Vice Presidents. Part of this is a project-based decision: what are the major technology undertakings that the University wishes to pursue? Part of this is a positioning question: what level of technology leadership, sophistication and automation does the University wish to achieve for the administrative operation of the University?

Failing this statement of expectation, the question is being left to be answered bottom up on a project-by-project basis. This precludes longer-term planning for technology investments, leaves projects to be driven by more parochial needs within individual campuses or offices, and potentially allows time and money investments to be determined by the producers instead of the consumers of technology.

The University responded to this need several years ago in its University-wide commitment to the ERP implementation of the SunGard-SCT Banner system. While the University will still be adjusting to the after-effects of this project (as described above) over the next several years, this project has been essentially completed. It is time now to begin planning for the next series of major commitments, else cleaning

up these after-effects will de facto consume the University's technology landscape unendingly. At this time, each UA unit is developing its own strategic plan, in which technology objectives are being identified. However, these have not been incorporated into an integrated and overall technology plan for UA that has been endorsed and accepted by University leadership.

Recommendation 6-1: UA should take the lead in developing a University-wide Vision for administrative technology. This should be an *integrated Vision*, informed by, but not a series of, concurrent departmental visions, reflecting University and campus objectives, and it should be grounded in acceptance by University leadership. This Vision should serve as the umbrella for the development of a technology plan described in Recommendation 14-1.

2. The lack of such an integrated University-level Administrative Technology Vision points to another apparent gap in properly aligning UA's administrative technology with campus leadership. In the course of our interviews, there were minimal instances where UA leaders described regularly organized discussion of technology needs, expectations and performance with senior University leadership (i.e., President, Vice Presidents, Chancellors and Provosts). While the ITPC is charged with a major role in technology priority setting (and this will be discussed further in greater detail in Section 14 of this report), such a committee will never be able to fully substitute for such periodic direct discussions with these University leaders. That input is crucial in order to align and prioritize UA's technology investments in supporting the academic and entrepreneurial *strategic* needs of the University.

Recommendation 6-2: Under the guidance of the President, UA's senior technology providers should meet individually on at least an annual basis with the Chancellors, Provosts, and Vice Presidents to identify campus and President's Office major strategic objectives, and the technology initiatives needed to best support those.

3. When technology projects have been initiated in the past, an appropriate project team was thereby formed, often from multiple UA units, and with end user participants as needed. The problem arising from this is that upon the conclusion of the project, temporary project teams have become permanent organizational units. Or in other instances, systems that originally started as small focused projects have become more significant permanent activities with larger technical staffing. In most instances, new application systems should not require new organizational units to be formed, versus enhancing skill sets and expertise within existing organizational structures.

Recommendation 6-3: When projects are initiated in the future, the Project Charter should specify where the expected ongoing support structure will be assigned. Expectations of where budgets for ongoing costs will be allocated, where staffing will be assigned and managed, and where future application decision-making will be assigned should be made clear. While adjustments in this intention can certainly be made as a result of the experiences and knowledge arising from the project

development, it is important that these intentions be established from the outset so that plans can be made accordingly. Projects are temporary activities which require temporary resources and structures; in general, project teams should not become permanent organizational units.

4. At the present time within UA, each functional technology unit and AITS proceeds virtually on its own in identifying and implementing technology solutions to the business needs that have been prioritized. Decision making is frequently attempted as a “committee of peers” from every corner of UA, often resulting in too protracted discussions, too compromised outcomes, or unnecessary duplication of effort. In some instances this is a desirable framework in developing and supporting business applications across a span of scope, scale, and functions. However, UA appears to have swung too far on the side of committee decision-making and independent action on some key issues. There are certain components of technology management that should transcend a specific business application or the location of the technology support. For UA, we would suggest that these components include:
 - technology policy setting
 - business continuity planning
 - security access
 - technical architecture
 - project methodology

Recommendation 6-4: That a UA technology leadership role be established within University Administration as an additional responsibility to the management of the AITS department. The primary leadership responsibility would be to: serve as a peer representing UA with the campus CIOs in joint technology discussions; serve as the chief technology advisor to the President and the Vice Presidents; develop a UA-wide framework for the development and support of UA technologies; and manage the AITS organization. The UA technology leader should not attempt to serve as a CIO for the entire University; such a responsibility or position does not seem warranted at this time.

Recommendation 6-5: In the fulfillment of the technology leadership responsibilities, key roles currently within AITS should be expanded in scope across UA with respect to: technology policies, business continuity planning, security expectations, architectural conformity, and project methodology.

There are several critical caveats to this recommendation:

- Each of the above components has an underlying set of themes and principles that can be identified as applicable across UA. The UA leader and his/her principal specialists in each of these areas should be charged with: identifying those universal themes and requirements; gathering input from appropriate UA areas and personnel with respect to those themes and requirements; formulating the expected outcomes to be achieved (i.e., “policies”) for each component.

- The measure of success in applying this leadership perspective to these components will then be the ability to develop appropriate solutions to individual UA needs. Allowance must be provided such that solutions to the policies developed are scaled, and allow appropriate diversity, to the needs. Neither “one size” nor “do your own thing” will be effective responses for UA.
- *Implementation* of these policies, within recommended guidelines as may be developed, should reside in each IT area, not in the technology leadership function. Periodic assessment or auditing of the *achievement* of the policies, by AITS personnel and/or University Auditing, should be reinforced and reflected in the University’s performance review and goal setting process for both functional and technology managers.

A successful UA technology leader must have the sensitivity, sophistication, and breadth of experience to balance and integrate successfully these commonality versus diversity needs.

For example, the security approvals and system controls required for access to the Banner production database are not the same as required for a working spreadsheet in the Controller’s office. In each instance only the right people should have access to University protected data; but people need to be able to do their jobs without undue burden or hurdles.

Having a broader technical architecture across an organization is important, so the range of software development or reporting tools should be “limited” to make purchase cost, training, development and support more cost effective. But limiting rarely means “one tool for all programming.” For example, Oracle is an excellent database product; but its database administrator (DBA) personnel costs are not cost effective for a number of database application requirements, so flexibility is needed; conversely, a different programming tool should not be employed for each business solution.

Effective project management involves following a generic series of work steps and decision-making in a sequential rational manner, regardless of the nature and size of a project. Rarely should these principles be skipped over. But the timing and manner of executing these principles can and should be tailored very flexibly. *Built from common themes*, an effective institution can reasonably be expected to have 4-5 project management methodologies, each tailored to meet differing project sizes and development requirements. For example, methodologies can be developed for: large system implementations; small system implementations; purchasing vendor products; doing customized development; and maintenance versus development projects.

5. As IT support has been distributed across UA, a number of technology positions have been created to house the technologists involved. While it was beyond the scope of this present study, there has been no methodical process to establish an appropriate human resource structure of technology roles, titles, and a salary framework across the various UA technology units. In some instances, individuals carried their old title and salary with them as they moved from one area into a new technology support unit. New positions were often created as needed without a thorough comparative position review. There is also a proliferation of job titles virtually unique to the individual, or unique from department to department. In some recent instances where personnel were transferred into AITS, some adjustments were made to bring them in line with AITS positions and salaries. This lack of form is a potential for creating undesirable personnel issues, and makes financial management of UA's overall technology personnel costs more difficult.

Recommendation 6-6: A review of technology roles, positions and titles across UA should be commenced. While a review of existing positions can be accomplished over some extended time, it is important that any new technology units, personnel transfers, or new hires be incorporated into a planned personnel structure as soon as possible. Such a structure should allow for differing technology skills sets, job requirements and scope of impact, but a rational framework for comparable work should be established that compliments the IT organizational structure that is adopted.

