The University *of* Montana Western

Information Technology Services

Seven-Year Strategic Technology Plan (2015-2021)

Introduction

Information technology has become an essential component of higher education and is transforming the core activities of academic institutions. As a result, sound strategic planning for how information technology resources will be cultivated and deployed is essential for the long-term success of the University of Montana Western. In an era of limited financial resources available to public higher education, this need is exceedingly important.

UMW currently has a robust and comprehensive technology program that serves critical areas on campus. These include innovation in instruction, business process enhancement, data-driven decision making and enhanced communications services. The acquisition and planned use of technology to meet these needs at a university level must be vetted through a thoughtful unified process. The goals of this process include research, communication, and prioritization of initiatives in order to allow decision making with regard to the most appropriate timing for technology adoption and implementation.

Statement of Intent

The purpose of this plan is to encourage appropriate campus-wide use of technology. Each of these decisions with regard to technology involves budgets, departments, and connectivity. In order for the campus to take full advantage of the benefits of selected technologies, there must be consideration of infrastructure, long-term use, support, and replacement with every major decision.

The design of this plan is to increase dialog and provide an opportunity for all members of the campus community to share expertise, vision and concerns to help unify UMW's technological evolution. In order to assure compatible technology systems on campus and avoid unnecessary duplication and waste, UMW needs coordination of all technology efforts campus wide, regardless of budget, department and/or intention.

This document serves as the first stop for all decision makers on campus if they have a technology component to their efforts. Coordination of these academic or administrative efforts is critical and must start with a centralized point of contact, which is the Technology Steering Committee.

The plan must be seen as a living document, given that the advance of technology impacts the campus and culture in ways that are often predictable but rapid. This Technology Plan will be revisited formally on a yearly basis by the Information Technology Director to identify areas of weakness, absence, or change and will be modified accordingly.

This plan prescribes the proper procedures for adoption of new technology and the expansion of existing technologies. It is critical that all parties impacted by this plan understand that the intent of this document and the function of the TSC are to encourage best practice technology use in education. The intent of this plan is to provide support for academic use of technologies rather than to govern that use.

The Technology Plan was developed with an awareness of current practice and the evolution of technologies as they impact education and culture in general. The TSC will be charged with the interpretation and enforcement of the plan. There will be timely discussion and recommendations made on all topics brought before the TSC.

Service Overview

The strategic direction outlined in this document incorporates the fact that UMW's information technology environment is not, nor will be, a stand-alone environment.

As a member of the University of Montana system, UMW is reliant upon core administrative software applications managed by UM. These applications include Ellucian Banner Finance, Ellucian Banner Human Resources, ExLibris Alma Library Service Platform and Blackboard Transaction System. The UM Information Technology Services also provides leadership and support in the areas of commodity internet service, wide area networks and information security. UMW also relies on the Montana State Information Technology Services Division (SITSD) for on-site voice technician support.

UMW has developed key relationships with vendors to support applications utilized on campus. These include "on premise" systems such as Oracle Relational Database Management System, Oracle Fusion Middleware, Ellucian Banner Student Information System, and Joomla Content Management System. Also, "cloud based" systems such as Microsoft Office 365, Moodlerooms Learning Management Software, Regroup Emergency Notification Software and Maxient Conduct Management Software fill an important role on campus.

Some of the other factors that will affect the technological direction of UMW include:

- Technology staffing levels and budgetary resources available will not change significantly during the next five years.
- Demands for new information technology resources and tools, in addition to support for existing services, will continue to grow from within the university community.
- Factors such as the increased consumerization of technology and the growth of mobile devices will continue at an exponential pace.
- Implementing technology implies a financial commitment by the university, and the benefit of that implementation must be weighed against its cost. There will always be a limited amount of funding and support personnel available. Consequently, a need for choosing the best use of funds and support staff for technology is imperative. The larger decisions should be made in keeping with the institution's stated priorities.

Technology Governance

Information Technology Services reports to the Office of the Chancellor. The Information Technology Director serves on the Chancellor's Cabinet. ITS is a relatively flat organization. All ITS staff report directly to the IT Director. Including the Director, there are 8 employees comprising 7.75 FTE. There is also a cadre of 4-6 student workers each year that work in the Technology HelpDesk and Student Computer Labs (ITS organization chart is attached as Appendix 1).

