External Review

Campus-wide Information Technology Services

at UW-Oshkosh

June 12, 2013

Executive Sponsors:

Lane Earns, Provost and Vice Chancellor for Academic Affairs
Tom Sonnleitner, Vice Chancellor for Administrative Services

External Review Team

Kenneth Janz, Associate Vice President for Academic Affairs and CIO, Winona State
David Dumke, former Director of Information Technology/CIO, University of Wisconsin – Stevens Point

Table of Contents

ii

Executive Summary

The external review team was charged to review all Information Technology (IT) related services on campus and to make recommendations for change in areas we felt would have the most positive impact on IT services and the institution long-term. In order to identify the priorities for the review, the team visited campus on February 1, 2013 and met with a number of key groups including the vice chancellors, deans or their representatives, and staff from Information Technology services areas across campus. From this visit, we developed a list of priorities for the review, which are included in the Priorities section below. We then came back for a campus visit on May 2 and 3, 2013 to gather information to be used in meeting our charge. The listening sessions were well attended and everyone seemed willing to share his or her thoughts on IT services. Details of the groups with which we met are in the Campus Visit section below.

Below are the high-level Key Findings and Recommendations. The remainder of the report provides details on these and other findings along with the complete set of detailed recommendations. Our recommendations do not respond to every issue needing to be addressed (e.g., creation of an IT strategic plan that is in alignment with the institution's strategic plan to supplement the current IT strategic plan which is more operational in nature). Rather, we focused on those issues and recommendations that were within the scope of our charge and were either the most effective first steps or addressed high-risk issues (e.g., data governance and security). The team expects institutional and IT leadership will continue to address additional issues after those contained in this report.

Key Findings and Recommendations

- **Chief Information Officer (CIO).** The campus needs to hire a full-time permanent CIO. A CIO will bring the campus strategic leadership and an understanding for evaluation and assessment as it relates to IT. In addition this position needs to sit on cabinet. This will allow the alignment of IT resources to institutional priorities.

- **Organizational Structure of IT.** While there is no single right way to organize information technology there is a need to examine the creation of a user services or client services group. To create a culture that supports world-class customer service a unit within IT needs to take a customer first attitude and advocate for the needs of end-users of IT services.

- **Project Management.** There is no defined, open, transparent process, which incorporates campus input used to prioritize projects against institutional priorities. Significant time, energy, and effort needs to be placed in creating a support structure to facilitate new methods for supporting true project management processes.

- **Information Security/Data Stewardship.** Few resources have been allocated to address data security issues on campus. The decentralized nature of IT adds risk in this area as well because each unit follows their own development and security practices. This is especially troublesome since the institution has not identified where sensitive data exists. The team's recommendation is to build a comprehensive data security plan including a campus-wide audit.

- **Funding.** The campus does not view and support IT as a strategic resource. Without this view of IT and the support that goes with it, IT services cannot help the institution achieve its more important goals/priorities.

Introduction

During the listening sessions, the team saw immediately that each IT unit had clear tactical view of what their unit wanted to accomplish and many positive accomplishments were shared. Based on the IT services the team saw and from what we heard from those attending the listening sessions, the team was impressed with what has been accomplished. Many IT services stand out as exceptional (e.g., classroom design and IT services in the newest classroom building - Sage Hall and the data center and IT services in the newest residence hall – Horizon Village). Other services specifically mentioned as being outstanding by those attending were IT Help Desk; Learning Technologies; Library Technology Services; support provided to faculty; Idea Lab; support for classroom technology; Google Mail, Calendar, and Apps; media production; Library web presence; and the Residence Life Management Information Office.

In addition to these exceptional services, the team was impressed with the quality of the staff, their commitment to work together even though they report to a number of different departments/divisions, and their strong desire to meet the needs of faculty, staff, and students at the institution. With few exceptions, it was evident by the way IT staff interacted with each other during the listening sessions that they work well together. We want to underscore the fact that IT services at UW Oshkosh have been very successful. We know this fact can be lost during a review process and we want to institution to understand how important IT services are and how well the current IT staffs have done in providing them. All the IT units have excellent staffs that are committed to doing their very best for the campus and, specifically, the users they serve.

