



**Report**  
**to**  
**Indiana State University**  
**on**  
**Information Technology Structure**

**By**  
**KPMG Consulting, Inc.**

**December 19, 2001**

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## INTRODUCTION

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Indiana State University seeks an appropriate structure for the accomplishments of its information technology mission and has defined a project to produce the following:

- A description of ISU's current information technology organizational and administrative structures with a discussion of the benefits and weaknesses of these structures.
- A discussion and evaluation of information technology organizational and administrative structures employed at peer institutions.
- Recommendation of an appropriate organizational and administrative structure for the accomplishment of the information technology mission at ISU.
- Recommendation of an appropriate position title and preparation of a position description for that executive responsible for leading the recommended organizational and administrative structure.

The University selected KPMG Consulting, Inc. to conduct this project and provide a set of recommendations concerning the University's information technology organization and governance. KPMG Consulting reviewed an extensive set of background information (including planning documents, organization charts, and minutes of relevant meetings) and held discussions with a broad array of faculty and staff in a variety of formats at numerous meetings. A list of these meetings is presented in Appendix A.

This document is a report on the results of the KPMG Consulting project. We have not attempted to describe in detail the current IT environment and tell you what you already know, but rather have concentrated on issues and concerns that are particularly relevant to the scope of this project and that need to be addressed as the University moves ahead.

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## EXECUTIVE SUMMARY

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Indiana State University selected KPMG Consulting to assess the University’s current structure for administering information technology and to provide a set of practical recommendations for changing that structure to more effectively address the University’s information technology mission. This study was conducted in October and November 2001.

The following table lists the major strengths and weaknesses uncovered by the study. These are described more fully in the body of this report.

### Strengths

- Positive attitude and sense of community
- University leadership creating a climate of change
- Student pressure for greater use of technology in instructional program
- Dedicated IT staff
- Quantity and quality of student labs is excellent
- Network infrastructure is robust and reliable
- Learning management system in place
- Collaborative process for setting priorities for information system tasks
- University portal in place
- ISU community view IT consultants as helpful
- Excellent models for shared technical support between IT and Library and School of Education

### Weaknesses

- Lack of strategic perspective for information technology
- Information technology not fully embraced by some of the faculty
- Frequent changes to IT organization
- IT activities not necessarily linked to University goals
- Information technology governance structure has largely tactical focus
- Very large number of information systems tasks in queue
- Lack of cogent structure for Web design and development
- Inadequate University’s Web site that does not project a good image
- Difficult for IT staff to keep up with demands
- Communication between IT and the ISU community needs improvement

While ISU’s information technology environment is generally in good shape, there are significant weaknesses. Foremost among these is the lack of a strategic focus on information technology. KPMG Consulting strongly recommends that information technology be integrated into the fabric of the institution and become strategic to the mission and goals on the University. We believe this will bring focus to the use of information technology at ISU and facilitate the management of technology resources. As an example, Southwest Texas State University is one of many universities that have benefited positively from this change. They have brought focus to their use of

information technology, improved their ability to manage the expectations of the university community, and increased the effectiveness of their available resources.

Making this transition requires strategic information technology leadership at the institutional level that understands the University's vision, works collaboratively with the various units to achieve their objectives, and ensures that institutional information technology objectives are met. To accomplish this, we offer the following specific recommendations:

- *Establish the position of chief information officer (CIO).*  
The University needs someone who can focus on information technology from a strategic perspective, ensuring that it is applied in the most effective and efficient manner possible to support the mission and goals of the University. We recommend establishment of the position of chief information officer (CIO) as a full-time executive position.
- *Have the CIO report directly to the Provost.*  
The use of information technology transcends all University activities and organizational structures, and the CIO must represent all of these while focusing on established goals, objectives, and priorities. We recommend that the CIO report directly to the Provost and functionally to each member of the Cabinet in support of that member's area of responsibility. We recommend also that the CIO be a member of the Cabinet.
- *Enhance the information technology governance structure.*  
Enhance the governance of information technology to reflect its integration into the institution's activities. Adopt a multi-level advisory structure that builds upon the elements of the structure that already exist.
- *Establish a strategic focus for the evolution of information systems.*  
There is nothing inherently wrong with the Banner system. We suspect that the University would be facing similar challenges had they chosen to implement a different system. We suggest that the University needs to get beyond the focus on the tools and, instead, increase the emphasis placed on conducting business and providing services through a networked, online environment. Put differently, shift from a tactical/operational focus to a strategic focus.

Furthermore, to address other identified weaknesses, we recommend:

- *Begin to evolve to a shared services support structure.*  
Improved technical support was the major issue raised by the community. A tiered support structure is proposed which focuses support at the school and divisional level and backs it up with a highly competent central Help Desk.

- *Establish a Web support structure*

The importance of the Web to the University cannot be overstated. Its use is pervasive, affecting all aspects of the University's activities. It is a strategic technology. As such, overall responsibility for the University's Web-presence and Web-based information systems should rest with the CIO. Support for the Web must be coordinated and the responsibilities of the various support units defined and communicated. To be truly effective, the support units involved must work closely together, and the heads of these units must collaborate to resolve division of labor and adjustments to the constantly evolving Web environment.
  
- *Consider creating the role of information technology ombudsperson*

Identify an ombudsperson to deal with problems with the information technology environment, rather than technical problems. Anyone -- faculty, staff, technician, manager, administrator, or student -- could call with a problem, comment, or concern. In addition, the ombudsperson would take a proactive role in keeping the University community informed about information technology issues, initiatives, and accomplishments.

KPMG Consulting believes these recommendations will facilitate the ISU's forward progress in the use of information technology and encourages the University to begin implementation of them.

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## FINDINGS

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### General

KPMG Consulting is very impressed by the friendly nature, and the open, candid, and positive attitude of the people with whom we met. All are able to discuss their concerns and issues without displaying any personal animosities, and each appears to be quite interested in working to solve any problems the University might face. This indicates a sense of community and degree of maturity that should significantly facilitate the University's forward progress. We urge the University to strive to encourage, sustain, and even enhance this sense of collegiality.

The President and Provost are relatively new. Together with other University leaders, they are determined to create a climate of change at ISU. In particular, they want to improve the way students interact and do business on campus, and they believe information technology will be the backbone of many of the improvements. The President has established the goal of making Indiana State University the best comprehensive university in the Midwest within the next five years.

In general, there is concern about where ISU is and should be with respect to the use of information technology. Technology has not been fully embraced by some of the faculty, and the students are expecting (and even demanding) greater use of information technology in the instructional programs. Importantly, the strategic vision for information technology appears to be missing, and there is not a clear connection between the University's goals and those for IT. The University's leaders are willing to make adjustments to the information technology environment, but are seeking guidance on the rational questions of what, where, and how much.

### Organization

The central information technology support structure has undergone three reorganizations since the early 1990s. Most recently, the IT (the organizational unit) and the Library were combined into the Information Services unit in the Division of Academic Affairs under the leadership of the Associate Vice President for Information Services, Ellen Watson. Following her departure, the search for her replacement was put on hold pending this study.