The Marketing Department manages the university's web site. The Director of Marketing reports to the Office of the Chancellor. All marketing staff and student workers report directly to the Marketing Director. This includes staff to maintain and administer the content management system. ITS staff work closely with the Marketing Department to maintain the server that hosts the content management system.

The University's learning management system and academic instructional technologies are under the eLearning and Academic Technology Department. The Director of eLearning reports directly to the Office of the Provost. ITS staff work closely with the eLearning Instructional Technologist to support classroom mediation and data integration into the learning management system.

The student computer labs at UMW consist of centralized labs located in the Swysgood Technology Center and Lucy Carson Library. These centralized labs are maintained and managed by ITS and are composed of both PCs and Macs. In addition to centralized labs there are also two departmental labs that are managed by designated department personnel. These include a Business and Technology PC lab and a Math and Science Mac lab. These computer labs, all student support computers and classroom mediation equipment are included in the UMW Student Lab/Classroom Renewal and Replacement Plan.

UMW has several standing technology related committees that serve to provide input into technology services. These committees include: 1) Technology Steering Committee; 2) Computer Fee Committee; 3) Equipment Fee Committee; 4) eLearning Committee; and 5) Web Committee.

Procedures

The Technology Steering Committee coordinates information technology planning and acquisition on campus. The TSC will guide decisions on changes and purchases for the upcoming fiscal year. Any proposed changes or purchases that affect technology on campus must be coordinated through the TSC (Per UMW Policy 500.3 Technology Steering Committee).

1. All guidelines, policies, and procedures regarding information technology on campus will be reviewed by the TSC. Proposed changes of guidelines, policies, and procedures should be forwarded to the Information Technology Director.

2. Purchases of standard technology must be reviewed and approved based on supported systems guidelines and purchasing guidelines. All requests should be initially submitted to ITS. If appropriate, ITS may forward requests to the TSC for review and approval. Large acquisitions may be categorized as new technology (Per UMW Purchasing Guidelines).

3. Acquisition of new technology must be submitted to the TSC via the Request for New Technology Form (see Appendix 2). The TSC will decide in a timely manner to approve, disapprove, or recommend that alternatives be looked at. Decisions by the TSC may be appealed to the Chancellor's Cabinet.

   Proposals must be based on supported systems guidelines and purchasing guidelines and must include the following:

   a) Description of the project, including rationale and implementation.
   b) Dependencies of the technology; those things needing completion before and/or after implementation.
   c) Plan for funding, acquisition, renewal, replacement, and support.

4. The TSC may utilize other technology related committees to get a more in-depth understanding of requested technologies and to receive recommendations from those committees (see Appendix 3). These committees include:

   a) Computer Fee Committee –
      This group is an advisory committee made up of a minimum of 50% students to provide for student advice in the use of student computer fee funds (Per MUS Policy 940.23 Computer Fee).

   b) Equipment Fee Committee –
      This group is responsible for allocating and approving the purchase of equipment through the use of student equipment fee funds (Per MUS Policy 940.26 Equipment Fee).

   c) eLearning Committee –
      This group is responsible for assessing requests for academic technologies and overseeing use of the learning management system. In addition, they help to promote use of new technologies and their integration into online and face-to-face courses using instructional best practices.

   d) Web Committee –
      This group is responsible for evaluating web content needs; enforcing brand and editorial standards; and recommending projects and providing training resources for content providers.

5. All grant applications that include a technology component must be reviewed by ITS (and forwarded to the TSC, if appropriate) prior to submission to determine whether

proposed standard or new technology purchases fit within the current campus technology framework.

6. The Student Computer Fee Committee and the Equipment Fee Committee must follow the procedures outlined in this plan. Upon request, a report must be provided to the TSC by the respective budget managers summarizing purchases made during specified years from the Student Computer Fee, Equipment Fee, and Technology Fee accounts.

7. The TSC will meet on a standard monthly basis. Submit agenda items to the Administrative Assistant in the Administration & Finance Office.

Strategic Direction

Now that the process for acquiring new technologies has been established, the next step is how current and upcoming technologies intersect with the technology priorities of the University.

University of Montana Western Strategic Technology Direction

Priority One: Provide an environment that enhances access to campus resources for faculty, students and staff.

- Maps to Campus Strategic Plan Priority Two and NWCCU Core Theme Two.

Priority Two: Enhance the academic programs of the campus by providing appropriate technology for teaching and learning.