However, despite the successes mentioned above, we sensed undercurrents of discontentment, frustration, and friction among IT staff (central and decentralized units). Frustration was also shared by members of the user community, primarily directed toward parts of Central IT, regarding how long projects remain in queue before being started and how long it sometimes takes to receive a response to a support request. Users were also frustrated by the perceived attitude in parts of Central IT that they would not or could not help. Regardless of this frustration, they also had empathy for Central IT because many felt it was under staffed and budgeted. During our meetings with IT Directors, we came to believe that Central IT may be underfunded when we heard about the difficulties they had in funding the wireless network, network storage, and security projects. This may be a matter of internal prioritization problems within Central IT but based on what we heard, it is more likely Central IT funding is inadequate.

The long-term impact of not having a permanent, campus recognized Chief Information Officer responsible for setting campus-wide technology direction along with the budget and staff deficit in Central IT has resulted in much of the campus meeting their own technology needs by either hiring their own staff or by getting a decentralized IT unit to do the work.

We also found a lack of consistency in data security practice. Each IT unit seems to operate under their own set of security practices and it is really an unknown whether the institution's highly sensitive data is protected – especially since there has been no audit done to identify where sensitive data resides on campus. In addition, since faculty senate has not passed an updated data security policy, the team questions whether the campus truly understands the risk to which it is currently exposed.

Another area we were concerned about is the way IT units decide on which projects to complete. Since there is no agreed upon prioritization process, project priorities are set in each of the units without regard for campus-wide priorities. The process does not include campus input on the decisions and there is currently no active governance structure that could help with this process.

The team left the listening sessions with a substantial amount of information from the various groups. Based on what we heard and other information provided to us, we believe there are many positive aspects to IT at UW Oshkosh. However, there are also a number of opportunities for improvement. The sections immediately following contain the priorities of our review charge and the details of our campus visit listening sessions. We provide these as background to our detailed report on priorities and recommendations.

Priorities

Based on what we learned at our initial meeting on February 1, 2013, the team felt the review should focus on the following priorities. Our rationale for each priority is included as well.

- **Role and responsibility of the CIO** - only viewed as "CIO" at the UWS level – institution does not view CIO as responsible for strategic direction and oversight of technology services; CIO, as currently defined, cannot move the institution forward in its use of technology
- **Organizational structure** - current structure supports an entrepreneurial spirit in each unit but resource allocation, institutional priorities, and information security suffer
- **Project Management** – no institutionally communicated approach to request a project; no institution-wide selection and prioritization to ensure institutional priorities are met
- **Information Security/Data Stewardship** – institutional data policies and practice if they exist, are not consistently followed; resources directed at security efforts are inadequate and not well coordinated; risks to data and operations are likely substantial
- **Funding** – current funding model supports the completion of priorities that may not be consistent with institutional priorities; Central IT funding seems to be inadequate

Campus Visit

The team made our campus visit, in which we gathered information for our review and recommendations, on May 2 and 3, 2013. We met with over 80 staff from the IT service units across campus and areas using IT services. Individuals from various IT units often attended multiple meetings as IT functions discussed in number of the meetings are done by staff wearing multiple "hats" and these functions are not centralized but done by staff in multiple units (e.g., server, computer lab, desktop computer, application support are all done in multiple units). We also met with faculty from multiple colleges and directors, managers, and staff from key units using IT services.

