School of Nursing High-level Information Technology Assessment  
Written by Lori Stevens, UW-IT

Purpose

The School of Nursing and Associate Vice-President Ruth Johnston asked UW Information Technology to perform a high-level Information Technology (IT) assessment of Technology Innovations in Education and Research (TIER). TIER is the primary provider of IT services for the School of Nursing, with fifteen full-time staff and four Graduate Student Appointments (GSAs). The School has recently had difficulties delivering dependable technology services. Several of its services have experienced outages or slow-downs, negatively impacting faculty, staff, and student productivity. Outages and slowdowns were especially troublesome at the beginning of the 2011 fall quarter. Moreover, the morale of TIER employees is critically low. At least seven full time employees have left the School of Nursing over the past two years; and vacated positions have not been filled. The purpose of this assessment is to identify what changes could be made to improve TIER technology service delivery and employee morale. This assessment focuses on the most important opportunities for improvement rather than assessing what is working well.

Methodology

In November 2011, I interviewed several key employees from the School of Nursing. The interviews covered user support, system and application infrastructure, course management, web content management, decision-making, and governance. I gathered information on business drivers, technologies, and services that are currently deployed to support the School of Nursing; how responsive those technologies are to the needs of the organization; and whether the current technology strategies, policies, and investments are consistent with the goals of the organization. Besides increasing my general understanding of TIER, I also looked for themes via employee descriptions of TIER operations, identifying a theme where an issue that could be acted upon to help TIER more effectively deliver services was raised by more than one person interviewed. In the process of identifying themes, the interviews explored what might be impacting TIER productivity and technology stability, especially where it affects service provision.

Organizational Summary

I found that TIER employees are skilled, dedicated, and feel accountable for the work they do. They support each other when their co-workers ask for help, and they communicate well among themselves. However, several suboptimal characteristics of the organization contribute to undermining its productivity, and cohesiveness and satisfaction among the employees. These undermining characteristics strongly indicate problems at the leadership level. In particular they indicate leadership failure to make necessary decisions, to set direction and priorities, and to establish reliable lines of communication.
both within TIER and with the Administrative and Academic sides of the School of Nursing.

In addition rather than having the benefit of a few cohesive teams with only team leaders reporting to the Director, about half of the TIER employees report directly to the TIER Director, resulting in skills and employees being spread across the organization rather than employees working together and more efficiently in small teams. Also, TIER employees work on two different floors. This lack of proximity to one another, together with the lack of cohesive teams, presents obstacles to reporting, communication, and collaboration. Employee themes include a lack of decision-making and accountability by management and a lack of transparency for TIER that is frustrating some employees. Staff morale is critically low and it is reasonable to expect that more staff will soon leave if significant organizational changes are not implemented. Other themes include employees not feeling valued, feeling that decision-making is unreasonably slow, and feeling frustrated by a lack of transparency in TIER’s decision making, priorities, and budgeting.

One more significant theme that emerged pertains to the interface between TIER and School of Nursing faculty (i.e. governance). Interview responses indicate that TIER lacks a clear vision and understanding of what the School of Nursing’s departments view as IT priorities. There is a lack of communication and collaboration between the academic departments and TIER, with the result that TIER employees do not know whether what they are working on is of primary importance to the School of Nursing. This contributes to the lack of priority-setting for projects.

TIER also appears to lack project management methodology or best practices. There is some project management in TIER, however, as a unit it is not well-defined and different methods and standards are being used resulting in a lack of cohesiveness.

Given the number of technologies, systems, applications, and services supported by TIER, there is insufficient staff to accommodate the demand in certain areas, e.g. systems, support, and project coordination.

Organizational Recommendations

- **Leadership:** Introduce greater IT experience and knowledge at the leadership level. Take steps to increase employee confidence in leadership.