-Maps to Campus Strategic Plan Priority One and NWCCU Core Theme One.

Priority Three: Improve quality and assist in reducing the cost of campus administration and business operations.

-Maps to Campus Strategic Plan Priority Six and NWCCU Core Theme Three.

Priority Four: Protect and enhance the campus information technology infrastructure through security services, appropriate planning and policies.

-Maps to Campus Strategic Plan Priority Five and NWCCU Core Theme Three.

Priority Goals and Objectives

Priority One: Provide an environment that enhances access to campus resources for faculty, students and staff.

Goals:

1. Improve the functionality of centralized student technology.

Objectives:

a) Upgrade and propagate printer management software across campus.

The printer management software was upgraded to accommodate copying on student Xerox printing stations. In addition, the printer management software was also propagated to all campus Xerox printing stations. This will allow for better tracking of usage and ease of rebilling to departments. Also increasing the number of Xerox printing stations available for student printing. ITS will now use the usage tracking mechanism in the new printer management software to evaluate printer/copier placement and recommend changes as needed to meet campus needs.

b) Implement single sign-on into third party applications.

Active Directory Federation Services (ADFS) Single Sign-On (SSO) was successfully implemented into the Ex Libris Alma library services platform. Moodlerooms was contracted to help with the implementation of ADFS SSO into the Moodle Learning Management Software (LMS) via a plugin. However, they could not get the LMS SSO plugin to work and gave us a full refund. We will look at trying to implement SSO into future releases of the Moodlerooms LMS as the technology becomes more integrated into the LMS base code.

2. Improve the functionality of centralized faculty and staff technology.

Objectives:

a) Upgrade the voicemail system.

The voicemail system will either be migrated to a hosted service or continue with a self-supported on-site system.

Priority Two: Enhance the academic programs of the campus by providing appropriate technology for teaching and learning.

Goals:

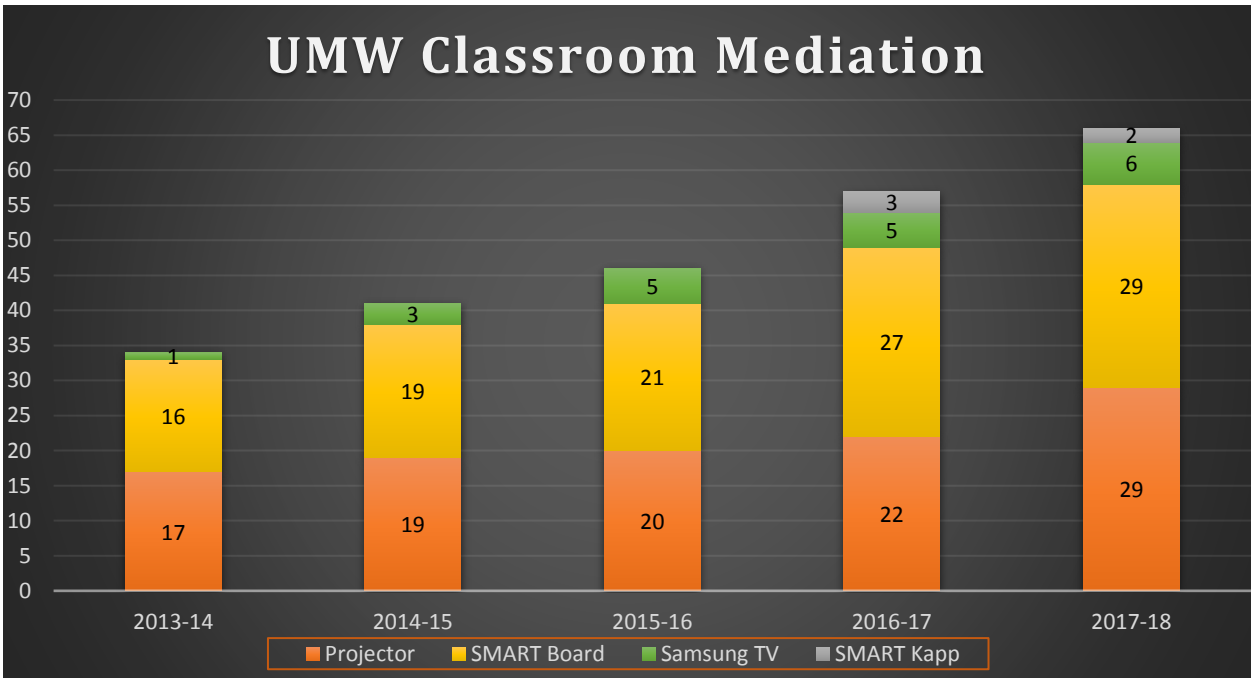
1. Increase the instructional technology availability and offerings across campus.