Meetings/areas included:

Foundation, Instructional Media Center, IMC, and Business Success Center – 8 individuals from:

- Foundation
- Integrated Marketing and Communications
- Instructional Media Center
- Business Success Center

Administrative Services, Facilities, Center for Career Development and Employability Training (CCDET), Head Start – 11 individuals from:

- Parking Services
- Head Start
- Facilities Management
- CCDET
- Administrative Services
- Human Resources

Instructional Technology, Classroom Lab, Help Desk, Desktop Support – 21 individuals from:

- Learning Technologies
- Reeve Union/Tech and AV Services
- Academic Computing
- Residence Life/Management Information Office
- College of Nursing

Associate Deans, Faculty, Library – 6 individuals from:

- Medical Technology
- College of Business
- Department of History
- Department of Chemistry
- Polk Library
- College of Education and Human Services

IT Directors – 4 individuals from:

- Administrative Computing & Networking
- Learning Technologies
- Academic Computing
- Residence Life/Management Information Office

Web and Applications Support – 18 individuals from:

- Administrative Computing & Networking
- Administrative Services
- Polk Library/Learning Technology Services
- Residence Life/Management Information Office
- Registrar's Office

Athletics, Reeve Union, University Police, Residence Life – 6 individuals from:

- Residence Life
- University Police
- Athletics
- Financial Aids
- Reeve Union/University Dining
- Admissions

Networking and Telecommunications, Server Support, and Security – 14 individuals from:

- Administrative Computing & Networking
- Academic Computing
- Server Support
- Registrar's Office
- Residence Life/Management Information Office
- Registrar's Office

The team would like to thank all those who participated in the meetings. All those who attended seemed willing to share thoughtful responses to the questions asked. We hope this report accurately represents what we heard during the two-day visit.

Detailed Report on Each Priority

In this section of the report, each of the five priorities (role and responsibility of the CIO, organizational structure, project management, information security/data stewardship, and funding) will be broken down into observations and recommendations for improvement.

Role and Responsibility of CIO

The CIO is responsible for the overall leadership in the area of information technology. It is important to remember that the CIO position exists in a complex, loosely coupled organization. Stakeholders bring multiple perceptions and expectations to the leadership and management role of the CIO. The CIO should primarily be concerned with issues of long-range planning, consultation, and support of the broad range of constituencies throughout the organization.

Observations on Role and Responsibility of CIO

- **There is little evidence of strong strategic leadership within IT.**

  During the listening sessions, very few of those attending could articulate how IT supported the institutional mission, transformed business processes, or how decisions around IT issues were integrated into overall institutional decision-making processes. In addition, there does not seem to be an institutional strategy around IT professional skill development, online instruction, supporting Bring Your Own Device (BYOD), Cloud Strategy (outside of Google Apps), analytics to support data driven decisions for the overall academic enterprise, and improving the funding of IT operations on campus. While most people/users outside of IT will not use this language to describe IT, strong strategic leadership, usually led by a CIO, will develop and articulate a common vision for technology and provide a guide for future technology implementations at UW-Oshkosh.

- **There is little evidence of a culture of assessment within IT.**

  During the listening sessions questions around "How does IT define success on campus?" or "How do you know if IT is being successful on campus?" were asked of attendees. Outside of a recent initiative by the help desk, IT has not developed holistic benchmarks or metrics on organizational performance and there is very little data collection to determine overall effectiveness of IT on enhancing or improving operational efficiency or impact on campus. Many projects on campus have not had all costs, risks, or benefits developed. A strong CIO would create and develop a strong assessment plan that would provide a foundation for future planning and provide platform for discussing and promoting funding needs of the unit.

- **The CIO does not have a seat at the table.**

  The CIO at the UW-Oshkosh campus is not a member of cabinet. Within the Minnesota State Colleges and University (MnSCU) system at six of the seven state universities the CIO is a member of cabinet and within the UW System many of the CIOs sit on cabinet. This is important because a CIO needs to be continually educating top management in the role of information technology in the organization, be part of discussions around larger institutional initiatives (this allows alignment of resources to intuitional priorities), provide consultation to top management and have IT be seen as and take on the role as a strategic

asset to the institution. When the CIO is not at the table, IT becomes a victim of power politics and unrealistic expectations in the academic enterprise. The successful CIO, when part of the overall institutional strategy, can be catalyst for change within the organization melding institutional strategy supported by the latest advances in information technology.