6. At the present time, there is no "Integrated Administrative Operational Calendar" collected and maintained by the functional users and technology areas. In this new era of a shared integrated ERP system, a consolidated calendar that shows major administrative functional and system events would be very helpful in illustrating the degree to which activities are interdependent. Having such an integrated calendar available and easily accessible will improve the sequencing of various key administrative activities across campuses/divisions/offices, enhance the functional integration of those activities, and provide clarity to data reporting that is time/functional-dependent.

Recommendation 6-7: UA unit heads (functional and AITS) should begin a regularly scheduled process for developing an integrated operations calendar across the major administrative functions. This calendar should be updated at least twice a year reflective of the semesterly processing activity, and be made easily available to the administrative and IT community. Over time, the calendar can become more detailed as appropriate.

7. OFFICE OF BUSINESS AND FINANCIAL SERVICES (OBFS)

The Office of Business and Financial Services (OBFS) has two technology units providing departmental computing: the I-Card Programs Development unit within the Treasury unit; and the Business Information Systems (BIS) unit that supports the remainder of OBFS offices. Technical analysts support personnel also are incorporated into the University Student Financial Services & Cashier Operations and the University Payroll Systems Support units.

1. I-Card:

The I-Card unit supports the issuance of the University Identification Number (UIN) to all users of University systems at the university and campus levels, and also provides various support services to the various offices who have installed card access/financial card services systems across the University. It is a small systems unit presently located within the Treasury unit within OBFS.

The UIN function began as a small responsibility in support of an early card system, and has evolved to be a backbone, enterprise-wide service that underpins virtually all of the administrative systems in place at the University. It needs to play a key role in systems development design and the ongoing operational support of these systems.

The card services function supports University offices that install and operate various card systems (access and/or financial transactions), which in turn feed their cash collections into a common Treasury cash management process. The I-Card unit serves as a consultant to those offices for their system planning and implementation, and provides logistical support to those offices in the production of appropriate identifying cards or other media.

Recommendation 7-1: The UIN function within the I-Card unit should be transferred to an appropriate section of the AITS department to fulfill, and be logically incorporated within, its enterprise-wide backbone and operational role.

Recommendation 7-2: The Card Services portion of the I-Card responsibilities should remain in OBFS. Given the growing and extensive scope of its clientele base, however, it should be transferred to the Business Information Systems (BIS) unit as part of a broader systems support environment.

Recommendation 7-3: There are currently discussions and planning in process to expand the University's debit card function to local vendors. Providing card services to this new client audience (off-campus commercial business people) is a *significant* expansion and change of responsibilities for financial card transaction services versus serving internal University audiences. The operational planning for this expanded service should be reviewed very carefully as to whether a different support structure should be instituted for this new level of services and new audience.

2. University Student Financial Services & Cashier Operations:

Technical analysts support personnel are incorporated within the University Student Financial Services & Cashier Operations unit. Most of the unique systems used are 3rd-party/vendor products for whom the technical analysts serve in a liaison and coordination role. No change is recommended in this structure or location.

3. University Payroll Systems Support:

Technical analysts support personnel are incorporated within the University Payroll Systems Support unit, serving in a liaison and coordination role for system operational needs. No change is recommended in this structure or location.

4. Business Information Systems (BIS):

The Business Information Systems unit is an extensive technical support unit within OBFS. Its clients are the various functional units within OBFS not otherwise supported for technology, versus providing end user services. It serves the business analyst function working with AITS for the Banner development and maintenance activities, develops and operates for OBFS offices home-grown and 3rd-party local systems that are not supported by AITS, supports the OBFS web site, increasingly provides project management services as needed, supports the ITPC prioritization process for financial requests, and advocates for system needs on behalf of OBFS offices and their users. The unit also serves as a technology advisor to the SAVP, a function which is important to continue in the future given the extensive technology involvement of OBFS.

Server support and desktop support have been in-sourced to AITS through an SLA agreement. The general Help Desk service has been incorporated into the AITS Help Desk, which will redirect specific issues to an OBFS functional area for resolution; certain specific functions listed on the OBFS web page will direct users and questions directly to an OBFS functional area for resolution.

BIS has an extensive portfolio of systems that it supports. A preliminary review of this repertoire suggests that it appears appropriate for support by the departmental technology unit (subject to the results of the detailed application review recommended in Recommendation 5-1, particularly with respect to **high-criticality/24x7x365** systems), and the staffing profile in place appears to be correctly aligned for needed depth of coverage.

Recommendation 7-4: The BIS unit includes a number of analysts and project managers in the Program Support group who serve as the functional experts for supporting OBFS technologies. This function should remain in the BIS unit to retain its close connection to, and understanding of, the OBFS user community, while guiding the business solutions developed by the technologists. Responsibility for

implementing security approvals, maintaining ongoing banner system configurations and user-supported tables, etc. should reside within this function, rather than the Enterprise Support group. This group should also serve as the contact point for functional issues with SunGard-SCT, working with AITS for the technical component of such discussions, versus having this activity located in the Enterprise Support group.

Additional technical expertise may be required of these Program Support analysts to provide a better knowledge of the technical aspects of systems activity, particularly as regards Banner support requirements, rather than expecting to hand off that expertise to the Enterprise Support unit. They should not, however, seek to be programmers/developers per se, although there need not be such a separated line of role and expertise between these two functions such as may be typical in large mainframe technology units. These personnel should serve as the bridge between functional end users *and* the technologists, conceptually understanding both and not just one side of automation activity. They should serve fully as “Business Systems Analysts” or “Systems Liaisons” rather than just as business analysts.

Recommendation 7-5: In line with the above Recommendation 7-4, the Enterprise Support unit should focus on the technical development, implementation and maintenance of the in-house custom or vendor-purchased BIS applications, transferring their current system liaison role for Banner support to the Program Support group.

Recommendation 7-6: Given the scope of systems supported within BIS, a Business Continuity/Disaster Recovery Plan should be developed for each automated business function. Such plan development should be done within the context of Recommendation 6-5 above from a Division-wide planning perspective, and each plan should be proportional to the mission-criticality of each business function.

Recommendation 7-7: The SAVP and the Director of BIS should establish guidelines for when individual functional offices may enlist in-office staff or students to automate selected business functions. The primary issue to address is not the issue of original development, but subsequent maintenance and business continuity when such local technical talent is no longer available. BIS should not be the default fall-back support option for systems whose development they did not oversee. Such maintenance planning and foresight is an obligation on the functional manager before approving such development.

Recommendation 7-8: All of the servers purchased to support OBFS functions have been in-sourced to AITS for base level support. This servicing arrangement should be continued for current and future server needs, subject to Recommendation 11-17 presented later regarding AITS SLA-based server support.

Recommendation 7-9: OBFS functional and AITS technical personnel are currently working together as a project team to implement the InfoEd grants processing system to support post-award processing requirements. By all reports, this project is proceeding forward successfully. In line with Recommendation 6-3, initial intentions for a future support structure for this system should be clarified at this time. It is recommended that OBFS serve as the functional driver for this system, partnering with an organized representative advisory group of Principal Investigators working in the field for end user functional guidance, with technical support provided by AITS under an SLA agreement (Recommendation 11-14). Note: in the event of the implementation of the InfoEd pre-award modules or other research-focused modules, the InfoEd system could then be viewed as a University system supported without an SLA specific to OBFS.

8. UNIVERSITY HUMAN RESOURCES (UHR)

University Human Resources (UHR) is currently in the process of devolving transactional activity from UHR to the campuses. UHR will retain responsibility for policy, compliance, benefits planning, HR management studies, supporting campus systems as they grow, and the Human Resources Information Systems (HRIS) unit. HRIS is not expected at this time to reduce its scope of activity based upon this devolution, as its activities support the overall scope and functioning of HR processing. Neither is a significant expansion of activities expected, although there is a backlog of HR functions that are candidates for enhanced automation (e.g., automated leave reporting, applicant tracking, “what if” inquiries from employees, and an employee portal).