Many of the faculty and staff feel strongly about IT continuing to report to the Office of the Provost and Vice President of Academic Affairs. They believe having it on the academic side helps to build strong bridges within the academic community. Others see the issue of where IT reports as unimportant saying that if IT provides quality support and maintains a global perspective, most people would not care where it reports. Several expressed concern about creating a new position at the vice presidential level.

Related to this is the question of whether IT and the Library should report to the same person. Opinions were presented on both sides of this question. There was general agreement that if both report to the same person, that person must understand and have experience with both.

As is typical in higher education, the IT organization has evolved over time, reconfiguring its structure to reflect changing technology, changing demands, and staff turnover. The frequency of these changes has occurred a bit often and has created discomfort among some of the staff.

There are no major problems with the current IT organizational structure, except that some of the management positions have accumulated additional duties when other vacant management positions could not be filled. This has apparently contributed to work overload for those managers and a feeling by some staff that they do not receive adequate professional attention from their managers. This situation may contribute also to reports of weak communication among IT units and issues of territoriality.

Most IT staff members believe they have a good understanding of University goals, but recognize that their day-to-day activities are not always linked to goals. They perceive disconnects between ideas generated at the University management level and the execution of resulting plans. IT staff want to be involved in the architecture and design of information technology, they want the software systems to be cohesive, and they want more strategic direction. They feel they are pulled in too many directions, have too many bosses, and find it difficult to say no. In addition, they perceive priorities set locally are sometimes over-ridden by decisions made elsewhere and for reasons not always clear to them.

IT staff members appear to be capable and dedicated to serving the University. They are concerned that their daily tasks keep them too busy to refresh their skills. They commented that there was not enough cross-training and that there is typically insufficient sharing of knowledge among the IT units. They believe there should be more collaboration and cooperation with the functional units.

## **Governance**

The Information Technology Advisory Committee is the major element of the information technology governance structure, and it is advisory to the Associate Vice President for Information Services. It meets monthly and tracks ongoing information technology issues and activities. ITAC is usually consulted and its advice is usually heard before most decisions are made. The Committee noted that strategies are typically determined elsewhere and then brought to them for tactical review. The committee members report that ITAC is a good forum for information technology issues, although some say it is too focused on technical issues. It is not clear how much information filters down from ITAC discussions to faculty and staff.

Extension of IT governance to colleges varies. At least two of the schools noted that they have regular meetings on information technology issues. In addition, there are several standing committees in place to address various aspect of information technology, such as the Micro Labs Committee, Institutional Computing Steering Committee, and the Web Advisory Committee.

There is an active University Faculty Senate. It provides good communications and allows everyone to get involved even though the process takes time. Information technology issues are discussed infrequently.

### **Hardware, Software, and Network Infrastructure**

The University has done an excellent job in providing up-to-date hardware in sufficient numbers for the students, faculty, and staff. Plans are in place for regularly refreshing this hardware on a three-to-four year cycle. Estimates are that over 50% of the undergraduate students, and a slightly higher percentage of graduate students, own their own computer.

IT has established standards for software on desktop and lab computers; however, they are only weakly enforced. There are presently few tools in place to help maintain these standards.

Almost everyone reported that the network infrastructure is excellent and reliable.

### **Academic**

The students expressed appreciation for the quantity and the quality of the computer labs that are available on campus, and for the network access in the residence hall rooms. Students, even one who described himself as something of a Luddite, have found the widespread access to computers to be welcome and essential. Students report that their preparation for work with information technology after graduation is uneven. They perceive that some faculty members appear reluctant to use or teach information technology use.

The University has installed a learning management system, switching recently from Blackboard to WebCT (a point of irritation for some faculty). A significant portion of the faculty are involved in the development and use of distance education and the University has distance education students all over the world. A goal of the University is to enhance its distance education activities.

### **Library**

The Library at ISU is a truly remarkable organization. While illuminating all of their accomplishments would be extensive and is not the purpose of this report, it is important to note that they have successfully integrated information technology into practically all

of their endeavors. Having done so, they have not paused. They are continually enhancing existing services and planning and implementing new ones.

The Library and IT have fashioned a model symbiotic relationship. The two organizations have agreed upon what is local (Library) and what is global (IT) with respect to information technology support. An IT staff member is assigned to facilitate this relationship, has an office in the Library, and works with Library staff daily.

### **Information Systems**

ISU installed the Banner suite for most of its administrative applications in the late 1990s. The conversion to Banner was challenging and the University is still experiencing fallout from that activity, including loss of confidence in the system, and frequent Banner-bashing. Unfortunately, there were numerous modifications made to Banner and these have the effect of significantly extending the time required to install the periodic upgrades provided by the vendor (SCT). The IT staff estimates it takes a year to prepare for a major upgrade.

The Institutional Computing Steering Committee meets regularly to discuss issues involving institutional information systems. They have collectively developed a process for prioritizing and planning information systems tasks on an annual basis. The link between this process and ISU's strategic goals was not apparent. The Committee agrees that this process helps to establish and communicate priorities, allocate resources, and develop schedules. Some are concerned that the schedules developed are too aggressive.

Perhaps the most frequent complaint is the perceived difficulty in getting reports from Banner. IT has encouraged academic and administrative units to address this need by developing report generation skills locally. Both the use of Banner data marts and Microsoft Access is encouraged to facilitate report development; however, disparities among units in the availability and level of information technology expertise are creating haves and have-nots. Furthermore, some units perceive their local technical staff members are not always treated as equal partners by IT; in fact, several commented that IT is territorial, and protective of knowledge.

Banner offers distinct advantages, such as an integrated database, but it cannot always match the speed with which functionally-specific (best-of-breed) systems can incorporate new technology and features. This has led to debates on whether to continue a Banner-only environment or to allow other systems to be used. Specifically, University Advancement is contemplating using a newly developed Web application called e-Tapestry, which is available from a new company.

### **Web**

Of considerable concern is the apparent lack of a cogent strategy for Web design and development. This concern led to the establishment of the Web Advisory Committee whose charge is to coordinate all of the University's Web activities. The current Web

presence is uneven – some pages are very good, some are not, and many are out-of-date. Students described the University’s home page as “Confusing,” “Not easy to use,” and “Difficult to navigate.” Most believe it negatively impacts the University’s image.

The University has not yet worked out needed policies, procedures, and divisions of labor for its Web-related activities. University Relations has assigned staff to work on Web issues, including design standards and the content of top-level Web pages. The Provost has charged the Web Advisory Committee with developing first and second level standards and templates to help bring more sophisticated pages on-line. Staff in IT provides Web administration and Web assistance to administrative units. Web-based registration became available this past summer.

The University recently installed the Campus Pipeline portal product. For a variety of reasons, the implementation schedule was compressed and the product went live before it was fully ready. Campus confidence in the portal was shaken, even though many of the problems have since been resolved. Students report that they like the portal in general but are annoyed by some of the problems. They want to see wider use, especially by the faculty.