- **The new CIO needs to work with the campus community to understand the role of IT on a university campus.**

  The campus culture is very much like that of a large research institution with every unit or department making their own IT decisions, hiring their own IT staff, and setting their own IT related priorities. In addition, the campus seems to have an unrealistic view of what IT services should be. Almost without exception, we heard users tell us their issues were high priority and IT response should be immediate. Users also told us that Information Technology's responsibility was to meet their needs – regardless of the need. If a user wants something, IT should provide it. In addition, a number of users informed us that they had no budget for the service or need requested, which means, therefore, that the funding would have to come from existing IT budget or other campus budget. This view of IT is unrealistic, expensive, and unattainable with the current level of funding provided for IT. It has resulted in the decentralized approach to IT continuing to grow and strengthen because departments seem to be willing to commit resources to technology services only if they can keep the resources locally, which has caused quite a number of IT positions to be hired and kept in departments across campus.

- **Need to formalize a communication and marketing plan for IT services to the campus community.**

  There is no formalized communication and marketing plan for services provided by information technology on campus. Most campus users are not sure of what services are provided by the central or several decentralized IT units around campus. A successful CIO will create a strategy for communicating with the broader campus community that is tied to the strategic goals of the University.

- **Coordination and leadership of IT units inside and outside of Central IT**

  There is no holistic approach to applying resources to meet the information technology needs of users. While prioritization of user needs and projects can be accommodated with a technology master or strategic plan; directing, coordinating, caring and/or feeding of the human resource within the IT sphere (centrally or distributed) in not holistically taken into account. A successful CIO will support and encourage deep collaboration with all IT groups both inside and outside the central organization.

Organizational Structure

While there is no single right way to organize information technology on a campus, there are some best practices that can guide its construction to support the strategic vision of the campus. The organizational structure at UW-Oshkosh needs to be seen as a changeable construct.

Observations on Organizational Structure

- **Hire a new CIO prior to making any changes in the distributed IT model found in the organization.**

  During many listening sessions on campus there are strong opinions on where IT personnel should organizationally be located on campus (centrally or distributed). Generally, the decentralized organizational structure and approach to IT services has resulted in a focus by units outside Central IT on the needs of individuals or units (some of which are offered as campus-wide services) and by Central IT on standardized campus-wide services which are not necessarily designed to meet all needs. It has also resulted in some units outside of external IT seeming to have access to more financial resources than Central IT. This was corroborated often by those attending the listening sessions as they shared their view that Central IT did not have the resources or staffing necessary to meet campus needs.

  It is the opinion of the team that no changes in the location of distributed IT staff can be made until a new CIO builds a strong collaborative support structure. The new CIO would review how the many distributed services might be leveraged for better alignment and impact to the campus community and over time make adjustments to the organizational structure. These changes would require many conversations with stakeholders and agreement on the definition and measurement of success in moving any personnel.

- **Within the Central IT organization look at the creation of a User Services or Client Services group.**

  Currently the desktop and user support group is under the umbrella "academic computing". This group seems to take a back seat to server support needs and issues. Leadership needs to be given to provide high quality customer service. The help desk needs to be an inviting location for users to visit and be provided support. Visible values is a term given to describe first impression of what is important and what an organization values. IT needs to look at the help desk and desktop services as the "front door" to IT services and ask the questions what are their "visible values". Intense attention needs to be paid to the end-user experience. User or client service personnel need to be advocates for end-users to others within the IT organization. Several users during listening sessions expressed frustration over one-size fits all support model. A person leading and focusing on the end user experience can provide the insight needed help IT understand the best way to meet diverse end-user needs.

  Another reason this group should be separated from other units is the community sees several services within the IT organization as utilities (they do not care how it works; they just want it to work when they need the service). Servers, systems, and networks are like a utility within the sphere of IT. Because of these services being seen as a utility, these groups want to provide 100% uptime and stability. This need to always be up and operating creates an environment and culture to provide the least amount of flexibility to the user. Because flexibility and change usually creates instability in a service they are providing.