HRIS’s clients are the various functional units within UHR not otherwise supported for technology, versus providing end user services. Business analyst functions are provided by AITS for the Banner development and maintenance activities. HRIS develops and operates home-grown and 3rd-party local systems that are not supported by AITS for UHR offices (typically front-end web-based self-service facilities); supports the UHR web site and its content (HRIS’s core function); maintains linkages to outside suppliers, agencies, and interfaces; provides some project management services as needed; supports the ITPC prioritization process for human resource requests; and advocates for system needs on behalf of UHR offices and their users. The unit also serves as a technology advisor to the AVP.

Server support and desktop support have been in-sourced to AITS through an SLA agreement. The general Help Desk service has been incorporated into the AITS Help Desk, which will redirect specific issues to an UHR functional area for resolution.

HRIS has a moderate portfolio of systems that it supports. This repertoire appears appropriate for support by the departmental technology unit (subject to the results of the detailed applications review recommended in [Recommendation 5-1](#)). The staffing profile in place is lean, and does not appear to be sufficiently aligned or quantitative for the needed depth of coverage; several applications have only one knowledgeable resource available for support.

Given the nature and the union groups and structures in place at each of the campuses, there are extensive differences in employment structures, operating rules, compensation, etc., particularly with the inclusion of the University's medical school and hospital. These campus structural differences often translate into significantly different requirements for system development. There are differing perspectives among functional and technology suppliers as to how much *operational* differences are necessarily required. Whether in the common Banner HR system or with HIRS systems, there are frequent reports of extensive time spent negotiating individual campus, if not individual office, solutions to be provided within a common technology system. While it is certainly obligatory to meet the University's contractual human resource obligations, it is also necessary that common systems be instituted only if there is sufficient commonality of business requirements. Exception design and processing is costly on a number of criteria, and should be reserved to support genuine unique business needs.

Recommendation 8-1: A sufficiently numbered contingent from the Enterprise Systems Coordination unit in AITS should be transferred to HRIS to serve in a Business Systems Analyst/System Liaison capacity for UHR/HRIS. These personnel should be assigned the similar responsibilities described above for a revised Program Support group within OBFS/BIS (see [Recommendation 7-4](#)), and work closely with the AITS applications group to support future Banner-related system activities and operations. UHR/HRIS need more personnel able to work in and cross over the functional/systems environment, and to take responsibility for the ongoing operation of their systems.

Recommendation 8-2: A staffing review should be initiated, and a strategy should be developed, to ensure adequate technical support for the current systems and any future system commitments (additional staffing; staff cross-training; purchased support; etc.).

Recommendation 8-3: A review and accounting should be done of the campus-based operating environments, as translated into system development requirements, to ascertain the scope of these distinctions and their necessity. The economic impact of these tailorings, both in hard dollars and economic/opportunity costs, should be generally estimated to allow senior management to make appropriate management decisions about where to support campus uniqueness requirements. If warranted, this may lead to a reevaluation of the appropriate broad framework for an application environment for human resource processing.

Recommendation 8-4: Given the scope of systems supported within HRIS, a Business Continuity/Disaster Recovery Plan should be developed for each automated business function. Such plan development should be done within the context of Recommendation 6-5 above from a Division-wide planning perspective, and each plan should be proportional to the mission-criticality of each business function.

Recommendation 8-5: All of the servers purchased to support UHR functions have been in-sourced to AITS for base level support. This servicing arrangement should be continued for current and future server needs, subject to Recommendation 11-17 presented later regarding AITS SLA-based server support.

9. FACILITIES PLANNING AND PROGRAMMING (FP&P)

Over the years, Facilities Planning and Programs (FP&P) has developed custom systems using internal technical resources and/or a 3rd-party vendor to meet its requirements for analyzing, tracking and sharing data on capital development projects. In the past year, technology support has been/is being transferred to AITS (including one technical staff member) under an SLA agreement for operations, hardware, and operating system support for servers, along with desktop support, and application development and maintenance. Customized application development from AITS for FP&P is expected to continue under this SLA arrangement.

The unit has a small number of business applications, and a small number of departmental employees. Yet it has a significant functional responsibility for \$1.2B in capital projects to oversee, and these technology systems are critical to accomplishing those responsibilities efficiently and accurately.

Recommendation 9-1: FP&P should continue with its in-sourcing approach with AITS to meet its technology needs.

Recommendation 9-2: The remaining application systems in place should similarly be brought under the AITS SLA for support and updating where required.

Recommendation 9-3: Appropriate funding under the SLA should be provided to achieve an upgrading where needed of the FP&P application systems.

10. PLANNING AND BUDGET (P&B)

Planning and Budgeting (P&B) has two technology units providing departmental computing: a self-contained team supporting CARLI (which was outside the scope of this technology assessment project), and a Decision Support team which supports the University Data Warehouse.

The Data Warehouse was developed concurrently with the Banner implementation for the student, finance, and HR modules. Decision Support was formed from the project team that was charged to design and implement a Data Warehouse for the University. The scope of responsibilities for the project team was held intact and located in the P&B Decision Support group, with some limited database management support provided by AITS.

The audience for Decision Support and the Data Warehouse is the individual campus offices, with some more limited use by UA functional offices as well. These campus offices include users across a wide variety of technological sophistication and comfort with respect to reporting technologies. Decision Support does not create actual reports for users, but assists users in generating individual reports not provided through available enterprise-generated reports (see Section 12.) Services provided by the Decision Support team include: automation, development (complete development cycle) and technical support (application and database levels) of the Data Warehouse and Business Objects reporting tool; providing end user training in the Business Objects software, the data available in the data warehouse, and how to write specialized reports for individual needs; maintaining access security for the warehouse; maintaining an inventory of shared standard reports and templates available to end users; maintaining the Decision Support website; and planning for future reporting needs supportable by the Data Warehouse environment.

Server support and desktop support have been in-sourced to AITS through an SLA agreement. Decision Support maintains its own Help Desk to respond to user questions.

Decision Support has taken an initiative to create some user groups around data warehouse reporting. Some large colleges have IT support and can do self-reporting; others are too small to invest in and sustain this effort. There is typically very little communication among colleges within a campus, or among campuses regarding reporting functions and developed solutions.

Recommendation 10-1: The technical support functions of the Data Warehouse and Business Objects reporting tool should be transferred to AITS for depth of support and peer-group affiliation.

Recommendation 10-2: The Decision Support unit should continue its efforts to identify and expand the data maintained in the Data Warehouse, based upon their analysis of anticipated end user reporting needs.

Recommendation 10-3: The feasibility and/or appropriateness for developing additional “data marts/data stores” (or other focused data structures) for human resources, finance, or other data areas tailored to individual administrative needs should also be further explored.

Recommendation 10-4: The need, appropriateness, and feasibility of utilizing a data dashboard presentation format for senior casual users should be further evaluated.

Recommendation 10-5: Decision Support should be formally charged, with the support of each campus Chancellor, to develop official reporting user groups appropriate for each campus, working with institutional research offices, departmental business managers (administrative and academic), and other reporting/systems liaison personnel. Where also appropriate, *intercampus* user groups around a line of activity (e.g., Institutional Research Offices) should also be developed where such might be worthwhile and are not presently in place.

Recommendation 10-6: Decision Support aspires for a national leadership role with respect to data warehousing. The unit should identify the opportunities and needs for data warehousing that would establish such a recognized leadership role. From such an identification, a long-term action plan should be developed and submitted for University acceptance or adjustment.

Recommendation 10-7: All of the servers purchased to support Decision Support functions have been in-sourced to AITS for base level support. This servicing arrangement should be continued for current and future server needs, subject to Recommendation 11-17 presented below regarding AITS SLA-based server support.