## **Support**

Concurrent with the phenomenal growth in the use of information technology in higher education, there is a “crisis of expectations,” a growing gap between what stakeholders are seeking and what is being provided. While there are some exceptions, this gap transcends the vast differences among the nation’s colleges and universities. The crisis manifests itself in many ways: frustration among the faculty, staff, and students using information technology; pressure on the information technology service organizations to improve the infrastructures and services; and demands on the administration to address the issues and close the gap (preferably by meeting expectations rather than lowering them).

Information technology support at many universities followed a traditional, centralized model, and as its use grew and become more pervasive, the model did not scale well. The gap between expectations and centrally provided services began to grow causing faculty and staff to seek alternative support. (The Gartner Group has written of the hidden costs of the informal “Hey Joe” technical support network. Gartner estimates that for every dollar cut from formal support, two dollars are spent for underground support<sup>1</sup>. Both the user experiencing the problem and the user pulled away from her normal work to help solve it suffer the consequences.) Some academic and administrative units determined they must supplement the support they receive centrally with local staff even though they did not necessarily have budgeted resources to do so. What emerged on many campuses is a number of decentralized IT support units, in addition to the central information technology organization, with disparities in the quality and quantity of support.

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<sup>1</sup> Gartner Group: “The Consolidated Service Desk: Enabling Proactive Support Processes”

This is happening nationally, is occurring at ISU, and, we believe, is an evolutionary trend. Local support, with discipline- or functional-specific knowledge, can effectively complement the global support model. It must, however, be planned and coordinated or it can create confusion and inefficiencies. Currently the funding structure for information technology is highly centralized, and there is no existing structure to help colleges and schools develop their own information technology support.

The Schools of Technology and Education have local technical staff, as does the Library. Several of the administrative units have staff dedicated to information technology support roles. IT has consultants assigned to groupings of buildings, which allows for continuity of support for the faculty and staff in each grouping. Some schools and colleges have faculty and staff in several buildings, so a particular school may work with more than one IT consultant. Several people commented that this structure would be more effective if all or most academic and administrative units had local staff dedicated to information technology support (similar to the Library or School of Education models).

Generally, the ISU community reports that individual IT staff members are friendly, helpful, and dedicated. They perceive that the staff tries to support anything on the client's desktop, even if they are seeing new products for the first time when they get a trouble call. Many in the community believe that the staff in IT is overloaded, and they observe that some of the units within IT do not work well together. Expressed concerns included: a stated plan for keeping desktop software (standard) up-to-date; stabilization of GroupWise and resolution of problems caused by having multiple e-mail systems; and overall improvement in communications between IT and the community.

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## PEER COMPARISONS

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KPMG Consulting selected three institutions, Ball State University, Southwest Texas State University, and Wichita State University, from which we requested information for comparative purposes. (Southwest Texas was a last minute substitution when we had difficulties contacting the appropriate parties at Idaho State University.) A summary of the data reported by the institutions, along with data from ISU, is provided below.

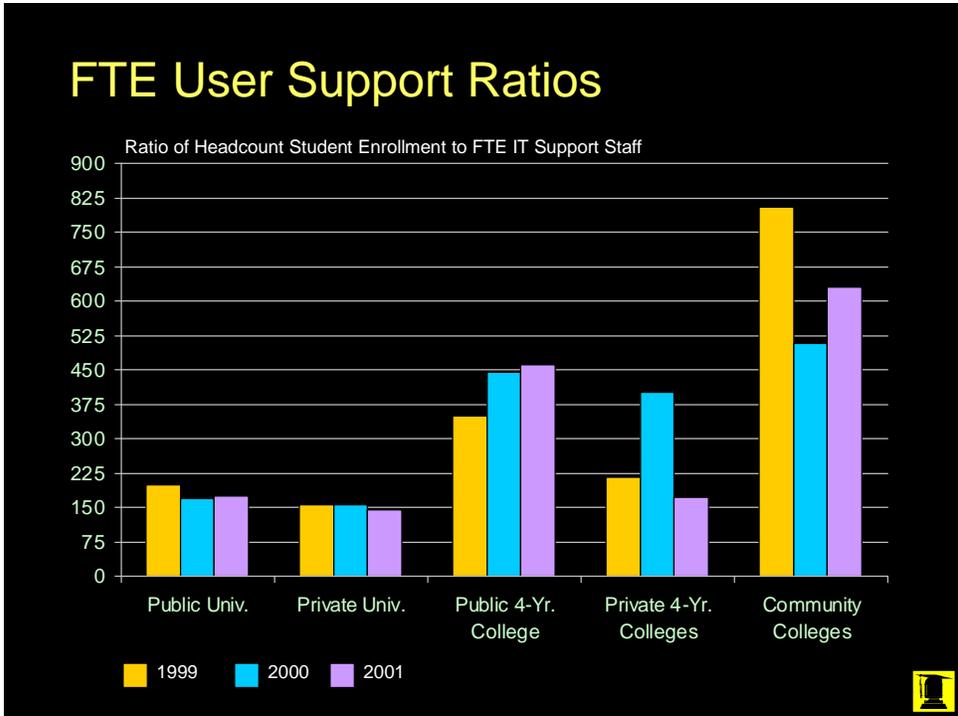
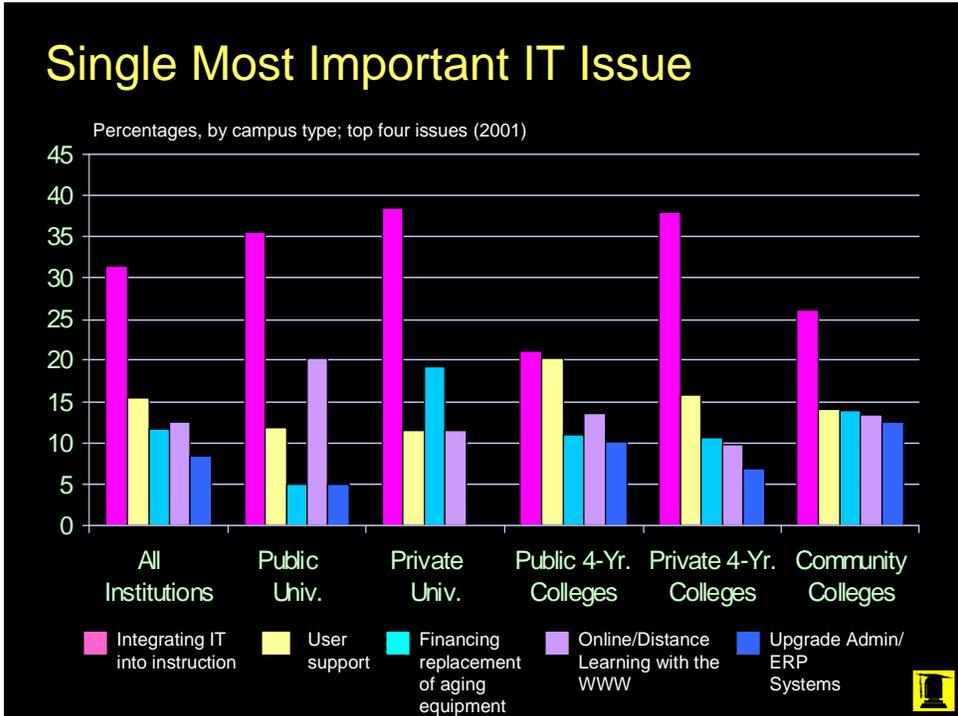
**Figure 1: Comparisons with Peer Institutions**