However, this is usually counter to the needs of desktop users who do have unique diverse needs.

During listening sessions, the team heard conflicting views of response to work requests – some felt response of Help Desk has improved while others said it took four to six weeks to get "high priority" requests like printer down resolved. Again, with a unit focused on client support and proper assessment and evaluation in place these issues would be addressed.

The campus community would see immediate value in having a group within IT have 100% of its focus on meeting the basic computing support needs of the campus community. In addition, this unit and its leader can be an advocate for the needs of end-users to the Central IT group.

- **Examine combining the networking and server support groups.**

  Enterprise or infrastructure services usually combine the elements of networking, system, and server support groups. As stated above, these groups and personnel associated with these services are usually more concerned about stability and 100% uptime. In addition, these services are usually all housed in the campus data center or communication closets across the campus. Having these services coordinated by the same individual will save time, coordination efforts, and money.

- **Have Administrative Computing singularly focused on meeting the Enterprise Resource Planning (ERP) programming and development needs of the campus.**

  Application development and database administration are technically and politically some of the most complex work that information technology provides to the campus. Focus needs to be provided to this support. A director of this area needs to focus on project management and prioritization of application development to meet the administrative functions of campus. Because these applications touch so many business functions of the university the director of this unit needs to be in constant contact with non-IT business units they support. The additional elements of security and networking can be a distraction to enhancing the ERP system. In addition, administrative computing is one of the most under staffed areas in IT. This issue will be addressed in a later section of this document.

- **Leave "Learning Technologies" group configured as currently organized.**

  In all the listening sessions, most faculty and staff seemed overall satisfied by the services provided by learning technologies. In addition, the group is currently configured in a way very consistent with the support structure of other universities.

- **As the organizational structure is enhanced create an "IT Services Catalog".**

  As the organizational structure is enhanced an IT services catalog must be created. In a number of listening sessions it became clear to the team that in many cases the campus community does not know what IT services are available and which unit provides them on campus.

Project Management

The lack of formal campus-wide project request and prioritization mechanisms means there is no clear correlation between projects that are done and the priorities of the institution. Without these mechanisms, Central IT will likely do projects they want to complete along with a combination of strategic and squeaky wheel projects and the decentralized IT units are likely to focus on priorities of their funding department/division. For the decentralized units, some of their priorities support services that are offered to the campus as well (e.g., security camera and door access systems were implemented for Residential Living but are now offered to and used by the campus).

The current approach of project request and prioritization has resulted in a number of high-quality services, but it does not result in a focus on projects that are in alignment with the institution's strategic priorities. Given the limited resources of the institution, it is ever more important to ensure that IT projects are selected carefully, using a defined, transparent decision-making process that ensures alignment with institutional priorities. Examples of projects that were mentioned during the listening sessions that would likely be in alignment with institutional direction and, therefore, be given priority included a campus-wide customer relationship management system (CRM), data analytics/data governance, and enterprise network storage. Yet, as far as the team is aware, in the current environment, these projects have not been discussed broadly and are not currently being considered as projects to be completed.

Although this review priority was originally included as project management, based on the listening sessions, the team decided to focus mostly on project prioritization and include only the portions of project management that seemed the most pressing at this time (i.e., requesting a project, communication about projects, and oversight to ensure timely completion). Over time, additional project management components may be implemented once these are working well.

Observations on Project Management

- **There is no defined, open, transparent process, which incorporates campus input used to prioritize projects against institutional priorities.**

  In our listening sessions, we found no one who understood how decisions were made regarding which IT projects are done. Although, we assume the units providing IT services and their management understand the process and that the priorities in each unit reflect the strategic direction of that unit and, to some extent, that of the institution. This, however, does not ensure the campus is aware of why certain projects are chosen and feels the process was open and transparent. It also does not ensure campus-wide IT resources are being used for the most important strategic priorities of the institution.