See Section 12 (Reporting) and Section 14 (ITPC) for additional recommendations impacting the Decision Support unit.

11. ADMINISTRATIVE INFORMATION TECHNOLOGY SYSTEMS (AITS)

Administrative Information Technology Systems (AITS) is the central technology department for UA and for the University. Staffing is organized by technical expertise, and currently reflects @30% reduction in numbers due to budget cuts instituted 3-5 years ago. Concurrently with those reductions, however, demand has been increasing for new initiatives, new types of services, and continuing hardware replacement requirements.

The principal focus for this department is the development or implementation of enterprise-wide administrative technology systems that support both UA and campus offices for core administrative functions. The overall design and support philosophy is to emphasize common solutions across the 3 campuses/UA through common software systems. Specialized campus administrative functions (e.g., residential housing), academic technology, the research enterprise, and networking services are supported by campus-based or local departmental technology groups.

The core enterprise-wide administrative system is the SunGard-SCT Banner product, with the finance, human resources, and student systems installed and operational. Finance and Human Resource systems are predominantly driven by the respective UA department and offices for that system; the student system is predominantly driven by campus student service offices on behalf of each campus.

It is exceedingly clear from our interviews that AITS has some very capable personnel in the department, very knowledgeable about, and experienced in, developing and supporting administrative information systems. That talent constitutes a valuable resource to the University. The critical challenge to AITS will be its ability to align that experience with a changing technology landscape that is occurring at the University of Illinois as well as nationally.

Technologies themselves are changing rapidly, requiring new skill sets, new roles, and new areas of expertise. Concurrently with this technical change, most all central technology organizations are having to adapt their internal working environment, their methodologies and structures, and their manner of interfacing with the client base on a more customer service-driven basis, while serving in a more leadership-oriented role for the overall institution. Cost and efficiencies are no longer sufficient as drivers for central IT; meeting institutional strategic and business objectives by supporting functional leaders and their business plans is an equal driver. Traditional system controls and development approaches must be balanced with timely responsiveness to need. Common solutions must be balanced against uncommon missions and business objectives. The ability of AITS to build upon its traditional technology strengths, while adapting these same strengths to a new way of achieving them, will define success or failure for AITS in the next decade.

With the implementation of the Banner system, AITS has been required to make a number of adjustments in its operating environment. Previously, the technology landscape was defined by stand-alone systems with a mostly direct and identifiable connection to a user(s) for functional decisions affecting systems. With the integrated ERP system in place, both users and technologists are adapting to a more shared, consultative environment where system decisions are often interdependent across systems and modules, as well as campuses, often requiring AITS to take an even greater lead in facilitating design planning and coordinating implementation activities. With the growth of smaller, specialized business systems for meeting business automation needs, technology solutions can appropriately be brought to bear from a number of differing platform and environment options, but these platforms need to be supported in their native environment and not be artificially forced into a mainframe/large system kind of environment. As University needs grow for supporting a diversity of technology services, AITS needs to resolve whether its mission will include offering a variety (though not unlimited) package of services, or whether it will operate within a fairly narrow service spectrum. With the increasing devolution of some administrative functions to the campuses, and with growing differences in campus mission and needs, it is unclear yet whether AITS (and UA) will ultimately be seen as an enabler or a hurdle in

achieving campus goals and objectives. The view that emerges from University leaders and managers will ultimately create support (or not) for AITS's endeavors.

AITS project activity comes from four primary sources:

- smaller work requests received directly from a user (predominately a UA office for finance and human resource work requests; from a campus student service office for student systems)
- more sizeable projects from the Information Technology Planning Committee, some of which come with additional funding attached
- dedicated services in fulfillment of work guaranteed under a formal fee-for-services Service Level Agreement (SLA) for work specified and prioritized by the client
- internally generated projects to maintain technology integrity and/or productivity

Recommendations from a previous report section that would impact AITS include:

- A new responsibility for UA technology leadership functions should be added to the role of the Associate Vice President for AITS (Recommendation 6-4)
- Selected AITS personnel should perform UA-wide leadership roles for certain specified activities (Recommendation 6-5)
- AITS may need to absorb support for certain smaller enterprise-wide systems following a review of the support required for each departmental system (Recommendation 5-1)
- Support for UIN processing should be transferred into AITS (Recommendation 7-1)
- HR business analysts from the Enterprise Systems Coordination unit should be transferred to the UHR department (Recommendation 8-1)
- Full-charge technical support role for the data warehouse should be transferred into AITS (Recommendation 10-1)

In addition to those above recommendations, there are a number of additional steps that are recommended to be instituted by AITS.

Mission and Concepts:

AITS seeks to be a “world class IT organization.” Its strategic plan is quite open and specific about this ambition, and identifies a number of ways that it seeks to accomplish this objective, including an emphasis on adopting best practices from other industries and recommendations from IT professional organizations. We certainly support the ideal of any organization to perform optimally and to its best capacity, learning and drawing from the practices and experiences of other organizations.

However, substantively attempting to become a world class organization is an ambition that needs to be clearly thought through, just as a University attempting to achieve a significant and new pinnacle of reputation must think through the cost and commitment required to achieve such a status. For a central IT unit, it is important that its goals, ambitions, operation and technologies be in sync with the organization as a whole. Technology possibilities are virtually endless; institutional mission and resources are finite. To have ambitions not in sync with, or supported by, the institution as a whole is not an effective strategy nor ambition. Adopting practices and technologies modeled after organizations with differing missions, scope, funding, governance, and user communities will not achieve the larger goal of “*IT enabling and being in service to the institutional need.*” AITS has written a comprehensive and thoughtful strategic plan, but as yet it is de facto a plan unaccepted and unsupported by the University community. AITS cannot achieve a world class ambition in a vacuum apart from the University intentions and support for that ambition.

Recommendation 11-1: AITS should more fully analyze the implications and demands of its ambition to be a world class IT organization, considering the internal impact within AITS, and the expectations from its client base and the University as a whole. From this analysis, AITS should promote a dialog with the University of Illinois community as to whether this ambition is supportive of the University’s mission and goals, and if so, how to achieve it.

Recommendation 11-2: AITS should move to more of a service-based philosophy to define and guide its scope of operation. AITS should become far more proactive in identifying the technology-dependent business needs within UA and the campuses, offer leadership in proposing solutions to those needs, and in appropriate instances offer a flexible package of services to accomplish accepted solutions. AITS should not attempt to be “all things to all people”; being clear on its strengths and setting certain limitations on its activities are appropriate. However, to fully serve the University AITS should embrace roles beyond just ERP/enterprise-wide technology services, and should allow for more than just one technical product and method in its environment and skill set.

Recommendation 11-3: AITS should identify various ways in which it can interconnect more with its user community in UA and on the campuses to promote better information sharing and dialog. Using combinations of printed materials, an expanded presence on the Springfield and/or Chicago campus, more regularly scheduled feedback meetings, or other available mechanisms; such regular open contact will be important to AITS to guide its future activities.

Recommendation 11-4: AITS should embrace a role as a technology partner in certain instances of technology development. While in the past AITS typically had more full-charge control over the technology aspect of their systems, they should be flexible in providing a leadership or supporting role with multi-area technology development. Its role in developing the new University-wide network and with the

online learning initiative are good examples of this kind of partnering. Potential future partnering roles may arise with classroom computing as academic systems and teaching systems increasingly intersect, and in establishing a new framework for institutional reporting (see Section 12).

Operating Environment:

Recommendation 11-5: AITS should identify those areas where multiple technologies can be reasonably supported within its portfolio, regardless of web-based programming languages, hardware systems, databases, etc.