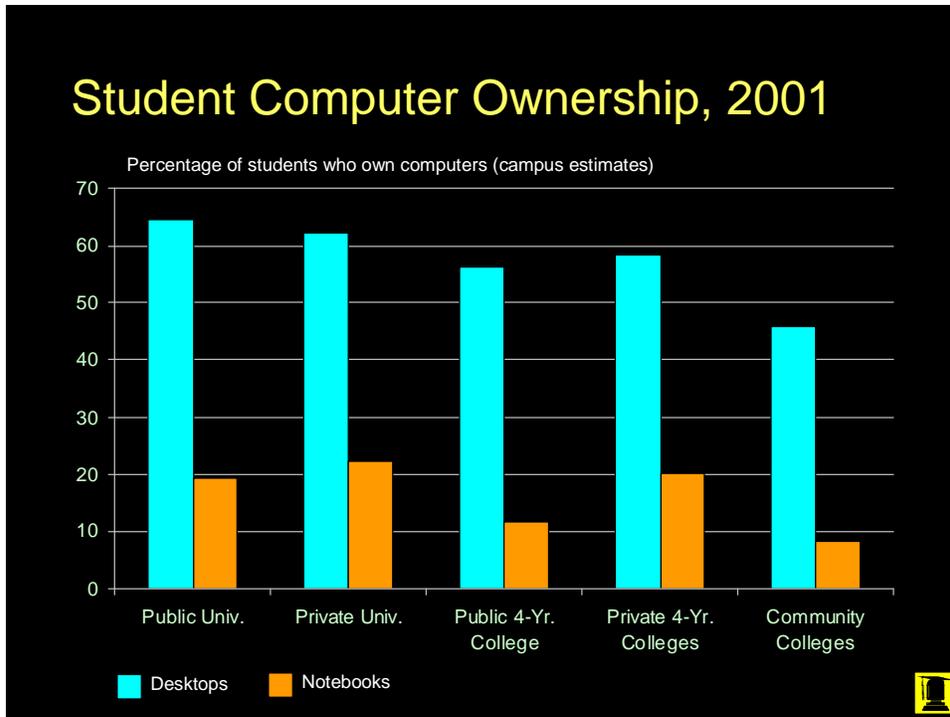
Item	Indiana State	Ball State	SW Texas State	Wichita State
Enrollment	11500	18000	22000	15,000
Academic term: semester, quarter, other	Semester	Semester	Semester	Semester
FTE in academic and administrative IT unit(s)	60	150	61	55
Student to IT FTE ratio	191.7	120.0	360.7	272.7
Central & local IT technical support?	Yes	Yes	Yes	Yes
Student-owned computers (% of all students)	50%	Majority	65%	Winter survey
Computers in all labs	1000	2500	2000	2300
Computers dedicated to department/unit	600	1200	2500	480
Campus portal:	Yes	Under dev	No	Under dev
Approx institutional operating budget (Millions)	\$120	\$214	\$200	\$140
IT unit(s) as a % of operating budget (est)	7.7%	6%	7%	2%
IT budget compared to last year:	Same	Down	Up	Up
IT fee for students:	\$25/semester	\$75/semester	\$9/credit hour	\$1/credit hour
Ratings (1=poor to 7=excellent):				
Student lab hardware	7	6	6	5
Student lab software	5	5	6	6
Faculty hardware	6	6	5	4
Faculty software	5	6	6	6
Administrative software	5	4	5	6
IT technical support	4	3	4	3
IT infrastructure	7	3	6	7

Kenneth C. Green of the Campus Computing Project ([www.campuscomputing.net](http://www.campuscomputing.net)) conducts annually a national survey of computing and information technology in U.S. higher education. To allow comparison with national data, many of the data items in the table above are the same ones used in his survey.

Note that some of these measures are dependent upon local organization and operating conditions; e.g., “IT unit(s) as a % of operating budget,” is dependent upon the level of decentralization of the budget and the ability of the institution to roll-up IT costs. While useful as general indicators, they should not be used as the basis for decisions without further analysis.

The following are from the results of the Campus Computing Project survey for 2001:





In addition, we gathered the following information on the organization structures for information technology at each of these institutions:

- Ball State University
  - VP Information Technology
  - Library
  - University Teleplex
  - University Computing Services
    - Administrative Services
    - Information Systems & Client Support
    - Research & Design
    - Technical Integration, Infrastructure, & Operations

- Southwest Texas State University
  - VP Information Technology
  - University Library
  - Instructional Technology Support
  - Technology Resources
    - Telecommunications Services
    - Computing Support Services
    - Information Systems Services
    - Systems Software Services
    - Technology Resources Operations

Wichita State University

Executive Director, University Computing & Telecommunications Services  
(reports to Academic Affairs)

- Academic
- Administrative
- Operations
- Technical Services
- Telecommunications
- User Services

Two of these organizations have chosen to create vice presidential level positions, most likely because of the strategic importance of information technology to the institution and the leverage the title gives in recruiting. Institutions can, of course, recognize the strategic importance of information technology without having a VP for information technology; however, to do so requires that the top information technology person work and participate at the cabinet level, as discussed in the Recommendations section below.

The central information technology support organizations of all of these institutions are remarkably similar. A difference of note is the Research & Design unit at Ball State, which we understand works primarily with the research community.

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## RECOMMENDATIONS

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The University is considering change to the IT environment. Once agreed upon, a new information technology environment will most likely be realized in a series of planned steps. If one were to look at the new environment and work back to define the steps that created that environment, and then look at the present environment and project forward from current activities, it is unlikely that the two would meet. Progress from "as-is" to "to-be" typically involves moving from old paradigms to new opportunities and often triggers what has been labeled as disruptive changes. As used here, a disruptive change implies a discontinuity in the evolution of the environment, not a cataclysmic event.

For the past several years, KPMG Consulting has interviewed thought leaders, surveyed executives, polled the public, and analyzed the literature to consider the future of higher education, particularly in light of the emerging knowledge economy. Our initial conclusions, articulated in a report "Organizations Serving the Public: Transformation to the 21<sup>st</sup> Century," were that economic, political, demographic, and technological factors were creating tremendous pressures, and that higher education would have to fundamentally change, not just to succeed, but to survive. In a more recent report titled "Transforming Higher Education: At the Gateway of the Knowledge Economy," we find that earlier observations about the power and direction of these change factors has not varied significantly since the first report; however, the balance of these changes has shifted dramatically. While the first report treated them as roughly equivalent factors, technology has emerged as the force driving all of the others. Long the enabler of change, technology has become a driver of change as well.