  A number of individuals in the listening sessions mentioned that, until a few years ago, there was a governance group (the Project Prioritization Group [PPG]) to prioritize project requests and it was considered effective, open, and transparent. The team's understanding is that PPG's work was limited to PeopleSoft requests. Although this group does not fully rectify this observation, it does show the value of an effective, transparent prioritization process that allows for input from the campus. Individuals in the listening sessions had, overall, a positive view of the PPG and the work that was done.

- **There is no defined process, understood by the campus, for requesting projects.**

  We did hear about many projects done "for the campus" so we know it is possible to request a project from one of the IT units and have it completed. However, we asked a number of the groups if they knew how to make a request and found many of those attending had no idea and, for those that did, there was no commonly understood way to request a project. It is reasonable to assume the lack of a clearly defined request process results in some requests that should be done never being requested. It may also result in units hiring their own "IT resources" in order to do the work themselves since they do not know how to request help from the campus IT resources.

- **Projects may remain in queue for a long time and there is no communication as to where they are in the queue or when they will be done.**

  At a number of listening sessions, attendees shared their frustration over how long their projects remained in queue without communication on when it will be done or knowing where it is in the queue.

Information Security/Data Stewardship

Although this is an area of high risk for the institution, very few resources have been allocated to address it and the updated data security policy has not been passed in faculty senate. The decentralized nature of IT adds risk in this area as well because each unit follows their own development and security practices. This is especially troublesome since the institution has not identified where sensitive data exists. The team's recommendation is to complete data security policies and procedures, complete a data security plan including a campus-wide audit (all servers and faculty/staff computers), educate the campus on data security, and train all software developers and server/database administrators on security best practice.

Observations on Information Security/Data Stewardship

- **UW-Oshkosh needs to conduct comprehensive IT security awareness training with the entire staff both inside and outside of IT.**

  There is a need to enhance the IT security awareness of the staff. The security awareness training should focus no only on educating staff on policies that do exist but also on how to identify and respond to threats. Training should include examples of social engineering and business procedures that could help expose attacks. In addition, the CIO should provide regular information security-related training to IT administrators to increase the level of knowledge and awareness of how different systems and settings can affect UW-Oshkosh's information security posture. Security training should outline the importance of defense in depth, highlight the security mindset, and illustrate how organization management and policy, process, and procedure are used to reinforce the importance of security settings and technology.

- **Build a governance structure around information data security and data stewardship.**

  Develop and implement an information security governance structure that includes representation and endorsement from management, business departments and faculty. Governance responsibilities and oversight includes development and sanctioning of UW-Oshkosh information security policies, procedures, guidelines and standards.

- **Develop a comprehensive data security plan including documenting and understanding the location of data and who has what access to that data.**

  Formalize and document user administration including the process for users to gain access, modify or change access rights, and disable or remove accounts following separation or termination. There is evidence this is being done on most centrally controlled systems but is not as well documented on decentralized systems. Specialized training needs to be done with students who have access to data, with appropriate access restrictions, per existing practices and work based accounts should be created. This practice aids forensic investigation of inappropriate activity and helps to protect sensitive data.

- **Develop and document change management procedures both in centrally controlled and distributed systems.**

  Develop and document change management procedures. These procedures should outline how changes will be formally authorized, planned, and logged, including back-out procedures where appropriate, before they are implemented.

- **Create a data mart or data warehouse.**

  The benefits in the creation of a data mart or data warehouse will be two fold. First, there is concern from the team with the number of data extracts that take place and the large amount of private data located on desktop machines across campus. If data were centrally housed for data reporting, the need for data extracts would be greatly reduced. Second, creating a data mart or data warehouse will over time empower end-users and create a culture of data-driven decision-making.

- **Enhance physical security of the data center.**

  There are numerous concerns around the physical security and HVAC of the data center. These issues should be discussed with the interim-CIO and addressed as soon as possible.

