2006-2007

I.T. STATUS REPORT & STRATEGIC OBJECTIVES

Sinclair Community College

Information Technology Division

Status Report and Strategic Objectives for FY 2006-2007

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Section 1

Executive Summary

Executive Summary

During the past few years, the Information Technology Division (IT) has worked diligently to provide a secure and stable environment, and at the same time, to develop innovative approaches to information access and services. The ultimate goals are to enhance the strategic value of IT, to manage the IT resources efficiently and effectively, to understand and manage the expectations of all students, faculty, and staff, to ensure fiscal discipline regarding the acquisition and utilization of IT resources, and to satisfy the strategic objectives of Sinclair Community College.

The following graphs are presented as an overview of the innovation and progress achieved.

Website Utilization

Website utilization is typically measured in terms of number of page views accessed by users. A page view is recorded each time a different page is requested by a user. As illustrated in Figure 1-1, the average daily page views for all Sinclair websites has continued to increase over the past three years, especially the my.Sinclair portal.

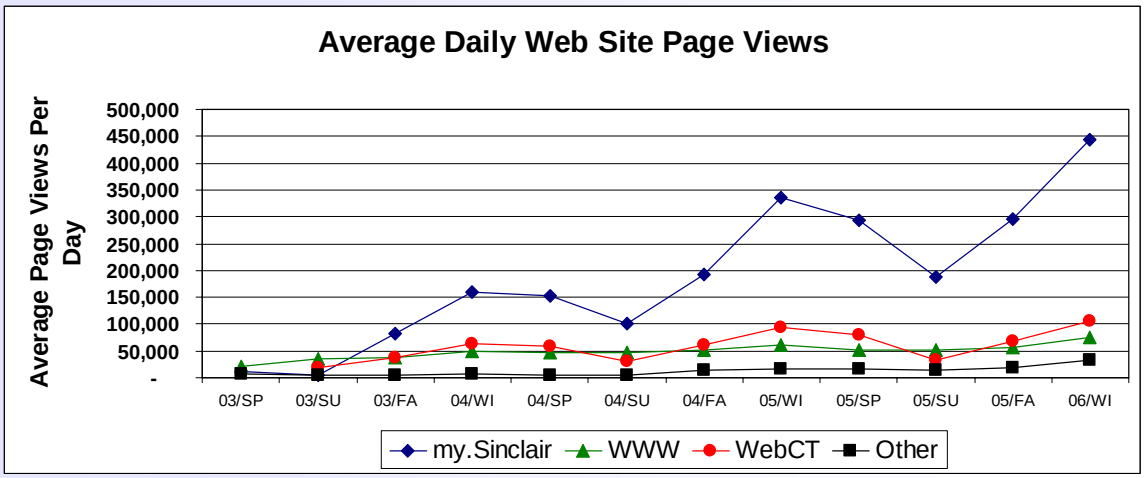

Figure 1-1. Average Daily Web Site Page Views.

System Availability

It is the goal of the Information Technology Division to provide 100 percent availability for the total planned uptime of all network services. To achieve this goal, there must be effective controls and processes in place to ensure that downtime is prevented when possible and quickly resolved when it occurs.

Information Technology Services (ITS) maintains a system to record information about all servers that the department administers and the applications or services that are provided by those

servers. The system's purpose is to report on the total availability of the services provided and to create improved controls and processes in order to provide the highest possible level of availability. The graph in Figure 1-2 shows the availability for major categories of services for each academic quarter since the Fall of 2003.