Recommendation 11-6: AITS should institute greater use of non-traditional design methodologies beyond the traditional “requirements/conceptual design/technical design/implementation” approach. Prototyping methodologies, small system development, and vendor implementation methodologies should be more fully incorporated into project leaders’ repertory. The traditional project life-cycle is still an appropriate concept for systems development, but alternative manners for accomplishing these objectives need to be available and utilized with appropriate projects in order to optimize efficiencies and responsiveness.

Recommendation 11-7: AITS should institute regularized cost projections and planning mechanisms, and monitor these continually. Significant portions of the AITS budget are inherently fixed costs, not just in salaries but also with known costs of technology maintenance, vendor maintenance contracts, and system lifecycle replacement. The reality is that funding for new initiatives and development is normally quite limited within a large overall IT budget. AITS should maintain a regular inventory of these projections and its built-in base funding requirements.

Recommendation 11-8: Similar to monitoring its cost projections, AITS should better monitor its expenditure of FTE effort on project activity. Some effort reporting and monitoring is done currently. However, tracking effort more fully among production problem resolution, basic maintenance/fixes, mandated project activity, mid-range operational-driven enhancements, and significant developments for new initiatives should be used for: improving project estimating skills; estimating and planning for the true resources available for new work; and communicating resource information to the client base for budgeting and project planning purposes.

Organizational Issues:

Recommendation 11-9: The role and authority of “project leader” on projects involving multiple AITS groups, and perhaps other user offices, needs to be redefined. As projects typically are engaging greater numbers of skill sets and the persons to provide them, the potential for delay and conflicting priorities grows. Effective projects cannot be executed as a “meeting of equals”; clearer role definition and project structuring to create more fully integrated “teams” across group and departmental organizational lines needs to be built into project structuring (i.e.

functional reporting lines versus administrative reporting lines). Coordination and integration of AITS units is needed to minimize “silo” perspectives, coordinate work planning, and minimize the need for too many people at the table.

In some instances, organizing teams around functional/business applications may be more effective than organizing around technical skills. Technical skills can still maintain a dotted-line relationship with senior technology technical specialists.

Recommendation 11-10: Within the Applications Development, Support and Data Group, and similar to Recommendation 8-1, the Student business analysts in the Enterprise Systems Coordination group should be transferred directly to campus user office(s) as appropriate to provide on-site system liaison support.

Recommendation 11-11: Also within the Applications Development, Support and Data Group, the distinction of roles between the Technical Application Management and the Application Development & Support teams should be reviewed. The Technical Application Management team emphasizes technical design and project management functions; the Application Development & Support group emphasizes programming and development functions. The ability to institute more broad-based systems analysts/programmer roles to reduce the handoffs now required between these groups should be explored.

Recommendation 11-12: The Application Development & Support unit should be charged with and embrace an ever-expanding role in serving as a facilitator among inter-campus and inter-departmental client groups with such topics as design, project identification and priority, accounting for and monitoring user involvement in project development, etc. While this is not always a comfortable role to fulfill, it is an important one which a central applications unit is best suited to fulfill.

Recommendation 11-13: UA has consolidated some of its Help Desk operation to the AITS Help Desk. The AITS Help Desk plays a significant role in serving as a contact point for user questions and problems, either resolving problems directly (demonstrating a very good problem-solving percentage) or referring issues to other AITS or UA offices. Concurrently, various levels of help functions exist in UA functional offices and within the campus functional and technology departments, some of which share usage of the AITS Help Desk tracking system. The concern is how all of this Help service converges and is represented to the individual users.

An initiative should be commenced engaging all of these Help providers to review how their services are or are not integrated into a cohesive and understood program for end users. Issues of coverage, integrated presentation, clarity of routing to the end user, and ombuds monitoring of reported problems to ensure resolution across departmental jurisdictions are key issues to address. It will be critically important that representative end users themselves provide input and perspective to this review.

Service Level Agreements:

AITS began offering services under formalized Service Level Agreements (SLAs) within the last two years. Its initial forays into this form of service delivery have been in hardware support and desktop support.

Recommendation 11-14: AITS should move aggressively to identify new technology areas and new clients where specialized and dedicated services can be effectively offered on an SLA basis. It should establish a balance for these services between “we do everything” and “we do only one thing one way,” as environments appropriate for large system support are not necessarily appropriate for small system or niche client functions. Services to UA, President’s Office, and campus departments should be made available, while respecting and avoiding conflict with the present campus-based technology providers.

Recommendation 11-15: As part of its SLA environment, the present SLA form should be dramatically simplified. The present form appears quite appropriate for documenting out-sourcing services from 3rd-party providers. For an internal constituent, a more simplified Memo of Understanding should be sufficient to establish the groundwork for a more ongoing working arrangement between two internal parties, supported more by operational procedural documents rather than contractually-specified terms and conditions. The focus in the SLA document should be on *intention*, not detailed methodology.

Recommendation 11-16: To more fully support the SLA-based services, AITS will need to review its costing analysis and charge options and institute better mechanisms to monitor its cost-recovery results. It is important to account as much as possible for “total cost of operating” SLA agreements without nickel and dime-ing clients. We strongly concur with AITS’s current approach of avoiding instituting a detailed charge-back system in favor of an annualized charge to SLA clients.

Recommendation 11-17: AITS has been offering fundamental server support functions to departmental IT units. This has been a very appropriate area for SLA agreements. As an outgrowth of these SLA services, AITS has been working with user departments to consolidate their numerous individual departmentally-owned servers into a smaller number of shared servers. We concur with these efforts which should continue. Further, at an appropriate time, AITS should offer several classes of server and disk storage options at a University level, shared among all clients at a pro rata billing rate, and eliminate multiple individual server ownerships (i.e., departmental users should buy “space and service” from AITS rather than boxes).

Recommendation 11-18: AITS should seek to expand its SLA services in the realm of application support. Its main activity in this area currently is in support of the Facilities Planning and Programming department. By all accounts, this is a good model and is working successfully for both the user department and the AITS support staff. AITS has demonstrated good customized system development skills, and should move to exploit those more fully where appropriate.

12. SUPPORT FOR UNIVERSITY REPORTING

At the present time, there are a number of personnel and offices engaged in fulfilling the University's various reporting functions. These include:

- AITS reporting group, for work requests for reports from the Banner system, focusing on operational and monitoring reporting for central offices that are usable by multiple campuses;
- AITS Banner development group, for official records reports;
- BIS, for work requests from one UA office/user or for ad hoc users for a report (a small amount of activity), but mainly helping users develop their own self-reporting skills;
- HRIS, for university-wide HR reporting to campus HR units, provosts, various University officers, benefits group, payroll, ethics office, etc. plus reporting to Board requests and responding to FOIA notices (such reporting functions are expected to grow substantially);
- Decision Support, working predominantly with campus end users on how they can develop their own reports as needed; and
- End users, principally for local campus/office needs, but who have varying degrees of skill levels, experience and staffing to be able to perform such self-sufficient reporting.

In today's University administrative environment, "reporting" is a multi-dimensional activity, involving more and more individuals, reflecting increasing needs to manage from a data-driven perspective, with increasing demands for such output. Today, "reporting" typically includes:

- detailed transactional logs reflecting daily processing (internal office reports, e.g., a payroll batch edit report)
- summaries of transaction activity (internal office reports, e.g. class enrollment counts)
- informational reports of transaction results (distributed reports to constituents, e.g., a class list, budget report to business managers)
- official records (public records, e.g., transcripts, purchase orders, student bill, employment contract)
- official reports (public statements, e.g., annual financial statement, institutional Fact Book, FisApp financial aid report)
- institutional analysis (internal studies, e.g., trend recognition, identification and/or decomposition of cohort groups, developing correlations, data mining studies)
- forecasting and projections (internal planning activities, e.g., budget planning, enrollment planning,

The data sources for reporting include:

- the Banner production database
- a day-old copy of the Banner production database intended for reporting purposes
- the data warehouse
- student data mart
- archived files (particularly for some human resource reporting)
- other databases from specialized operational systems
- end user files created from downloading data from the above sources

The demand for all of the above types of reporting continues to increase. Reporting is one of the greatest areas of growth in administrative activity that is occurring within higher education. While most reporting effort is still very “siloed” among the major transactional areas, increasing growth in requests for more multi-dimensional cross-area studies is expected (especially for analysis and projection reporting). Unfortunately, due to its incremental growth, most higher education institutions have been slow to recognize the new criticality of this activity, its increasing legal ramifications, and to organize it properly. Reporting still continues to be a deferred afterthought in most large system implementations, provided for *after* the emphasis on the design of the traditional “big 3” administrative transaction systems: student, finance, and human resources.