Objectives:

a) Fill the vacant Director of eLearning & Academic Technology position.

Expansion of instructional technologies hinges off of this position being filled. The search for the Director of eLearning & Academic Technology was successfully completed and filled in April 2017. However, the new hire resigned in September 2017 and the position was filled on an interim basis. The search was then reopened in spring 2018 with a successful hire set to begin in August.

b) Continue the expansion of classroom mediation equipment with the ultimate goal being to mediate all classrooms, where applicable, across campus.



Classroom Mediation continues to expand across the campus with SMART Boards and projectors being the standard. In addition to the expansion of these existing classroom mediation devices, new technology in the form of SMART Kapp Boards (whiteboard capture devices) have begun to be installed in a limited number of classrooms (see chart above).

Priority Three: Improve quality and assist in reducing the cost of campus administration and business operations.

Goals:

1. Implementation of upgrades and enhancements to the Student Information System.

Objectives:

a) Implement newest Student Information System versions.

Ellucian Banner 9 is being implemented in a test environment.

b) Migrate the existing system infrastructure to the latest OS and RDBMS.

The new Banner 9 system will be running on Red Hat Enterprise Linux 7.

2. Repurposing desktop PC's among faculty and staff.

Objectives:

a) Improve the process of tracking current inventory and the distribution of new and upcoming inventory.

The process has been modified so all computer (desktop and laptop) purchases for faculty and staff are being handled by ITS. This allows ITS to track and inventory these machines. As computers are rotated out of the student labs, they can then be rotated to those departments on campus that do not purchase new computers with their budgetary funds. This ensures that campus computing is at a satisfactory level of performance by utilizing these older, yet functional computers.

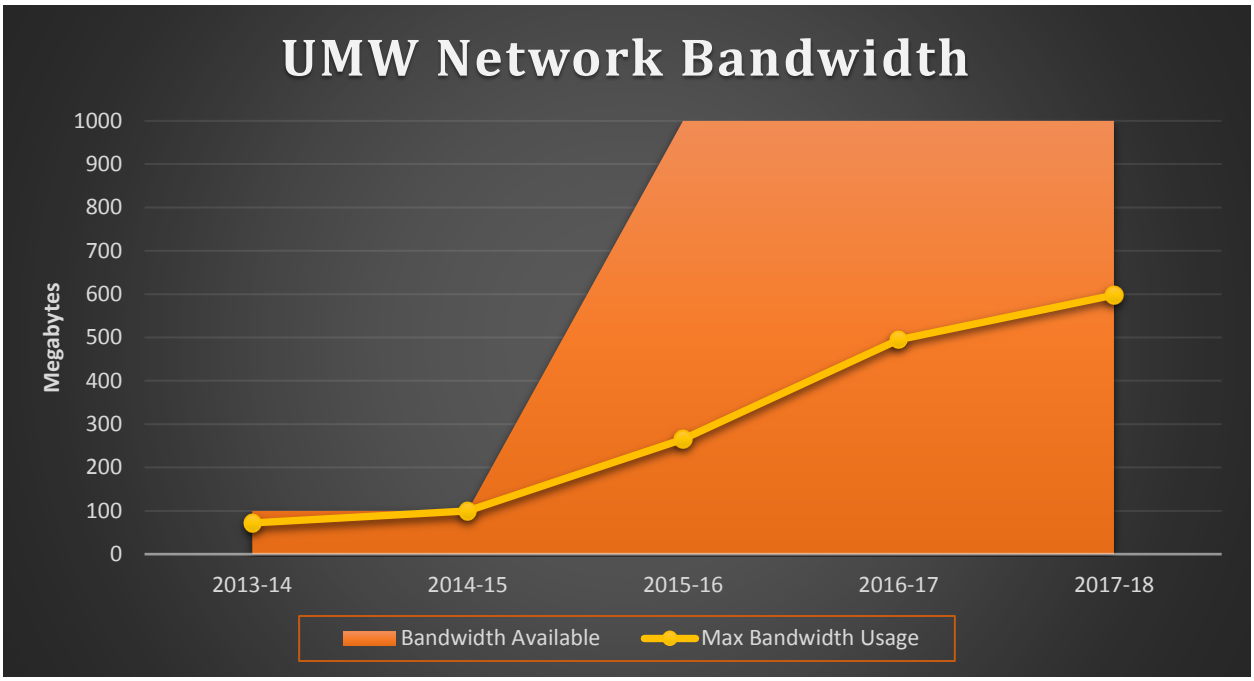
Priority Four: Protect and enhance the campus information technology infrastructure through security services, appropriate planning and policies.