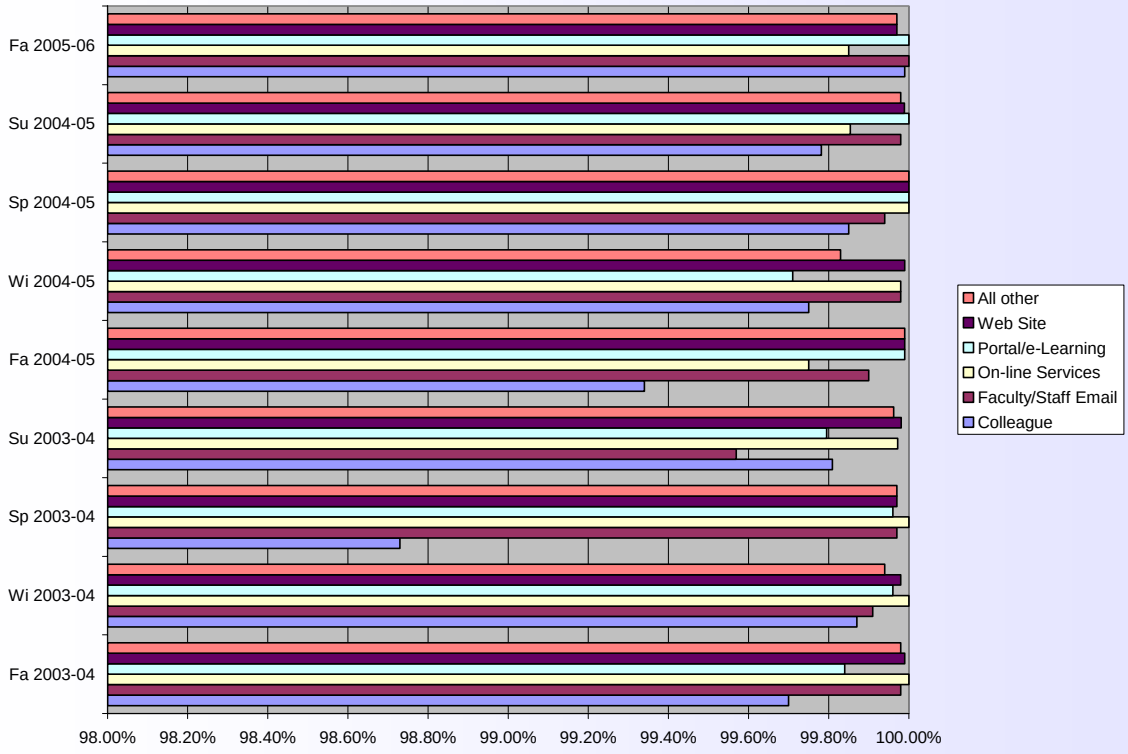

Figure 1-2. Availability of major categories of services for each academic quarter since Fall 2003.

Major Accomplishments for FY 2005-2006

A wide variety of projects were in process or started during FY 2005-2006. Several were delayed due to budget constraints; some were cancelled due to the emergence of more effective technologies or alterative methods to achieve the same end result; a few will continue into FY 2006-2007. Many of those completed provide innovative processes for students, faculty, and staff. This Executive Summary describes three of the more significant project accomplishments. Each project title has associated with it a color coded object to reflect the Sinclair Strategic Cluster supported. These clusters are shown at the bottom of each page.

Library Renovation

Completion of the LRC Renovation project was the major activity involving the Sinclair Library in FY 2005-2006. The stated goal of the project was to **"Return the Library to the focal point of the academic campus as a technology enhanced learning resource as well as retaining the traditional resources."** Other goals included increased utilization, improved visibility, and flexible use of space and resources. Issues driving this project included:

- Trend of declining use (fewer people in the old facility);
- Trend of alternative information solutions (the Internet and digital products);
- Changing technologies made the old LRC obsolete (poured concrete difficult to retrofit);
- Inadequate instructional spaces on campus;
- Minimal environmental upgrades since 1972 (limited air, water, electrical infrastructures); and
- Underutilized spaces (unused corners, inefficient storage units, over-growth of collection).

The old Learning Resources Center (shown in Figure 1-3) had become an underutilized space in the heart of the campus. When built in the early 1970s, it was a good facility reflecting the best thinking of the time. However, this was an era before personal computers, the Internet, WIFI, cell phones, PDAs, and the like. The heating, ventilating, plumbing, and electrical infrastructure were also all outdated. The networking infrastructure was minimal, retrofitted on top of the poured concrete structure. Renovation had to begin, therefore, with a complete demolition of the old facility.

Figure 1-3. Old Learning Resources Center – Spring 2005.