This appears to also be the case at the University of Illinois. While a number of offices and individual users are engaged in some form or volume of reporting activity, this is often happening in a vacuum of uncoordinated activity. There is no overall framework or unifying mechanisms in place to clarify reporting roles, reduce duplication of efforts, and ensure that reporting needs are being met at all levels of reporting. Further, there is a need to establish clearer rules regarding “official data” and how it is disseminated.

Recommendation 12-1: A group of appropriate UA and campus/end user reporting personnel should be organized to inventory and review what reporting is currently in place, who is currently and/or should be responsible for that reporting, and from what database source the data is or should be derived.

Recommendation 12-2: Users and AITS should inventory and houseclean current Banner output to see what reports are not being utilized and are no longer required.

Recommendation 12-3: The data custodian function and assignment structure should be formally clarified, with an allowance for more interdepartmental data concerns and data areas outside of Banner.

Recommendation 12-4: A data dictionary should be created that would be accessible to IT and end user reporting personnel, including data definitions and business rules (both time/process-sensitive rules and absolute rules), including non-Banner data areas.

Recommendation 12-5: Establish reporting within AITS as a co-equal responsibility, function, and leadership area on par with student/finance/HR for those reporting functions assigned to it (for both data warehouse technical support and Banner reporting responsibilities).

Recommendation 12-6: Reporting for campus end users is not, and should not be, a UA support function. However, if campus end user reporting is not able to successfully be accomplished, it will be seen as a negative judgment on UA's overall provision of administrative services. Each UA area should function together as a team to work with senior campus leaders to develop specialized reporting positions in campus offices, shared reporting mechanisms, or other solutions for meeting college and departmental (academic and administrative) specific reporting needs.

Recommendation 12-7: UA should provide leadership in working with University legal counsel to identify those areas where the University of Illinois is subject to legal intervention reporting requirements (e.g. FOIA, Patriot Act, SEVIS, Copyright electronic use, FERPA, HIPPA). Standard Operating Procedures should be formally documented and instituted for how designated University offices/personnel should respond to demands for information from external third parties in such legal actions, and the liabilities and obligations incumbent on University employees in these instances should be clarified.

Recommendation 12-8: Responsibility for reporting to the Board of Trustees across finance, budget, enrollment and academics, and human resource data should be clarified, especially where cross-functional data is involved.

See Section 14 for additional reporting considerations within the ITPC environment.

13. UNIVERSITY TECHNOLOGY MANAGEMENT TEAM (UTMT)

The University Technology Management Team (UTMT) includes the Chief Information Officers from each campus and the AVP for AITS, chaired by the Vice President for Administration. The Committee focuses on planning for significant technology issues common across the University. It is a useful forum for sharing information and coordinating selected technology activities. Their current scope of topics includes: identity management; account/password synchronization; security policies; networking; portals.

The technology environments from campus to campus are very different, and each campus has different priorities relative to their mission and strategic objectives. That diversity makes it difficult to get the same level of need across campuses and commitment on joint activities. UTMT does not look for the same solution, but for a common framework that allows each campus to pursue its best solution while not *precluding* each other's technology direction or shared participation. UTMT coordinates common technologies, but does not prevent any campus from meeting its needs. Steps are also taken to leverage other campus's results (e.g., business continuity planning).

Given the decentralized operations of the President's Office and campuses, and the technology structures in place, the current role of UTMT to explore technology sharing and guide the development of an overall technology architecture seems an appropriate mechanism for the University.

Recommendation 13-1: Within its University-wide purview, UTMT should make a more proactive effort in encouraging the development of IT policies within the University. There is a high priority to have current and meaningful technology policies in place within higher education institutions, given the increasing number of legal requirements and potential lawsuits that can impact a University today. Each campus/UA can pursue the specifics of these policies through the appropriate mechanisms within each entity, but UTMT should serve the "corporate IT policy" setting role to ensure that such policies are put into place.

14. INFORMATION TECHNOLOGY PRIORITIES COMMITTEE (ITPC)

Background:

The Information Technology Priorities Committee (ITPC) prioritizes major administrative technology initiatives from a University perspective. Its Charge, as per the statement on its website, is:

"As of January 2004, the University has adopted a new process for prioritizing administrative systems initiatives. The scope of this process is designed to encompass all human resource, payroll, finance or student administrative systems as well as related technical initiatives. The major tenets are a common approach for submitting and evaluating project proposals, and an open, representative process. This website includes information that will help you understand the new process and assist you in submitting a request for new work."

As stated by the ITPC members themselves, "The Information Technology Priorities Committee is an advisory group for Provosts, UA VPs, campuses and major functional areas using IT services to review technology projects requested by the University community. It is a single input to guide the use of AITS resources in order to eliminate AITS picking their own projects."

ITPC: identifies other UI areas that may need consultation regarding project proposals; approves and prioritizes projects informed by the various subcommittees; allocates ITPC funding resources from a special set-aside pool; and approves projects to "go."

Membership on ITPC includes:

- VP for Administration (Chair)
- Senior AVP for Business & Finance

- AVP for Administrative Information Technology Services
- AVP for Human Resources
- AVP for Planning & Budgeting
- Executive Assistant VP for Academic Affairs

ITPC has established regularized processes, forms, methodology and communication for doing business. It utilizes subcommittees for the Student, Finance, and Human Resource business areas to pre-screen project proposals. The ITPC meets quarterly; subcommittees meet monthly.

Projects that come to ITPC are generally those that:

- are administrative system projects
- touch an enterprise-wide system
- require a minimum of 80 hours work

Above that base requirement, projects are tiered as to their scope/effort/funding requirements as to the level of substantiating detail that is required to be submitted for review. Projects above a certain threshold may be forwarded on to senior University executives for final approval.

The role of an ITPC is a crucial one in managing the technology direction and investments for a University. Business need and creative opportunity for obtaining and deploying technology will always outstrip the resources available, so some mechanism is required to make choices in allocating those limited dollar, personnel, and technology resources. It is a given that not all initiatives requested can be pursued; choice is required. The Pappas Group's criteria for the success of an ITPC function is that its choices be viewed as reasonable judgments and conclusions within the University's overriding mission(s) and goals. As such, a community perspective that ITPC speaks for the University as a whole and in its best interest is crucial.