The pace at which the information age is penetrating our culture and our lives is accelerating beyond almost everyone's predictions. Both a challenge and an opportunity for the University come from the impact the information age is having on research and learning and, indeed, the very nature of higher education. It is motivating the institution to provide students and faculty with access to vast amounts of networked information, to offer integrated views of what traditionally have been selected specialties, and to expand their connections with students and faculty elsewhere. It is prompting them to reconcile the notion of a measured, contemplative academic environment with a world that demands graduates who can continually self-correct and adapt to new directions.

The impact of the information age does not stop there, however. It offers the opportunity to examine conventional business and operational practices and to use technology to make significant improvements. The Internet, for example, is fostering change in nearly every aspect of our lives, including how we communicate and conduct our business. Innovative organizations have used the Internet to create new paradigms for how they operate.

It is this type of disruptive change in which ISU must engage. It is quite possible that this change will call for a different organizational structure, moving away from traditional,

compartmentalized, functional units to a structure that more naturally facilitates information flow and integrates planning. The choices to be made, however, must be reflective of the type of institution the University is and wants to be, recognizing of course that the pursuit of academic excellence is fundamental. The primacy of the University's mission must be understood, and all major decisions regarding the use of technology should be based on the institution's mission, strategic goals, and objectives.

### General Recommendations

In many institutions of higher education, information technology was treated for years as a separate activity that required a different level of attention than most other university activities. The specialized resources and relatively high costs generally required the use of opportunity funds and oversight by committees whose members understood technology issues. Planning for information technology was separate even though it typically took into consideration the general technology needs of the institution and the specific needs of the academic and administrative units. Over time, the use of information technology became pervasive, the campus communities became much more knowledgeable about information technology, the costs per user dropped dramatically, and centralized information technology support began to give way to a mixture of centralized and decentralized support units. Typically, however, information technology continues to be treated as a separate activity.

We believe that the extent to which information technology remains separate, it will remain a problem. We recommend a different information technology environment – one that integrates information technology into the fabric of the institution. This notion does not imply a particular organizational model – it's not about centralization or decentralization - rather, it's about discontinuing the treatment of information technology as a separate “thing.” It proposes that information technology become organic and, importantly, perceived as *strategic* to mission of the University.

In an article<sup>2</sup> by the Senior Vice President and Provost of Arizona State University, he notes, “We can continue to be reactive and use whatever technology seems to fit a given or perceived need, or we can be proactive and purposefully consider the larger arena in which we operate, and adapt our strategies accordingly. The more we understand the drivers of change, the better equipped we will be to act strategically. ... I fear that institutions have often been directed more by the capabilities of technology than by their strategic goals.”

Transitioning to the proposed environment requires strategic information technology leadership at the institutional level that understands the University's vision, works collaboratively with the various units to achieve their objectives, and ensures that institutional information technology objectives are met. Dr. Glick writes,<sup>3</sup> “To be

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<sup>2</sup> Glick, Milton D. and Kupiec, Jake, “The Answer is Still Technology – Strategic Technology,” *EDUCAUSE Review*, November/December 2001, 36. (This is an excellent and timely article that is required reading for university leaders. See [www.educause.edu/asp/doclib/abstract.asp?ID=erm0162](http://www.educause.edu/asp/doclib/abstract.asp?ID=erm0162).)

<sup>3</sup> Ibid, 40.

maximally effective in the long term, the use of technology must be tied to the primary mission and goals of the university. To make technology a strategic tool in the institution's toolkit, institutional leaders must recognize that using technology solely to do better what they've always done will not allow campuses to prosper in the next century – nor will it serve society and the many stakeholders in higher education. Instead major new technology initiatives should have transformational potential...

“The strategic use of technology requires four key actions. First, institutional leaders must identify absolutely essential goals that will enable the university to play its role in creating a better society. ...Second, these goals must have clear objectives that are agreed upon and championed by the leadership of the campus community. ...Third, information technology must be at the table when key decisions – from mission identification to strategic planning to budgeting – take place. For many institutions, this means defining a new role for the information technology officers, who will move from “implementers” to proactive advisers and policy consultants ... Finally, there must be agreed-upon costs and benefits with specific success criteria that are known to all involved.”

Institutions are finding that by managing information technology from a strategic perspective they are more able to effectively deploy their technical resources. Southwest Texas State University is one of many universities that have benefited positively from this change. They have brought focus to their use of information technology, improved their ability to manage the expectations of the university community, and increased the effectiveness of their available resources.

### **Specific Recommendations**

There is no single, right solution for how information technology should be administered at an institution of higher education. Rather, the approach should reflect the culture, the thinking, and if possible, the consensus of the university community. We recommend a planned transition from the current information technology environment to the new one. The following recommendations are intended to provide a framework for that transition.

#### *1. Establish the position of chief information officer (CIO).*

The University needs someone who can focus on information technology from a strategic perspective, ensuring that it is applied in the most effective and efficient manner possible to support the mission and goals of the University. We recommend establishment of the position of chief information officer (CIO) as a full-time executive position.

The CIO will provide vision and leadership in the development and implementation of a university-wide information technology strategy that is in direct support of the University mission. The CIO will work closely and collaboratively with all academic and administrative leaders to ensure joint decision-making and planning, have the knowledge to identify and evaluate new technological developments, and display the wisdom to gauge their strategic appropriateness for the University. This job is not the day-to-day management of

IT. This person must not be an empire builder nor be focused on technology solutions.

The CIO will be a seasoned manager and diplomat with the ability to bring together diverse groups of individuals and will have a demonstrated commitment to customer service. The University needs an individual with a participative management style who is comfortable with open decision-making, one who is a highly effective listener and communicator, one with strong organizational and team building skills, one who has proven fiscal management skills, and one who is experienced with and knowledgeable of the higher education environment. The CIO will meet periodically with the President, Vice President, Deans, and appropriate University Faculty Senate and administrative committees to solicit input, facilitate discussion on achieving institutional goals and objectives, and actively work to integrate information technology into the fabric of the institution.

Change is frequent in information technology and must be built into the thinking and structure. Activities that are global today may become local tomorrow, and vice-versa. New activities and opportunities will surely appear, and these will have to be organized and assigned as appropriate. This is an ongoing responsibility of the CIO, working collaboratively with the University community. A draft position description for the CIO is presented in Appendix B.

2. *Have the CIO report directly to the Provost.*

The use of information technology transcends all University activities and organizational structures, and the CIO must represent all of these while focusing on established goals, objectives, and priorities. We recommend that the CIO report directly to the Provost and functionally to each member of the Cabinet in support of that member's area of responsibility. We recommend also that the CIO be a member of the Cabinet. Possible titles might be Associate Provost for Information Technology and CIO, or Associate Vice President for Academic Affairs and CIO. Because the search for a CIO could take four to six months, we suggest that the Provost appoint an Interim CIO.