The new Library design emphasized flexible use of space, incorporation of new technological infrastructure, increased capacity for future development, improved environmental controls, and above all, an emphasis on student learning. To do this, the space had to be inviting, comfortable,

and suited to today's society. It had to include social as well as academic and technological features. It had to be a space that students could find and navigate with independence and comfort. Open sight lines, visible service points, and a variety of zones that appeal to different learning styles were all essential elements of the new Library. Figure 1-4 provides an architect's drawing of the planned facility.

Figure 1-4. Architect's drawing of New Library.

SAS Implementation (Project DAWN)

The SAS Institute is making a major commitment to develop products and services that promote cooperative efforts between K12 and higher education. It is Sinclair's strategic vision to be a founding member of this initiative.

This project is underway and is on schedule. The overall SAS implementation is planned to span a four year period. The following are highlights of what has been accomplished during the first year:

- SAS hardware and software has been installed and tested.
- The Sinclair data warehouse has been integrated with SAS tools.
- Sinclair staff has been trained to use SAS tools, (e.g., Enterprise Guide, Enterprise Miner, Web Reports Studio, Information Delivery Portal, ETL studio, Enterprise Manager).
- An admissions Enterprise Miner project has been completed.
- SAS Financial Management implementation is underway.

Executive Summary

The following reports have been developed and have been made available to the campus community via the DAWN Information Delivery Portal:

- The Top 100 Report;
- The Accuplacer Report;
- The enrollment management cube;
- The admissions cube; and
- Program review reports.

Qualitative/Quantitative Return on Investment: The overarching goal of Project DAWN is to provide the campus with tools that will support "a culture of evidence" and that will promote "data-driven" decision making.

Estimated Cost of Project: **$**1.2 million over a four year period.

Cost savings/Cost avoidance anticipated for the project: Effective use of SAS tools will allow Sinclair to compete on a level playing field with all entities in the higher education market. Intelligence gleaned using SAS tools has the potential for substantial cost savings in the coming years as more decisions are predicated on analysis of available data.

Target Completion Date: June 2006 – continues as a project in FY2006-2007

Actual Completion Date: June 2006 – continues as a project in FY2006-2007

Network Security Enhancements

Information Technology Services is responsible for maintaining a secure, manageable, and scalable IT system that facilitates a balance between secure and collaborative network computing for the College's students, faculty, and staff. ITS completed a great deal of work researching, testing, and implementing technologies that address specific issues for the College network; however, the College faced some complex challenges in achieving a truly secure LAN solution.

The growth in wireless networking, the need to provide protection from the introduction of wired and wireless "guest" computing devices, and the need to protect the network from network-borne viruses and worms led the ITS team to develop a strategy for a Secure LAN Solution. This strategy was completed in October 2004, and it has provided a roadmap for the implementation of network switch port-based authentication; the authentication, verification, and provisioning of guest and unknown devices; and the identification, isolation, and remediation of problems with un-patched or virus-infected PCs and other devices.

The resulting plan consists of five phases:

I. **Acceptable Use Policy** – utilizes a policy hierarchy as the basis for populating user roles with services and rules to match the desired network behavior. The policy defines the

various user roles that can be assigned to a network switch-port and the allowable communications for each role.

II. **NMS (Network Management System) Applications**– the tools for getting the system installed. The NMS applications assist in the administrative tasks necessary to quickly deploy tasks such as device management, switch configuration backup and restore, firmware upgrades, device inventory management and change control, and policy configuration and deployment.

III. **DIR (Dynamic Intrusion Response)** – implementation of response processes to network security events. Implementation includes use of a Quarantine role, Enterasys Dragon IDS and Netsight Automated Security Manager (ASM) to perform responses.

IV. **Authentication (Phase I)** – addresses the authentication steps for imaged PCs (a Sinclair PC with a standard set of software including antivirus and security patches). After the imaged PC is recognized by the system, the user's role is defined upon login to a network switch-port and the policy that enforces that user role is applied.

V. **Authentication (Phase II)** – addresses the authentication for non-imaged PCs. Non-imaged PCs are scanned by the system. If the non-imaged PC has problems, the system places the PC in quarantine in a pre-defined remediation role. If the PC has no problems or its problems have been resolved by the system, it is assigned an Unknown PC role which limits user access to services such as web access.