- **TIER Organizational change:** Reorganize TIER to increase efficiency and productivity, by consolidating IT staff into three groups focusing on delivery of services. For example, the TIER might be structured into the following functional groups: User Support, Web and Teaching Learning/Classroom Services, and Systems and Applications. In addition, decision-making, accountability, roles and responsibilities, and escalation paths should to be clearly defined for TIER. The current structure lacks this clear division of responsibilities. As a result, there are inadequate lines of delegation and duplicative or overlapping responsibilities. Therefore a new reporting structure should be considered in order to provide more support to TIER and the School of Nursing.
• **TIER Staffing needs:** Current TIER staffing levels are inadequate in certain areas. Consider greater use of permanent staff and less dependence on GSAs. Consider merging other IT groups within the School of Nursing with TIER. The School of Nursing has a group called Academic Services which includes database developers, a web services developer, and others. Consider merging this group with TIER. And consider hiring at least two full time professional staff to fill key roles, e.g. a project coordinator and another systems administrator.

• **Governance:** A well-defined yet lightweight governance body should be formed to set priorities and approve major IT projects. The governance body should include representation for all three School of Nursing departments and TIER. TIER employees and their services need to be connected to the needs of their key constituency.

• **TIER Liaison for Faculty:** Appoint a TIER liaison to work with faculty in the School of Nursing. The TIER liaison should be in faculty meetings and regularly working with Academic advisors.

• **Project and Budget transparency:** Consider making current major projects and budgets visible to the School of Nursing. More collaboration, accountability, and transparency regarding would improve TIER employee morale and improve communication and collaboration between TIER and the academic departments.

• **Best practices:** There do not appear to be enough standards and best practices in place for IT, e.g. having a mechanism for managing disk space. Some of the services could take advantage of centrally-offered services or cloud services.

• **Project Management:** Consider lightweight project management methodology. Projects need to align with strategy and goals of the School of Nursing set by a governance body.

• **Budgets:** Consider determining a TIER budget and giving TIER leadership accountability for it.

**Technology Report Summary**

• Moodle has been very unstable, due to lack of documentation and a slow decision to move it to the defacto standard platform in School of Nursing. This course management system was originally set up on a non-standard platform by a former employee, who departed without leaving sufficient documentation or training others to support it as-is.

• The School of Nursing is currently using Sharepoint and Drupal for web content management. The Sharepoint application is managed by UW-IT with TIER support for policy, configuration, and access for the School of Nursing content. Sharepoint is used for internal content and documentation. Drupal, supporting external content, runs on depts.washington.edu, which is not currently set up to support the School of
Nursing demand (note: depts.washington.edu is being upgraded and this could help with performance).

- The School of Nursing essentially ran out of disk space this year and, according to TIER employees, the warning signs and discussions occurred for more than a year prior to that. This caused major slow-downs and service interruptions.

- There are between fifty and sixty servers (mostly Windows, but eight Linux), Windows Domain Controllers, School of Nursing networking, databases, and more, which are being primarily administered by one system administrator. Given the complexity of the School of Nursing infrastructure, one system administrator does not allow for backup support or sufficient resources to attend to day-to-day operations and work on projects, major issues, or updates.

- Desktop workstations are not managed well. The current process is cumbersome and slow. It can take a week to image a workstation. The process currently being used to build workstations is over five years old and, according to reports, pretty much broken. School of Nursing users complain that it can take up to twenty minutes to log in. And a simple workstation update can take an hour.

- Currently, most of the technology services being offered by TIER are also hosted within TIER. Very few are outsourced.

- There is a lack of standards (e.g. choosing one server platform), best practices (e.g. project management and workstation builds), and policies (disk space allocation limits and workstation management).

**Technology Recommendations**

- **Storage:** In order to avoid running out of disk space again, consider setting up per user quotas and developing a written action plan for when space is 60-70% utilized.