Funding

Funding for IT is an issue with which most institutions struggle. From the listening sessions and input from staff via email, the team believes this is true for UW Oshkosh as well. The inadequacy of funding was validated by the lack of replacement budgets for infrastructure technology, IT staff salaries which seem to be lower than peer institutions (this may also be contribute to the difficulties UW Oshkosh has had in IT recruitment), and the fact that key projects in high risk areas like data security have not received funding. The observations below are primarily directed at the high-level issues the institution needs to consider and address before the funding problem in IT can be resolved.

Observations on Funding

- **IT is not viewed as a strategic resource.**

  Although those who attended the listening sessions felt that IT should be treated as a strategic resource, the team felt that the institution does not really view IT as strategic. There seems to be a lack of support for IT from an institutional/strategic perspective. The primary evidence for this is that there seems to be more growth IT resource allocations in

units outside Central IT than there is in Central IT. If IT were viewed as strategic, resources would be allocated at a campus level to meet campus IT needs and there would be much less incidence of units allocating their own resources and hiring local IT staff.

- **IT investments are not aligned with the institution's goals and priorities.**

  The justification for this point has already been given in the Project Management section and there is no need to cover the justification in detail again in this section. The reason for including it here is because of the value aligning IT investments with the institution's goals/priorities has in justifying funding for IT. If the institution understands the value proposition of IT and the positive impact IT investment has on the institution, there will be substantially more support for adequately funding IT.

- **The campus does not have an understanding of how much is being spent on technology and technology services.**

  Given the decentralized nature of IT on campus, the amount being spent on IT is unknown. It is possible that the institution already allocates adequate funding to IT and simply ensuring the funding is used for institutional priorities will be adequate. To know for sure, the first step is to understand fully how much is being spent on IT across the campus. In order to get an idea of what such a review might uncover, the team did a high-level review of IT staff on campus and found there are forty-eight positions in Central IT and over twenty IT related positions in other units on campus. We also know there have been substantial technology investments in some of the units outside Central IT. In aggregate, campus-wide IT spending on staff, hardware, and software are likely substantial.

- **Use of common software and support services are limited by the campus culture and decentralized IT decision-making.**

  The decentralized organizational structure results in higher costs for IT services because of the way in which it operates. First, from a common software perspective, decentralized IT units seem to put an emphasis on meeting needs over using software the institution already owns. When the team sensed this might be the case, they asked whether the needs of an individual or unit could result in another software application being purchased or developed even if the institution already supported software that met many or most of the needs. The response to this question was affirmative. Essentially, the needs of a unit or individual seem to outweigh the cost to the institution. The team also came away with the understanding that the campus community expects their needs to be met in this way. Given the limited resources of the institution, this approach cannot be sustained. At a minimum, there needs to be some cost/benefit assessment to justify the "needed" functionality.

  The decentralized organizational structure likely results in higher support costs. This fact seemed evident during the listening sessions because staff from multiple units attended the meetings and there were individuals with similar duties in multiple units. At the very least, the duplication of services across multiple units/departments (e.g., help desk, computer lab support) and the fact that there is similar infrastructure supported across the units (e.g., servers, wired and wireless network, network storage, and computer labs) means that each of the units has to deal with primary and secondary support staff on their own. The team heard from a number of individuals that many services were only supported by one staff member – with no secondary person assigned. Again, given the limited resources of the institution, this issue should be considered carefully.

Additional Findings

The following section is a list of other issues the team felt should be addressed. They are not necessarily part of the priorities we were given but they are important enough to document in the report so they can be considered and addressed.

- **The office space currently used by Central IT is spread out and some is badly in need of renovation.**

  Each office area within IT should be reviewed and redesigned to meet its primary purpose. For example, the Help Desk area can be improved to meet the goal of this report to represent the visible values of the IT organization and be the front door to IT services. Other areas may need to be remodeled to allow staff to work together more effectively. It seemed to the team that some IT areas had almost maze-like qualities. Certainly, this layout does not support service to users or staff synergy.

- **IT Governance needs to be reviewed and strengthened.**

  The team focused its recommendations on governance related to project prioritization and information security/data use. These two areas are most important to support the recommendations but they do not address the full governance structure needed. The new CIO should review and strengthen governance as soon as reasonably possible.