The plan defines a clear path towards a network where access to network resources is based on the role of the user, the configuration of the computing device being used, and the verifiability that the device is problem-free. The implementation of the plan began in December 2004, and all phases of design and modifications to the infrastructure are complete. All wireless access and wireless devices are now 100% secured by this system. Wired ports and workstations are in the process of being modified so that all wired access and wired devices will also be secured by the system. When the plan has been fully implemented, there will be no ability for a computer to communicate on the Sinclair network without the user of the device passing an authentication process. Also, the plan will provide for different levels of access based on whether the device is a Sinclair-imaged computer or a device with an unknown configuration.

Qualitative/Quantitative Return on Investment: Every person that uses, or attempts to use, the Sinclair Community College network including current and future students, alumni, and conferences/seminar attendees, develops an opinion about the College's network. This experience contributes to user opinion of Sinclair Community College as an educational institution and contributes to the reputation of the institution and ultimately impacts enrollment and funding. In today's IT climate, users expect the network to be everywhere and available at all times, but they expect it to be secure as well; this is the balance that must be maintained through the implementation of this plan.

Cost savings/Cost avoidance: Security incidents can create intangible costs to the College such as lost productivity or lack of customer satisfaction. In addition, they can create breaches of confidential information that could cause financial penalties for the College. Minimizing the possibility of these types of incidents is absolutely critical.

Target Completion Date: June 2006

Current status: The plan's implementation began in December 2004 with the definition of the various roles in which users and devices can be authenticated. The next two phases, NMS and Dynamic Intrusion Response, were completed in February 2005. These three initial phases were all fairly easy to implement in short time-frames due to their minimal impact on existing services. The authentication phases have both been implemented but will take several months to become fully functional due to the changes that must be made to the computers and other network attached devices. These changes are currently underway using documented processes, and the network grows more secure with every step toward the project's completion.

Major Projects for FY 2006-2007

A variety of innovative projects are in process or planned to start during FY 2006-2007. This Executive Summary describes three of these major projects. Each project is color coded to reflect the Sinclair Strategic Cluster supported.

Measuring Student Response Project

Library instruction is an important part of information literacy education at Sinclair - one of the college's general education competencies. In most cases, however, library participation involves a single training event, and measuring the effectiveness of this training can be difficult because it is hard to gather meaningful data in a timely manner. One method of gathering timely data from student participants is to use an audience response system, such as those shown in Figure 1-5, where students use a remote control to answer questions. This kind of system could be used to conduct on-the-fly tests of student understanding. Response data is quantified in real time and captured for later analysis.

In this project, the library will investigate audience response systems that can be used in conjunction with library instruction sessions - both those that may already be owned by the college and those on the market today.

Qualitative/Quantitative Return on Investment: Measures of library information literacy instruction effectiveness are generally indirect - after the fact questions and comments made to faculty and the appearance of good sources in student papers and projects - neither of which can be directly measured or attributed to library instruction. Library instruction is expensive when faculty and librarian time are considered in addition to the dedication of an actual class period to the activity. If a relatively inexpensive and easy-to-use response system can be identified and used to provide immediate, measurable feedback to the librarian, classes can be better designed to respond to student needs.

Target Completion Date: December 2006

Figure 1-5. Audience Response System.

Angel Learning Management System

Implementation of the Angel Learning Management System, shown in Figure 1-6, will require the creation of new processes such as "seeding new quarters" with course information from previous terms, establishing archiving rules for course data retention, etc. In addition, this project includes all activities to support Distance Learning's efforts to convert course content to the new LMS.

Estimated Cost of Project: 8 staff person months (approximately $43,000)

Cost savings/Cost avoidance anticipated for the project: Implementing the Angel LMS will save approximately $30,000 per year in license expenses currently paid to WebCT and Blackboard.

Target Completion Date: April 2007

Figure 1-6. Web screen showing the Angel Learning Management System.

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VoIP Pilot Project

This project was started in FY 2005-2006 due to the need to supply phone systems for the new Fast Track Learning Centers. As a result of the consultant's report: reviewing the current needs of the Fast Track Learning Centers and a pilot system, the ShoreTel VoIP system was selected as the vendor of choice for this new technology both for the Fast Track Learning Centers and the pilot. The actual pilot phase will commence this year with the installation of the pilot system, and incorporating it into the existing data infrastructure as well as providing connectivity to the existing Fujistu PBX. The trial will provide an evaluation of the VoIP capabilities and features and its remote administration functionality.