- **Workstation Management:** Conduct an evaluation of the School’s workstation management procedures. Consider using desktop vendor images, UW-IT’s Nebula solution, or desktop management solutions for labs and offices. Evaluate less cumbersome methods for managing security, updates, and other configuration changes specific to the School of Nursing. Although there are tradeoffs and security concerns to consider, it will improve productivity for both users and TIER staff to not lock workstations down.

- **Standardize on supported platforms:** Decrease the number of technologies and platforms implemented and supported in-house. This will increase opportunities for cross-training, support, project work, and collaboration across TIER.

- **Cloud services:** Consider outsourcing some of the major applications, such as course management (Moodle) and web content management (currently Drupal and Sharepoint). This will allow more time to be spent on service support and management.
• **Learning/Course Management System:** The SON is currently using an unsupported version of Moodle on the Linux platform. A great deal of work has already been done to set up a newer version of Moodle on Windows that could be supported. It is not in production yet. The SON should also look at using a cloud-based course management system.

• **Web Content and Infrastructure:** The SON would likely benefit from choosing one solution for both internal and external Web content, and fully supporting it as a service. This would be a major project, and would require merging onto one platform. Drupal would be a fine choice, but it would need to be implemented and supported for internal and external content. This could happen either by outsourcing Drupal or running it on a UW-IT managed server.

• **Server and Application Management:** Decide what will be hosted inside the school and what will be hosted in the cloud or via UW-IT. The focus should be on providing quality services rather than on trying to implement and maintain all technology within TIER.

• **Server Management:** Most of the 50-60 servers are Windows and a few are Linux. The Linux systems could be managed servers either in the cloud or by UW-IT, as could several of the Windows servers. In order to optimize staff expertise, it would probably be useful for TIER-managed servers to be Windows only.

**Secondary Recommendations**

• The current ticketing system should eventually be replaced with a ticketing system that has more effective workflow and searching capability. Request Tracker would be one option to consider.
• Examine account creation procedures to look for improvements, if any, that could be made. UW NetIDs should be used for user IDs, if at all possible.
• Determine who should have Domain Administrator privileges. Having Domain Administrator privileges requires advanced technical knowledge and there should probably be at least two people who have it.
• Evaluate monitoring practices to look for ways that the School of Nursing can proactively determine if there are outages.
• Re-examine user support levels and hours. Examine, decide, and document what will be included in after hours support both for users and for services.
• Explore and document file sharing methods across the school, when practical (e.g. common data set). Or set up and use a network (I) drive for simple file sharing or a platform-independent cloud solution, e.g. box.net.
• Consider more training opportunities for staff on a chosen set of preferred technologies in support of service provision.
• Employees would like more transparency into whether MOUs are being billed for. Currently they don’t have any insight into TIER’s budget.
Conclusion

The purpose of this summary is to identify some of the main issues that should be addressed to improve the School of Nursing’s IT service delivery and the effectiveness of TIER. It also provides recommendations for addressing these issues. Significant investment by the School of Nursing will be needed to bring TIER back to a highly functional and efficient organization.

The problems appear to be exacerbated by leadership issues: failing to make necessary decisions, to set direction and priorities, and establish good communication within TIER and with its School of Nursing constituency. This negatively impacts both the functioning of the organization and the morale of the employees. This should be addressed with greater IT experience and knowledge at the leadership level.

Setting up governance and decision making authority for TIER should also be among the first actions. It would be reasonable to hire a consultant to lead a School of Nursing team in determining priorities, identifying quick wins, and defining projects to focus on over the next one to three years. Small teams, which would include TIER employees and representatives from the three departments in the School of Nursing, could be formed to tackle the most challenging issues.

The list of issues and improvement options provided here is not exhaustive, and there was no attempt to catalog activities that are working well. The recommendations above include both tactical "low hanging fruit" ideas as well as options which depend on fundamental strategic choices such as utilization of cloud services. Follow-up work should refine the action plan based on some of those key decisions. TIER employees are eager for change and will be ready to help make improvements to deliver quality IT services to the School of Nursing.