Goals:

1. Develop strategies to ensure that the campus network infrastructure, including wireless capacity, is stable and able to accommodate increased demand.

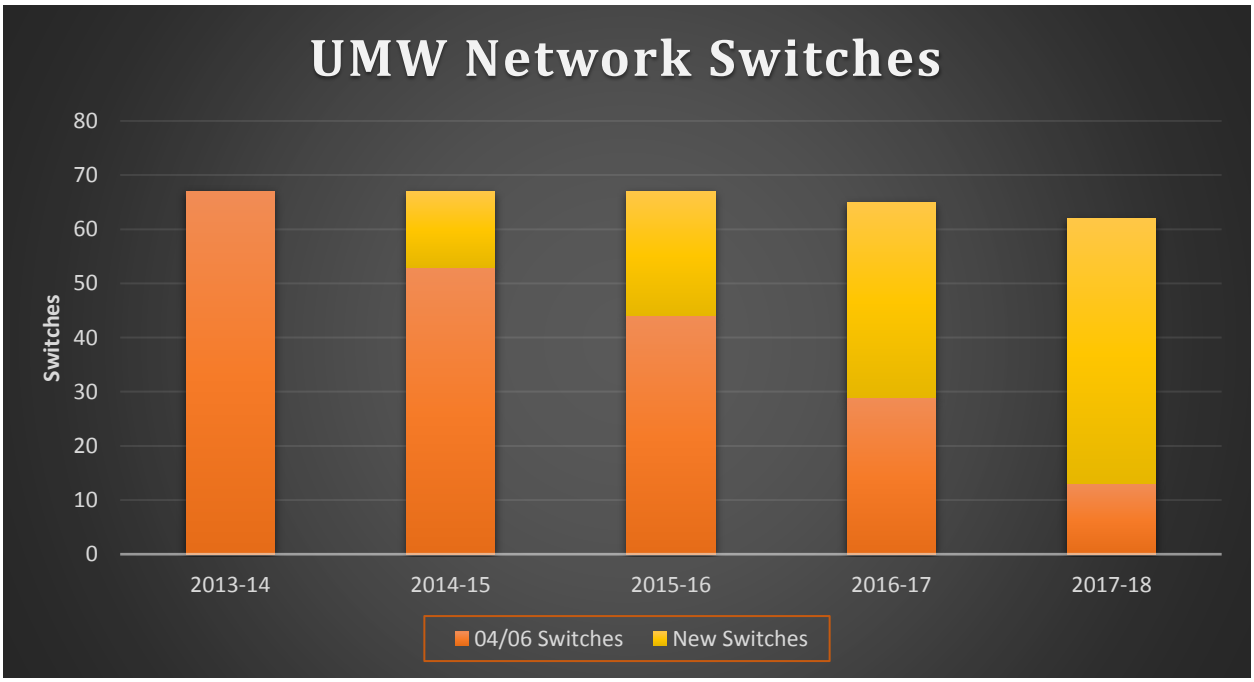
Objectives:

a) Improve wired and wireless network infrastructures across campus. With the ultimate goal being the development of a campus fiber network infrastructure able to handle the increasing demand for bandwidth.