Estimated Cost of Project: $40,000.

Cost savings/Cost avoidance anticipated for the project: A trial will provide an opportunity in real-time to successfully put the product through testing and have potential users give feedback on its operations, features, and capabilities without a substantial investment. As a result of the trial, future capital expenditures in this technology can be planned with more experience and knowledge.

Target Completion Date: May 2007

Current Status: This project is continuing from the original project initiated in FY 2005-2006, and implementation will start in June 2006.

Section 2

Introduction

Introduction

During the past few years, the Information Technology Division (IT) has worked diligently to provide a secure and stable environment, and at the same time, to develop innovative approaches to information access and services. The ultimate goals are to enhance the strategic value of IT, to manage the IT resources efficiently and effectively, to understand and manage the expectations of all students, faculty, and staff, to ensure fiscal discipline regarding the acquisition and utilization of IT resources, and to satisfy the strategic objectives of Sinclair Community College.

The following graphs are presented as an overview of the innovation and progress achieved in several areas over the last three years.

Website Utilization

Website utilization is typically measured in terms of number of page views accessed by users. A page view is recorded each time a different page is requested by a user. As illustrated in Figure 2-1, the average daily page views for all Sinclair websites has continued to increase over the past three years, especially the my.Sinclair portal.

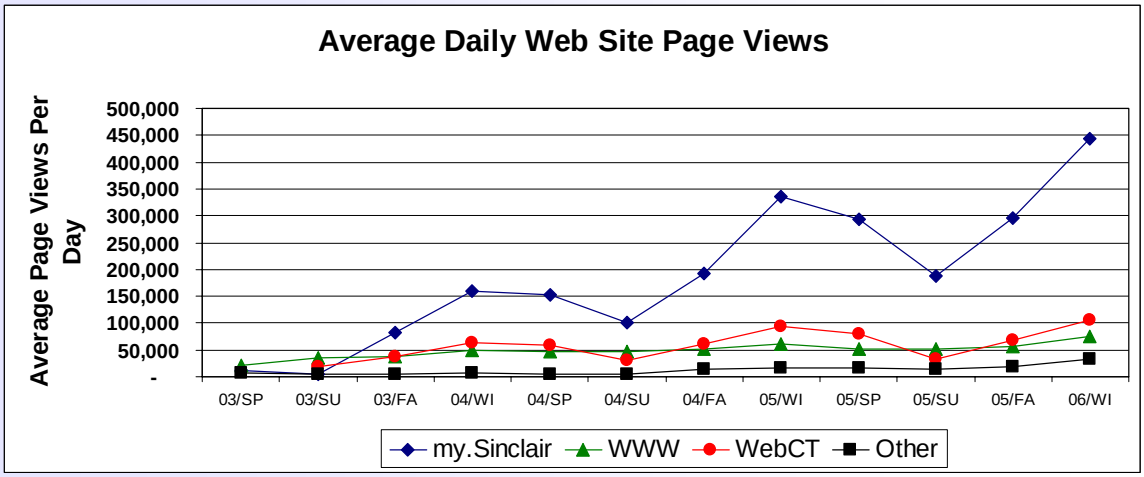

Figure 2-1. Average Daily Web Site Page Views.

Registration Methods

Providing students with multiple means of registering for classes not only allows flexibility, but also eliminates unnecessary trips to campus. Additionally, as more students register via the web or telephone, the lines at the registration window decrease. As shown in Figure 2-2, web registration has been steadily increasing since its inception. This will be extremely beneficial as students begin to register for classes at the Fast Track Learning Centers and the Warren County facility.