After three years of pursuing its charge and developing its processes, this is an excellent time for ITPC to pause and perform this review of how it has evolved and how it may need to adjust in the future. In the course of our interviews, the subject of the ITPC committee generated significant response from interviewees. (Note: our interviews did not include campus end users, so their perspectives have been surmised for the purpose of this analysis.) While acknowledging that the ITPC task is not an easy one, the principal issues raised included:

Process:

- the approval process is seen as significantly too cumbersome and time-consuming
 - time required for the submitters
 - time for the ITPC personnel involved in processing and evaluating the request
 - time required to perform decision-making

- the overhead of the proportion of time required for the process and time required for implementation is not seen as an acceptable ratio

- it is unclear whether project estimates used for approval reflect only AITS time, all technologists time, or the time required from all expected participants
- the jurisdiction of project proposals that should come to ITPC is not clear
 - only those project proposals requiring AITS services?
 - only those project proposals looking for funding from the special ITPC pool?
 - should departmental IT project proposals have some form of review?
- post-project ongoing costs are not well estimated or considered

Input:

- IT support for reporting functions is not uniquely represented in ITPC
- it is not clear that input on priority accurately reflects campus needs (is ITPC in fact a UA-driven forum?)
- colleges and deans are not well represented on ITPC
- some potential project proposals are being inappropriately self-filtered by the onerousness of the process (albeit some self-filtering is desirable to reduce proposals deemed of minimal value)
- for approved proposals, priorities are not always accurately aligned and resources committed among AITS, departmental technology units, and end users (design and testing responsibilities)

Decision-making:

- no project proposals are turned down by the full ITPC
 - some number of proposals are dismissed at the subcommittee level by identifying alternative solutions or by making business operational changes
 - should ITPC question the *institutional value* of subcommittee approved proposals?
 - do ITPC members feel qualified to judge proposals outside of “their” area?
 - what is the value-added contribution of ITPC after the subcommittee’s work?
- only university-wide projects are approved
- after approval, some projects then sit awaiting scheduling or are interrupted by subsequent new priorities
- some project proposals die and never get scheduled even though “approved”
- there is insufficient summarization and information sharing as to where approval decisions and allocated resources went among requestor areas

Project Content Questions:

- are the projects being approved of sufficient merit and value to the University?

- are decisions made on a University value basis, or are they the results of horse-trading among the decision-makers?
- are decision-makers responding based upon a collective interest or on their own representative interest?
- do ITPC priority decisions account for the strategic interests, goals and plans of the President and Chancellors, and the Provosts and Vice Presidents?

Implementation:

- only roughly 1/2 of projects finish on schedule and on budgeted FTE
 - better project estimating skills are needed
 - the learning curve on new technologies is not always properly factored into estimates
 - waiting on user testing results (a significant hurdle) and waiting on external vendor delays causes many delays in project completions
 - unforeseen new “must do” projects cause active projects to be interrupted
- no mechanism is in place for resolving conflicting priority commitments across units (technical and functional)
- too many “unforeseen” projects arise to disrupt priority decisions that have already been made
- there are no “project closure and review” steps taken at the conclusion of ITPC projects

Consultant Observations:

In addition to the specific points noted above from the interviewees, several overriding themes emerge from these comments:

1. A fundamental concern is that there does not seem to be in place a working statement as to where the University of Illinois wants to position itself with respect to administrative technology, and the priority for administrative technology within the University environment. Without such, there is no overriding principle or target to guide the ITPC in deciding priorities, where to concentrate resource investments, etc. This leaves decision-making too driven from the bottom-up, oriented towards problem-solving rather than strategy, and decisions made on a project-by-project basis rather than achieving a comprehensive vision. As discussed in Recommendation 6-1, an administrative technology vision supported by the University’s leadership needs to be put into place to guide ITPC activities and decisions.
2. The strategic goals and plans of University leaders and managers do not seem to be accounted for in the project proposal process. Lacking that strategic input into decisions, project requests are very transaction driven.

3. Further, a look at the projects being approved and the membership of the ITPC itself reflects too internal of a UA view of the University, and too large a separation between “administrative computing” and “academic computing.” While UA is charged to provide the core administrative computing functions, and while the campuses are charged to provide the core academic and research technology, today’s higher education reality is that these two functions no longer work in isolation. They are in fact *shared* environments, both from a technology perspective (e.g., classroom management systems combining administrative data and educational presentations) as well as the large user audience that works within both environments (e.g., faculty as classroom teachers as well as administrators reporting grades). ITPC’s view of its service world needs to be expanded.
4. While few if any project proposals are formally turned down, it is presumed that a number of user needs have been discouraged at the subcommittee review level, or are simply never fed into the ITPC pipeline on the assumption that they will not be approved. However, in today’s desktop technology environment, simple and duplicative systems can be put together in a variety of ways; technology development across the University is assumed to be happening in all manner of ways *going around* ITPC, undoubtedly sometimes in less than desirable ways. ITPC needs to be more aware of these alternative technology developments as a hidden cost to their decision-making process.
5. The desire to enforce commonality in technology solutions is quite understandable from a visible-dollar cost-sharing point of view, or a productivity point of view in programming and implementing the technology. ITPC therefore puts a great deal of emphasis on requiring enterprise-wide agreement for project approvals. This is especially true on Student projects which are driven by the three campuses, versus the HR and Finance projects which are driven by centralized UA offices. However, common technology solutions that do not meet uncommon business needs are very expensive to the overall institution. It is questionable whether the goal of common solutions is truly being accomplished, or whether units have learned to “play the ITPC game” by either: (a) signing on to requests they do not need in order to build IOUs for a future reciprocal support when needed; or (b) developing local workarounds to the inadequacies of the common solution.
6. Better tracking and recognition of required maintenance projects and small enhancements is needed to more accurately budget what are truly discretionary development projects. The resources available for discretionary development projects are typically quite low in most higher education IT shops. Approximately 30% of time for development has been stated for AITS resources, which is quite high by relative comparison; a closer look at project effort might question that high a percentage, depending on how projects could be more tightly categorized. However, it is with the truly discretionary development projects that the full ITPC should focus its time and efforts.

Mission:

Recommendation 14-1: An *integrated* University Administration Administrative Technology plan should be developed covering the next 5-10 year period. The development of this plan should be led by the Information Technology Priorities Committee. Endorsement of this technology plan should come from the President and the campus Chancellors. The technology plan should reflect the Vision established within Recommendation 6-1.

Recommendation 14-2: ITPC should establish mechanisms for regularly bringing in the *strategic goals* and *requirements* of the various constituencies which it represents and serves, and identify how this input will factor into its decision-making.

Recommendation 14-3: ITPC should be a proactive force, not just reactive. It should seek to initiate certain of its own projects at the *conceptual level*, rather than waiting for all projects to come up through the subcommittees. ITPC projects should be as global as possible, and can be referred down to the subcommittees for impact assessment as warranted.

Recommendation 14-4: The funding model for IT support in UA comes from:

- Functional Departmental Budgets:
 - IT units within departmental budgets
 - functional units within departmental budgets with technology costs
- AITS Budget
- ITPC special reserve pool
- Special allocations from University leadership
- Purchased services from non-UA units (President's Office or campus)

No change is recommended in this model IF all significant technology projects follow the approval and initiation processes currently established and recommended in this report so that initiatives and their costs are available for comprehensive review.

Membership Structure:

Recommendation 14-5: In general, membership in the ITPC, and where necessary in the various subcommittees, should be expanded to include more end users representing campus business needs.

Recommendation 14-6: AVP members of the ITPC should not be the presenters or advocates for project proposals from the subcommittees. Such presentations should come from the subcommittee chairs. ITPC members should be focused on evaluating proposals from a Provost/Chancellor/Vice President/President's perspective, not advocating for their areas.

Recommendation 14-7: A Reporting subcommittee should be established alongside the HR/Finance/Student subcommittees, chaired by the DS unit, with membership reflecting the major constituencies for ad hoc reporting.

Recommendation 14-8: The Chair of the Human Resources subcommittee should be the Director of HRIS. The AVP for HR should not serve as a co-chair, but should only serve on the ITPC in order to eliminate any potential conflict of interest or purpose within the subcommittee or the ITPC.

Recommendation 14-9: The presenter of Student proposals to ITPC, which are typically more campus driven, should be the Chair of the Student subcommittee or other designated student administrative leader.

Project Scope:

Recommendation 14-10: The scope of projects subject to ITPC review should be clarified as affects departmental IT versus AITS projects.