We recommend that the Executive Director of Information Technology report to the CIO. Consider changing the name from Information Technology to Information Technology Services, or something similar, to more accurately describe the service nature of the organization.

We recommend that the Dean of the Library report to the Provost, as do the other deans. We strongly encourage the Library and Information Technology to maintain, and enhance to the greatest extent possible, their exemplary working relationship.

### 3. *Enhance the information technology governance structure.*

Enhance the governance of information technology to reflect its integration into the institution's activities. Adopt a multi-level advisory structure (see Figure 2) that builds upon the elements of the structure that already exist. The first level focuses on soliciting input and providing feedback within the academic and administrative units, the second on examining issues from a university-wide perspective, and the third on strategic and executive-level perspective. This recommendation does not imply that new committees be formed at each level, as existing committees already in place may support this advisory task. It does, however, call attention to the need for appropriate dialogue on information technology issues to occur on a regular basis at each of these levels, and for this dialogue to be communicated as part of normal discourse throughout the campus. This governance structure provides a primary channel for exchanging information among the various stakeholders.

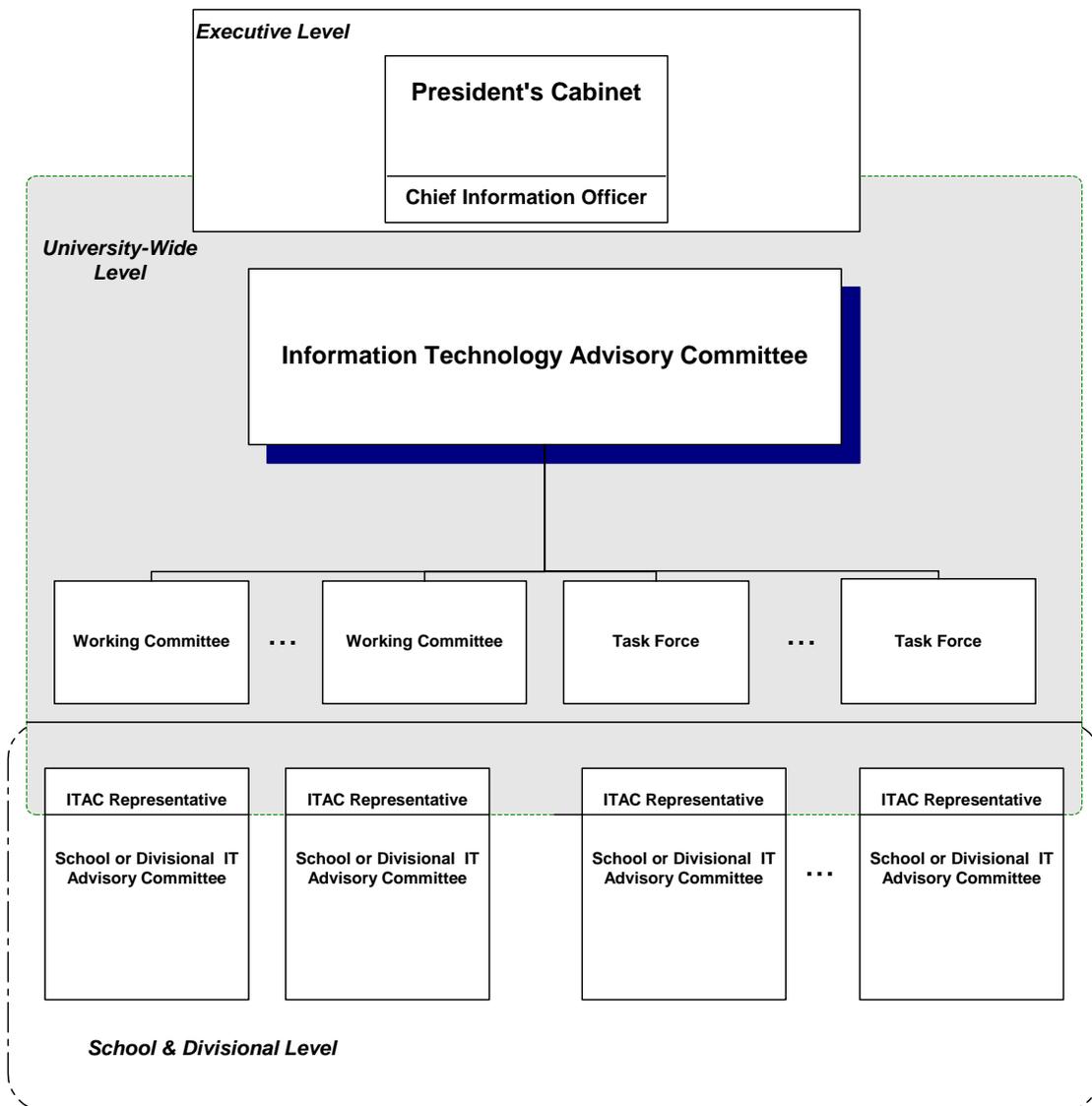
At the unit level, use meetings already in place (e.g., school, college, or divisional meetings) to help plan and coordinate the use of technology. Typically, these meetings provide a forum for the faculty and staff to impart counsel, to convey needs, and to influence decisions. Include information technology issues on the agenda of these meetings. We do not encourage ISU to form additional technology-only committees, or necessarily to disband existing information technology committees. The objective is to create an environment where discussion and decisions about information technology are integrated into daily activities and not treated as something separate. A representative of each unit should be appointed to serve as part of the second level of the advisory structure. These representatives are responsible for presenting the interests and concerns of their units and for communicating the deliberations to their units.

At the second level is the Information Technology Advisory Committee (ITAC). It is advisory to the CIO. Re-charter ITAC to take a proactive role in examining global as well as the local information technology issues, providing input and reviewing ISU's strategic plans for information technology, recommending priorities for information technology initiatives, and generally facilitating the flow of information about information technology.

ITAC is composed primarily of representatives of the academic and administrative units. The Deans and division heads should appoint the members of ITAC. The Executive Director of IT is an *ex-officio* member. ITAC may be organized into one or more advisory committees (e.g., a single committee that discusses all IT issues, or several subcommittees that discuss specific areas and pass information to and from a central committee), but it should always function as a coordinated structure. Members of ITAC are responsible for presenting the interests and concerns of their school or division and for communicating the deliberations of the committee(s) to their school or division.

At the third level, hold regular discussions at the President’s Cabinet meetings to obtain the guidance and perspective of the University's upper management and to promote management-level involvement and interest in information technology. These discussions must include advice and recommendations received from ITAC. The objectives of these discussions are: to insure that the strategic direction of computing supports the strategic direction of ISU; to assure that the University's resources committed to information technology are appropriate in comparison to other resource allocations; and to address policy issues related to information technology.