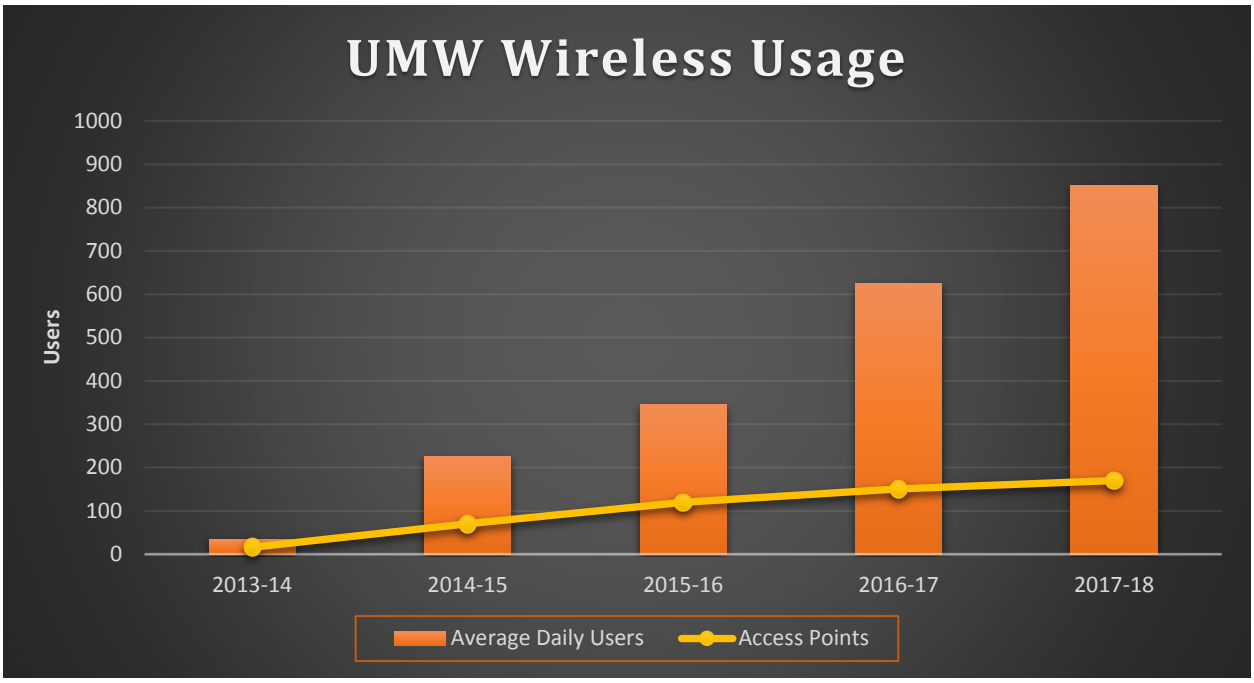
The capacity of our external fiber optic connection to the Internet backbone was increased from 100M to 1G during the 2015-16 academic year. This alleviated the bottleneck UMW was experiencing during times of peak bandwidth usage. Max use of bandwidth continues to rise each year and will need to be closely monitored to forestall any bottlenecks in the future (see chart above).

b) Renewal and replacement of network switches.



The renewal and replacement plan in place will be updating the 2004/2006 vintage switches across the campus. By purchasing new Cisco 48-port switches instead of 24-port switches, the campus network can consolidate the total number of switches needed (see chart above).

c) Identify needs in current wireless capacity and increase capacity in gaps found.



The wireless network has been upgraded and expanded across the entire campus providing better service and support to students for both academic and personal needs. The number of average daily users has increased exponentially each academic year (see chart above). As more students bring multiple wireless devices on campus the number of access points to accommodate these connections will have to increase in high traffic locations.

2. Enhance the campus data center operations and reliability.

Objectives:

a) Migrate physical server nodes to a virtual server environment, where applicable.

All Microsoft Windows servers have been migrated to Hyper-V virtualization hardware. The new Banner 9 Linux servers are being built in a Hyper-V environment.

b) Upgrade and restructure the core fiber networking racks.

A cable management system has been installed on the core fiber networking racks and the cables have been rerouted.

c) Enhance physical infrastructure such as air conditioning and security systems that can be implemented in phases as funding permits.