The Pappas Consulting Group recommends that all projects above the stated threshold, whether AITS or departmental and whether needing ITPC funding or not, be subject to ITPC review to ensure: a broad understanding about IT activity that is occurring throughout UA; to improve coordination of shared interests; and to enhance the value added of all IT activity from a University perspective. ITPC should not just be in the business of allocating AITS resources.

Recommendation 14-11: Projects currently designated as “Level 1” should be approved and moved to implementation by the subcommittees, with an FYI to the ITPC. In the few instances where necessary, ITPC can post-facto interject itself into that approval and override the subcommittee.

Recommendation 14-12: Projects that are truly mandated and not optional should be approved and moved to implementation by the subcommittees, with an FYI to the ITPC. ITPC should monitor the resource commitments required for these projects in order to better manage the discretionary IT resources then available.

Recommendation 14-13: Project proposals should be required to estimate their ongoing support costs post-implementation, and the mechanism or area that will be responsible for those future costs. Sufficient funds for purchase should not be justification alone for project approvals, given the long-term impact on base budgets that arise with many of these projects.

Recommendation 14-14: Project proposals should identify their relationship to the *strategic* importance to the University, campus or administrative area, based upon published plans and statements where available.

Recommendation 14-15: ITPC should reserve some portion of its approvals for campus-specific requests. If the University's business model in fact allows for campus autonomy in certain aspects of mission and operations, then the administrative technology model necessarily needs to support that business model. Campus-specific projects should reflect high priority strategic needs from campus leadership.

Recommendation 14-16: ITPC and the subcommittees should encourage certain larger projects to be broken up into smaller sequential component proposals that together lead to large commitments. The trade-off from some increased overhead is the ability to make better informed decisions at certain key milestones. More use should be made of proposals to do product investigations, technology research, design phases, etc. before final commitments are made. This approach should provide better cost/effort projections to be presented to ITPC. Alternately, the project development methodology should enforce more "milestone review" steps at the end of major phases.

Recommendation 14-17: The current project proposal form should be simplified. There is certainly the need for a body of factual information to be garnered to clarify and justify a request and to ascertain its level of effort. But in the end, a subjective decision will be made as to value, not a formulaic one. The effort spent in well-intentioned data gathering is generally being done at the expense of engaging in meaningful dialog among functional and technology leaders about IT needs and solutions.

Project Implementation:

Recommendation 14-18: In general, ITPC needs to be more in tune to, and monitor, project scheduling and progress to ensure that their approvals and subsequent implementation are proving to be meaningful.

Recommendation 14-19: The design phase of the project methodology should include better mechanisms to reaffirm:(a) project estimates before proceeding into development phase; and (b) project participants/systems impacted by the project. As needed, re-review by ITPC should be initiated before continuing.

Recommendation 14-20: ITPC needs to adopt mechanisms to ensure that once projects begin implementation, a full commitment of time, resources and calendar period has been made by each contributing area, *both functional and technical*. Each area's commitment should be documented and reported back to ITPC at project commencement as an FYI. The individual AVPs should be accountable for ensuring that each of their reporting areas follows through on their commitment.

Recommendation 14-21: At the present time, a Post-Project Review step is not included in the project methodology. A "Lessons Learned" step is very important to perform for the benefit of everyone involved in a project, evaluated from the different vantage points of ITPC's interest, the requestor's goals, and the project development team's experience gained. This step can be performed in various efficient ways appropriate to each project, but it should be done in some manner to increase individual and collective skill sets (especially as regards estimating and planning skills).

15. STUDY OF COMPARATIVE INSTITUTIONS

The following institutions of higher education were surveyed by PCG with respect to their status on the three topics shown. The institutions selected were all U.S. public higher education universities, with multiple campuses, with the administrator responsible for central IT reporting to the President of the University, and with student enrollments relevant to the size of the University of Illinois.

Institution	Organization Providing Data Warehouse Oversight	Services Provided By Central Administrative IT Organization	IT Services Provided Within Administrative Departments
University of Colorado (3 campuses)	(no response)		
Indiana University (8 campuses)	<ul style="list-style-type: none"> • The central administrative IT organization is responsible for the basic infrastructure and management of the Enterprise Data Warehouse • Users in external departments develop queries/generate reports 	<ul style="list-style-type: none"> • Infrastructure management (Internet, network, etc.) • Software application management (course management, financials, human resources, library, portal, research administration, student, etc.) • Data management (data warehouse, etc.) 	<ul style="list-style-type: none"> • Departmental specific IT services include conducting the business analysis and defining the specifications for all information systems, desktop support, local server management, report writing, etc.
University of Michigan (3 campuses)	<ul style="list-style-type: none"> • The central administrative IT organization is responsible for maintaining the U-M Data Warehouse • Users in external departments generate pre-defined reports and/or develop ad hoc queries • Independent business units such as the UM Health System maintain their own data stores 	<ul style="list-style-type: none"> • Infrastructure management (Internet, network, etc.) • Software application management (email, financials, human resource management, physical resources, student administration, web-based applications, etc.) • Data management (data warehouse, etc.) • Help desk/consulting support • Software site licensing 	<ul style="list-style-type: none"> • IT resources managed and coordinated locally tend to minimally encompass desktop support and local server management

Institution	Organization Providing Data Warehouse Oversight	Services Provided By Central Administrative IT Organization	IT Services Provided Within Administrative Departments
Montana State University (4 campuses)	(no response)		
University of North Carolina (16 campuses)	<ul style="list-style-type: none"> • The central administrative IT organization at the UNC System Office is responsible for supporting the existing data warehouses – Unified Financial Data Mart and Enrollment Planning database – wherein data is collected from each campus • Functional support for each data warehouse is provided by the data owning division (i.e., Finance provides functional support for the Unified Financial Data Mart) • Additional data warehouses are planned for facilities, human resources, student data and technology 	<ul style="list-style-type: none"> • Infrastructure management (desktop services, media services, network, etc. supported independently at each campus) • Software application management (financials, human resources, student, etc. supported independently at each campus) 	<ul style="list-style-type: none"> • The only IT services provided by administrative departments relate to certain affiliated organizations that maintain their own portal and web-based applications
Rutgers University (3 campuses)	<ul style="list-style-type: none"> • The central administrative IT organization is responsible for the design, construction and support of various central data warehouses in response to broad customer input • There is no single university-wide data warehouse • Independent business units that construct infrastructure and maintain data separately function autonomously 	<ul style="list-style-type: none"> • Infrastructure management (Internet, network, storage, etc.) • Software application management (course management, email, payroll, registration, etc.) • Desktop/server management • Help desk/consulting support • Personal computer purchase subsidy program • Software site licensing • Student labs/residence 	<ul style="list-style-type: none"> • Basic needs tend to be accommodated by a mix of free and fee-based centrally provided IT services • Spectrum ranges from providing only IT services that are not centrally offered to a reliance solely on those centrally provided services that realistically can't be duplicated

Institution	Organization Providing Data Warehouse Oversight	Services Provided By Central Administrative IT Organization	IT Services Provided Within Administrative Departments
		facilities support	

Institution	Organization Providing Data Warehouse Oversight	Services Provided By Central Administrative IT Organization	IT Services Provided Within Administrative Departments
University of Tennessee (3 campuses)	(no response)		
University of Wisconsin (13 campuses)	<ul style="list-style-type: none"> • The UW-System Administration IT organization is responsible for the census data warehouses utilized for analysis and research • The UW-Madison central administrative IT organization is responsible for the transaction data warehouses utilized for operational information 	<ul style="list-style-type: none"> • Infrastructure management (network, etc. supported independently at each campus) • Software application management (course management, financials, library and payroll supported at UW-Madison; each campus manages its own student systems) 	<ul style="list-style-type: none"> • Departmental IT services relate to those services not centrally provided