**Figure 2: Information Technology Governance Structure**



4. *Establish a strategic focus for the evolution of information systems*

There is nothing inherently wrong with the Banner system. We suspect that the University would be facing similar challenges had they chosen to implement a different system. We suggest that the University needs to get beyond the focus on the tools and, instead, increase the emphasis placed on conducting business and providing services through a networked, online environment. Put differently, shift from a tactical/operational focus to a strategic focus.

Having said this, we do recognize that there are many tactical and operational information system issues (including Banner enhancements and upgrades), and we believe that the IT staff is working diligently to address these. We suggest, however, that their work can be more effectively managed if it is done in the context of a University-developed strategic direction.

For example, consider a coordinated strategy that leverages information technology to create effective relationships by properly identifying, attracting, serving, and retaining the University's customers. These customers include prospective students, students, alumni, parents, faculty, staff, other institutions, foundations, corporations, government entities, and vendors. Most of these expect constant access through e-mail, call centers, faxes, and websites because they get this from other organizations that serve them. A coherent, comprehensive Customer Relationship Management (CRM) strategy can help the University address these needs by providing a consistent customer experience that connects customers with the right enterprise resource, no matter how the customer contacts the University.

This strategy identifies University functions that represent the points of interaction with customers and determines a service solution for each. It recognizes that each customer interacts with different functional areas of the University and with different CRM solution categories (see Figure 3). Properly implemented, this strategy should:

- Target and serve customers.
- Provide individualized treatment through products and services with the primary goal of retaining that customer.
- Seek to raise the value of the customer to the institution.
- Enhance the institutional image

**Figure 3: Customer Management Functions**

CRM Solution Categories				University Functions	Customers											
Sales Automation / Marketing Automation	Customer Service/Call Center	eCommerce	Data Management		Prospective Students	Students	Parents	Alumni	Faculty	Staff	Corporations	Federal/State Governments	Foundations	Community	Vendors	Administrative Departments
X	X	X	X	Recruiting	C	P	C/P	P	P	P	C/P		C/P	C/P	P	P
	X	X	X	Retention		C	C	P	P	P			C/P	C/P		P
	X	X	X	Student Services	C	C	C	C	C/P	P	C	C		C	P	C/P
	X	X	X	Housing	C	C	C			P					P	P
	X	X	X	Registration	C	C	C		C/P	P					P	P
X	X	X	X	Fundraising	C	C/P	C	C/P	C/P	C/P	C/P		C/P	C/P	P	C/P
	X		X	Community Relations	C	C	C	C/P	C/P	C/P	C/P		C/P	C/P	C/P	C/P
X	X	X	X	Auxiliary Services	C	C	C	C/P	C/P	C/P	C/P				C/P	C/P
	X	X	X	Education	C	C	C	P	P	C/P	C	C			C/P	C/P
		X	X	General Acting/Budgeting					C	C/P		C	C	C	C	C/P
	X		X	Library	C	C	C	C	C	C/P					C/P	C/P
		X	X	AP/AR/Purchasing					C	C/P					C	C/P
	X		X	IT Services	C	C	C	C	C	C/P						C/P
	X		X	Academic Computing	C	C			C/P	C/P	C					C/P
	X	X	X	Grants Management					C	C/P	C	C				C/P
	X	X	X	Facilities Mgt/Physical Plant	C				C	C/P	C				C/P	C/P
X	X	X	X	Conferences & Conventions	C	C/P	C	C	C/P	C/P	C		C/P	C/P	C/P	C/P
	X	X	X	HR / Benefits					C	C/P						C/P
		X	X	Payroll		C			C	C/P						C/P
X	X	X	X	Faculty recruiting		P	P	P	C/P	C/P	P					C/P

C = Customer  
P = Provider

5. *Begin to evolve to a shared services support structure.*

Providing effective technical support is one of the major needs cited by the University community. To address this need, create a tiered support structure in which the academic and administrative units share support responsibilities with IT.

Shift over time from the model where consultants are assigned to buildings to a model where they are assigned to academic/administrative units. Assign a staff of qualified, high-level consultants, each of whom has the responsibility to oversee the support needs of one or more units. These field consultants help the units develop their plans, provide technical assistance, and generally assure that the unit’s support needs are met. Depending upon the size of the unit and the level of information technology activity within it, one or more additional technical staff may be employed by the unit to provide technical assistance. Designate qualified staff to assist the field consultants in resolving issues and problems that require, for example, in-depth research, specialized skills, or access to secure systems.

The Help Desk operated by IT backs up the field consultants and the unit's staff. Fashion this Help Desk after highly successful help desk operations that use experienced technical staff, effective help desk software and telephony tools, and are focused on resolving over 70% of the calls during the first contact.

Lab technical staff for all open student labs are managed and funded by IT, although other responsibilities (e.g., schedule, configuration, and use) might remain with the current "owner." This approach allows scheduling and backup of lab staff, maintenance and repairs of equipment, and installation and updates to software to be efficiently coordinated. IT provides training and technical management support for all technical and lab staff. Private labs have the option of subscribing to this model.

Hold regular meetings of all of the information technology consultants (central and local) with the objectives of enhancing coordination and communications. Discussion topics might include: incident report statistics since last meeting, outstanding incidents, support coverage, training, status of campus information technology initiatives, and emerging technologies.

There are costs associated with this approach. Staff may have to be added to IT in order to provide the field consultants and the Help Desk support. Many academic units currently fund the lab technical staff out of budgetary savings. While this could continue for a while, it would be better to designate explicit funding for these positions. Additionally, someone must be assigned the responsibility for managing and training the lab technical staff. To get a handle on the financial implications, ask IT to provide a proposal detailing the costs of the field consultants, Help Desk staff, and lab technical staff. Once the costs are known, several funding approaches can be considered.

It is important to understand that, once the details are worked out, it will likely take a while to recruit and build the necessary staff, so a phased-in implementation and funding approach should be considered. Discuss this structure within the units, at the IT Advisory Committee, and at a meeting of the Deans before a final recommendation is made to the President's Cabinet. KPMG Consulting is willing to remain available to assist in clarifying any aspects of this recommendation.

#### 6. *Establish a Web support structure.*

The importance of the Web to the University cannot be overstated. Its use is pervasive, affecting all aspects of the University's activities. It is a strategic technology. As such, overall responsibility for the University's Web-presence and Web-based information systems should rest with the CIO.

Support for the Web must be coordinated and the responsibilities of the various support units defined and communicated. To be truly effective, the support units

involved must work closely together, and the heads of these units must collaborate to resolve division of labor and adjustments to the constantly evolving Web environment. These units must also work closely with the Web Advisory Committee. A suggested delineation of responsibilities is shown in Figure 4.