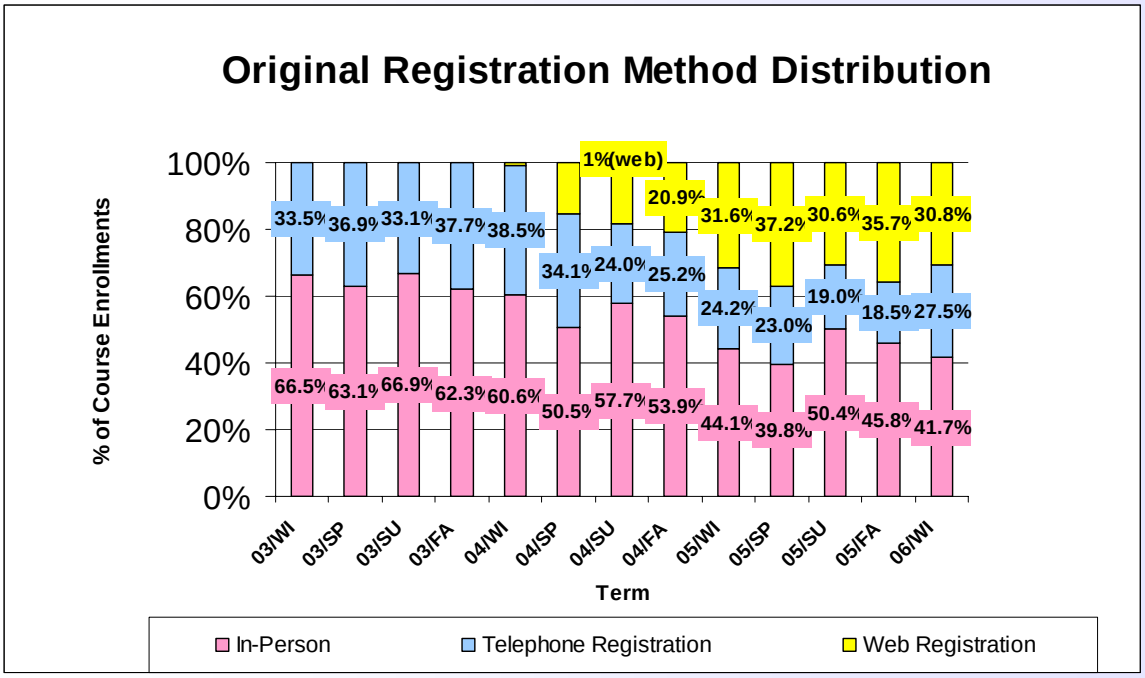

Figure 2-2. Registration Methods.

System Availability

It is the goal of the Information Technology Division to provide 100 percent availability for the total planned uptime of all network services. To achieve this goal, there must be effective controls and processes in place to ensure that downtime is prevented when possible and quickly resolved when it occurs.

Information Technology Services (ITS) maintains a system to record information about all servers that the department administers and the applications or services that are provided by those servers. The system's purpose is to report on the total availability of the services provided and to create improved controls and processes in order to provide the highest possible level of availability. The graph in Figure 2-3 shows the availability for major categories of services for each academic quarter since the Fall of 2003.