- **Review all Content Management Systems now in use on campus and choose systems that meet the needs of the campus.**

  During the interview sessions, there were many positive and negative comments about the tools currently in use and the way the campus web presence is controlled and maintained. To the team, there seemed to be support for all tools and, possibly, a place for multiple tools. Yet, because of what seemed to be a lack of clearly defined responsibility for the tools and uses of those tools, there seems to be a growing conflict between the campus, IMC, and Central IT.

  There was considerable support for Plone among the faculty who attended the interview sessions and they were not supportive of the tools and control exerted by the IMC. The team understands there is currently a review of these issues underway but is concerned that the lack of clearly defined responsibility and authority on these issues will result in a less than an optimal decision. This is not to say we are recommending the consolidation of authority and responsibility in the IMC. We are, instead, encouraging that all uses of such tools (e.g., from web content management to document management) be fully understood along with the needs of the campus before making a decision.

Recommendations

The team makes the following recommendations to address the observations above. The recommendations are not ranked in priority order. Actual priority should be based on the institution's review of this report and its determination of the order in which recommendations should be implemented.

1. Hire a CIO to provide campus-wide technology leadership and planning.

   a. Develop a comprehensive assessment of all IT services that includes performance metrics and provides a foundation for planning.
   b. Place the CIO on the Chancellor's Cabinet to ensure they are aware of and involved in institutional initiatives. This will also ensure the CIO can align campus-wide IT priorities with these initiatives.
   c. Create a communication and marketing plan for IT services that informs the campus of IT services and how to take advantage of them.

2. Examine the benefits of reorganizing some key areas within IT organization.

   a. Create a Client or User Services group. This group will be the "front door" to IT services reflecting Information Technology's "visible values" related to high quality customer service and focused on the end-user experience.
   b. Combine networking, systems, and server support units in Central IT into a single unit. This unit will be focused on reliability, availability, and security of the services they provide.
   c. Provide greater focus in the area of administrative computing by moving networking to another unit and limiting their responsibilities to application development and database administration.

3. Implement a single, basic project management methodology for all IT projects and IT units. The actual methodology used must be consistent with the institution's culture but must achieve the following goals:

   a. a clearly defined request mechanism;
   b. an open, transparent prioritization process incorporating campus input and aligning IT investments with campus priorities;
   c. clear, consistent communication on the status of projects from request through completion; and
   d. an approach to project oversight that ensures projects are completed in a timely manner.

4. Address information security and data stewardship issues.

   a. Create a comprehensive data security plan.
   b. Complete a campus-wide audit of all servers and desktop, workstation, and laptop computers to identify where all highly sensitive data is located.

c. Conduct comprehensive IT security awareness training for faculty, staff and students and in depth technical security training for system, database, and network administrators and application developers.

d. Develop and document change management procedures.

e. Create a data mart or data warehouse with reporting and analytics tools to support data-driven decision-making and reduce the need for data extracts.

f. Enhance the physical security of the data center.

5. Address IT funding issues through a combination of actions from cost savings to strategic alignment of IT.

a. Increase the strategic value of IT on campus by hiring a CIO, placing the CIO on the Chancellor's Cabinet, involving the CIO in campus-wide planning efforts, and ensuring the IT strategic plan is aligned with the campus' strategic plan.

b. Ensure the campus understands the strategic value of IT by clearly communicating its role to the campus, charging it to work with IT to develop an campus-wide IT strategic plan, and creating IT priorities (for all IT units) from the new IT strategic plan.

c. Reduce costs by moving common services such as data centers, network storage, server support, homework computer labs, and help desks to Central IT and funding them appropriately – including implementation and replacement funding. This will allow the institution to take advantage of economies of scale for infrastructure and common services and for other decentralized and Central IT units to focus on institutional priorities.

d. Improve service without increasing costs by creating partnerships between decentralized and Central IT staff that allow for sharing of staff resources across units and primary/secondary support responsibilities that cross unit boundaries.