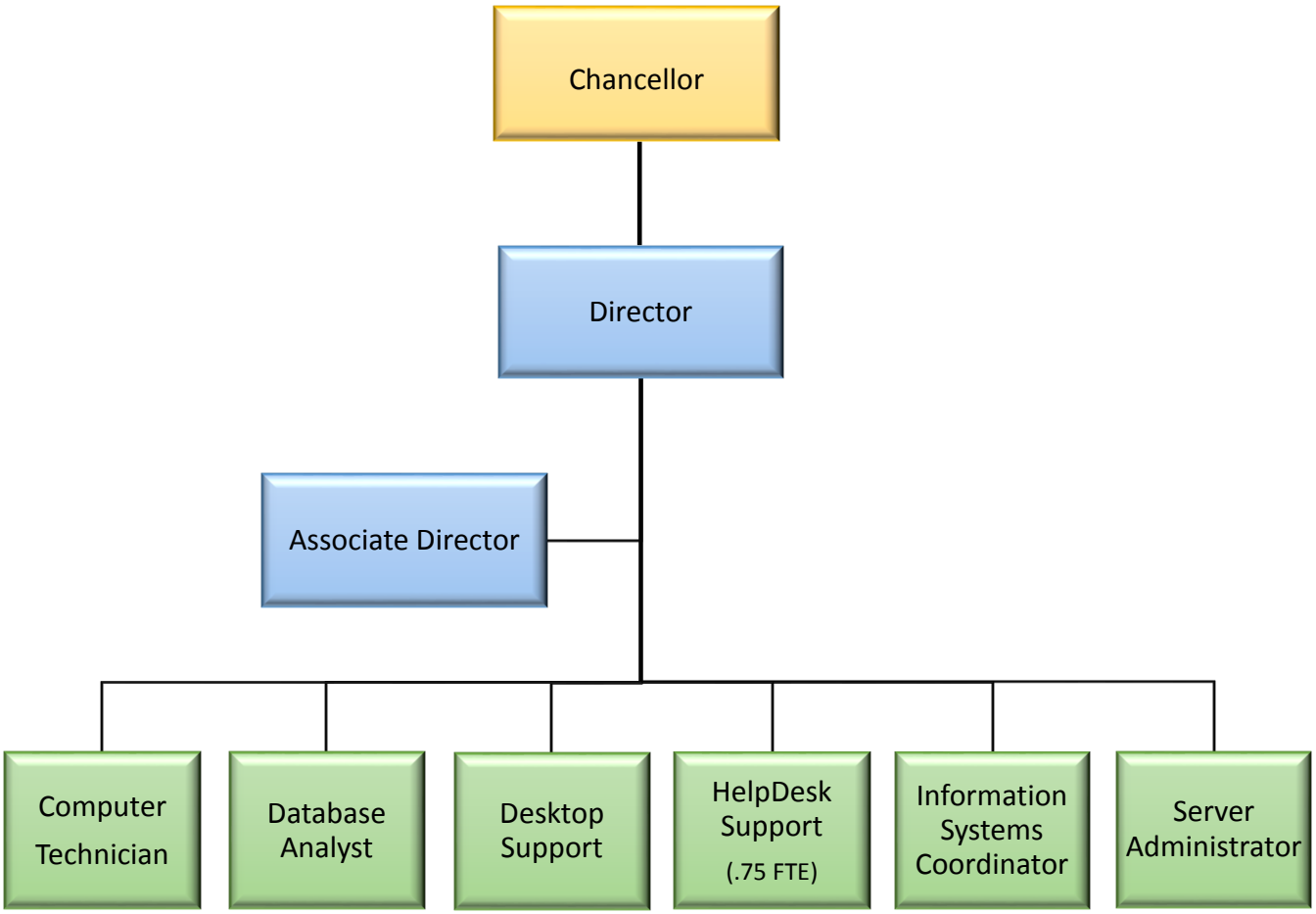
The air conditioner in the telephone switch communications room located in the Block Hall basement has been replaced with a new unit. An electronic door keypad lock has been installed leading into the computer server room located in the Black Hall first floor.

Appendix 1

The University *of* Montana Western

Information Technology Services

Organization Chart



Appendix 2

The University of Montana Western
Technology Steering Committee

Request for New Technology Form

Use this form to request the approval of new technology by the Technology Steering Committee. Please submit this form to the Information Technology Director after obtaining the appropriate signatures below.

Name: _____ **Campus Phone:** _____

Department: _____

Campus E-mail: _____

Requested Technology Description and Purpose:

Dependencies of the Technology (those things needing completion before and/or after implementation, such as additional equipment, hardware, software, construction, etc...):

Cost and Funding Source of the Technology (one-time and/or long-term expenses, training, maintenance, etc...):

Dept. Chair/Director Signature: _____ **Date:** _____

Provost/Vice Chancellor Signature: _____ **Date:** _____

IT Director Signature: _____ **Date:** _____

For TSC internal use only:

Action	Section	Completed By	Date	Comments
Approved	Committee			
Denied	Committee			
Notified	ITS			
Filed	ITS			

Appendix 3

The University *of* Montana Western

Technology Request Flow Chart