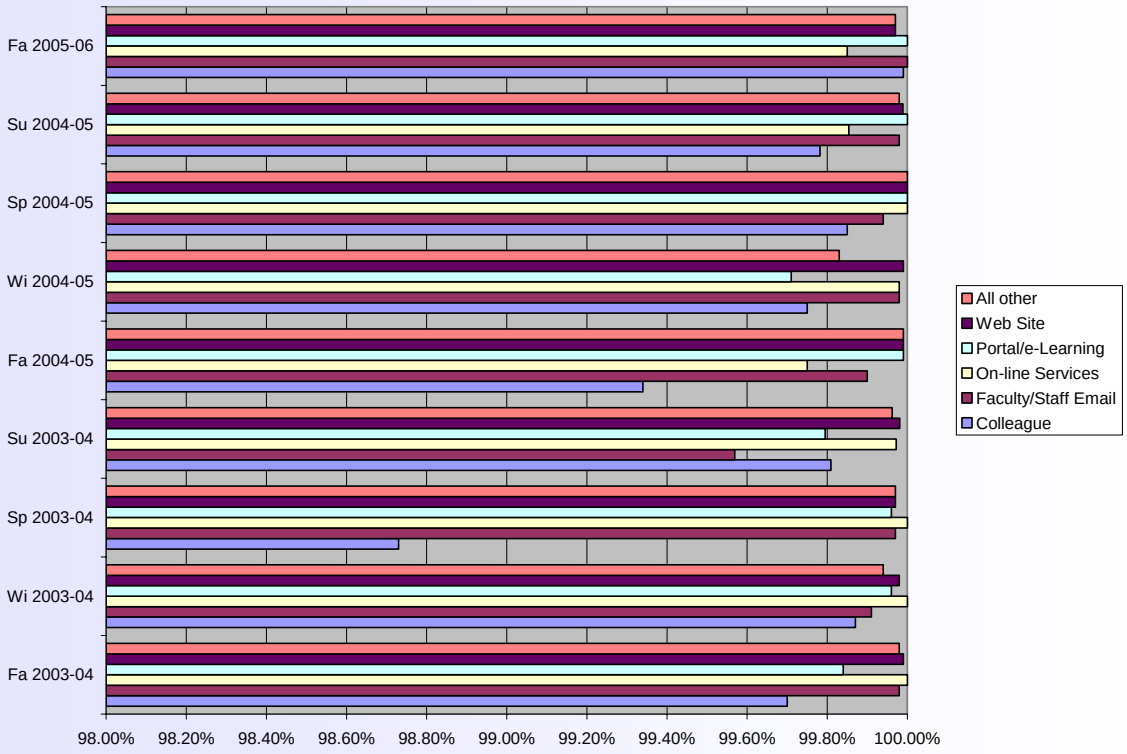

Figure 2.3. Availability of major categories of services for each academic quarter since Fall 2003.

Help Desk Statistics

The Help Desk uses a system called Magic to log calls taken from users and forward any problems that cannot be immediately resolved to the appropriate group or individual. Each reported problem is recorded as a 'ticket' in the Magic system. This system allows the IT Division to ensure that all reported problems are tracked until closed. The system also allows management to track statistics and to identify where changes in procedures need to made.

Figure 2-4 shows the total opened Help Desk tickets by academic quarter for the last three years, and Figure 2-5 provides the total closed tickets by group (IT Division organization) for the same periods.

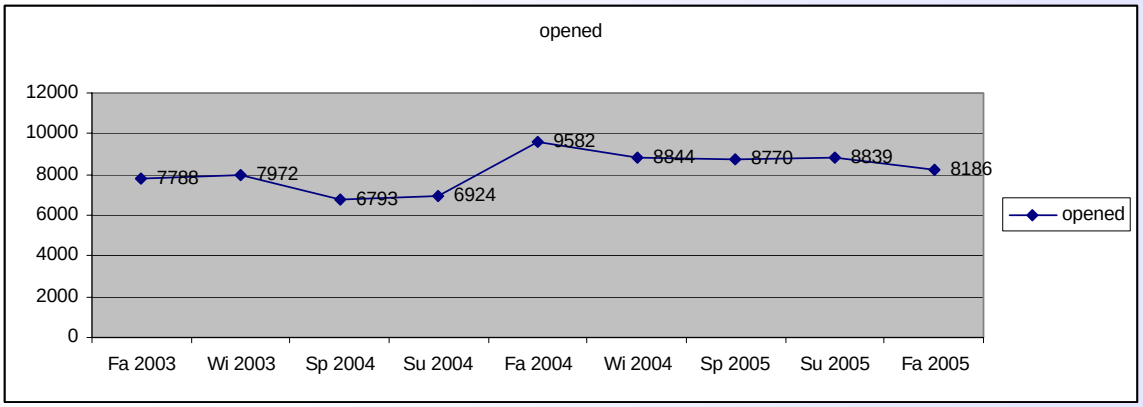

Figure 2-4. Total opened Help Desk tickets by academic quarter.