**Figure 4: Framework for Web Support**

Function	University Relations	IT
Design of Web architecture	P	P
Develop and maintain design and content standards (look and feel) for top-level Web pages	P	S
Assure consistency in design for any pages linked to top-level pages	P	
Develop templates for 2 <sup>nd</sup> -level pages	S	P
Provide the content for top-level pages	P	
Provide training for Web-related functions	S	P
Maintain Web server hardware and operating systems		P
Maintain Web-server platforms		P
Provide systems administration, security, network support, and operations for the Web environment		P
Maintain web-based information systems		P
Maintain Portal	S	P

P = Primary, S = Secondary

Where more than one unit is shown as primary, each is perceived to have a major interest and they should work together as a team to perform the indicated function. The objective of this framework is to provide a mechanism for defining and assigning Web responsibilities. We recognize that each of the units shown represent broad constituencies and will seek their advice and council on the functions listed, and we encourage the stakeholders to discuss and recommend modifications to this framework as appropriate, including the addition of other units.

7. *Consider creating the role of information technology ombudsperson.*

Identify an individual whom anyone could contact if they were having a problem with the environment created to provide information technology services to the campus. Rather than dealing with technical problems (my printer won't print), this individual would deal with problems with the information technology environment (now that I have to call the Help Desk with my problems, its taking

much longer to get them resolved). Anyone -- faculty, staff, technician, manager, administrator, or student -- could call with a problem, comment, or concern.

The ombudsperson would be responsible for documenting the concern, communicating with the parties involved, investigating if necessary, and facilitating the process of correcting the problem if a problem is discovered with processes or procedures. In each case the ombudsperson would provide a response to the person reporting the problem summarizing what was discovered and what action was taken. All that would take place in some cases is a communications process clarifying expectations.

In addition, the ombudsperson would take a proactive role in keeping the University community informed about information technology issues, initiatives, and accomplishments.

The ombudsperson would function in a staff capacity to the CIO in this role. It would initially be established as a temporary role in hopes that the need for this function would be reduced as the campus community becomes comfortable working with the new system.

## APPENDIX A: SCHEDULE OF INTERVIEWS

<b>Date</b>	<b>Time</b>	<b>ISU Members</b>	<b>Place</b>
10/10/01	8:45	Steven Pontius, Provost	Parsons 208
	9:00	President and Cabinet	Parsons 210
	10:00	Richard Antonak, Interim Associate VP, Information Services	Parsons 208
	2:30	Robert Elsey, Vice President, Student Affairs	Parsons 203
	4:00	IT Study Coordinating Group	Rankin 040
10/11/01	8:30	Pam Dwenger, Student Affairs	Mills Hall
	10:00	Robert Schafer, Vice President, Administrative Affairs	Rankin 200
	11:00	Robert Jefferson, Executive Director, Information Technology	Rankin 025
	1:30	Distance Education/Information Services (DEIS)	Erickson 110
10/12/01	3:00	Kenneth Janz, Director, Information Technology SE	SOE 104
	8:00	Cindy McClain, Administrative Affairs	Parsons 246
	9:00	Diann McKee, Planning and Budgets	Parsons 223
	10:00	Library Faculty and Staff	Cunningham 028
	11:30	Information Technology Directors, Asst. Dean of Library Sys	Gillum Hall 101
11/01/01	2:00	Robert Quatroche, Vice President, University Advancement	Gillum Hall 340
	8:30	Steven Pontius, Provost	Parsons 208
	10:00	Robert Sackett, Controller	Parsons 115
	11:00	Kevin Snider, Planning and Budgets	Condit House
	2:00	Library Advisory Committee	Cunningham 028
11/02/01	3:15	Library Tour	Cunningham Memorial
	9:00	Lloyd Benjamin III, President	Condit House
	10:30	Jeff Pohlen, Director, Advancement Services	GH 364
11/05/01	3:00	Institutional Computing Steering Group	Parsons 210
	8:00	Lee Young, VP Enrollment Services and Tom Sawyer, Director of Articulation Transfer	Parsons 208
	9:00	Open Meeting for Faculty, Staff and Students	Cunningham 028
	10:00	information technology professionals	Cunningham 028
	1:30	Deans Council	Cunningham 028
11/06/01	3:00	IT/Multimedia Support Services Staff	Rankin 040
	9:00	Betsy Hine, Interim Dean, Library Services	Cunningham 132
	10:00	IS Support Staff (Open Meeting)	Cunningham 028
	12:00	Open Meeting for Faculty, Staff and Students	TC 105
	1:00	Information Technology Advisory Committee	Cunningham 028
11/07/01	2:15	Faculty Senate Executive Committee (Tentative)	HMSU 227
	8:00	Student Government Association (Kristen Garing)	HMSU 623
	10:00	Leon Pennel, Director, IT ICS	RA 056
	11:00	Yancy Phillips, Director, IT User Services	RA 026
	1:30	Byron Bond, Ex. Dir. Lifelong Learning	EH 118
	4:00	Roseann Toulson, Director, IT Technical Support and Telecommunications	GH 103D
	11/08/01	8:00	IT Study Coordinating Group
9:00		IS information technology professionals	Cunningham 028
11:00		Support Staff Council	HMSU 407
1:30		Web Advisory Committee	Cunningham 028
4:00		Open Meeting for Faculty, Staff and Students	Cunningham 028

## APPENDIX B: CIO POSITION DESCRIPTION

### Chief Information Officer Indiana State University

#### Duties and Responsibilities

The Chief Information Officer (CIO) is the title given to that individual at Indiana State University serving as the highest-level information technology administrator. The Provost and Vice President for Academic Affairs appoints the CIO. Working in close collaboration with executive and administrative staff members in relevant units of the University, the CIO is responsible for:

- \* Focusing on information technology from a strategic perspective, ensuring that it is applied in the most effective and efficient manner possible to support the mission and goals of the University
- \* Providing leadership in shaping information technology plans and strategies
- \* Advancing a shared vision for information technology working collaboratively with the campus community
- \* Identifying and evaluating new technologies, gauging their strategic appropriateness for the University
- \* Supporting the development of instructional applications of technology
- \* Guiding and facilitating the evolution of web services
- \* Establishing and maintaining regular communication with the President, Vice Presidents, Deans, University Faculty Senate, and appropriate committees concerning technology-related issues and opportunities in their respective areas

#### *Other duties and responsibilities include:*

- Serving as a member of or liaison to university-wide executive committees that establish university policy
- Serving as the University's representative to appropriate national professional organizations (e.g., EDUCAUSE)
- Serving as the liaison to other institutions, agencies, and businesses with which the University has established alliances or collaborative projects
- Remaining current in the field by reading publications, exploring information databases, communicating with other information technology executives, attending professional meetings, and undertaking continuing education related to all aspects of information technology administration
- Carrying out other responsibilities and duties specified by the President and the Provost

#### *Required qualifications:*

- A Master's degree, PhD preferred, in a relevant field
- A minimum of ten years of progressively responsible experience in managing a complex information technology organization
- An understanding of a university academic environment, the roles and relationships of faculty, staff, and students, and the diverse needs for technical support
- Superior fiscal management skills
- Strong communication and interpersonal skills to establish and maintain a team environment
- Superior communication, collaboration, leadership, supervisory, problem-solving, and interpersonal skills