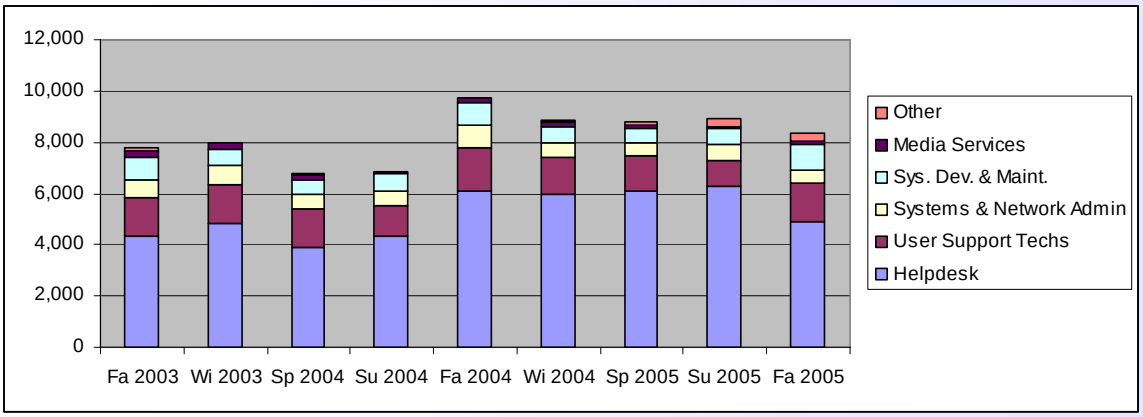

Figure 2-5. Total closed tickets by group for each academic quarter.

Wireless Usage

On November 9, 2005, guest wireless network access was implemented for Sinclair students and the public in various spaces in all buildings on the Dayton campus (see Wireless Network Expansion project in Section 3). Table 2-1 shows the number of unique users that used the system during the first 4 months of the system's availability. A user session starts when the initial connection is made to the wireless network and ends when disconnected.

	Nov-05	Dec-05	Jan-05	Feb-05
Total # of Unique Users	489	154	681	815
Total # of User Sessions	1258	1552	12718	11363
Avg. # of Sessions per User	2.57	10.08	18.68	13.94

Table 2-1. Guest wireless network usage by month since implementation.

Teleport Usage

The Sinclair Teleports (open computer labs) have become more and more popular over the past three years. Combined usage for Teleports I and II for fall 2005-2006 was 62,551 student sessions, as shown in Figure 2-6. As technology components are incorporated into additional courses, it is anticipated that the usage will continue to escalate. Integrating Teleport I into the new Library and adding more PCs will help to satisfy this expected demand.

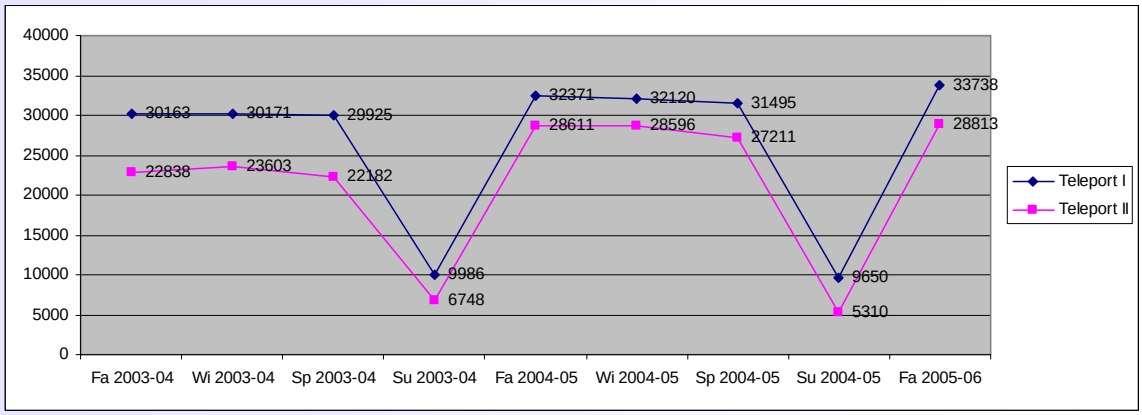

Figure 2-6. Teleport Usage.

Note: The acronyms and technical terms used throughout this document are defined in Appendix A, Glossary.

Section 3

Major Accomplishments For FY 2005-2006

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A wide variety of projects were in process or started during FY 2005-2006. Several were delayed due to budget constraints; some were cancelled due to the emergence of more effective technologies or alterative methods to achieve the same end result; a few will continue into FY 2006-2007. Many of those completed provide innovative processes for students, faculty, and staff. This section describes many of the more significant project accomplishments. Each project title has associated with it a color coded object to reflect the Sinclair Strategic Cluster supported. These clusters are shown at the bottom of each page.

Library

Following are the Major Accomplishments for FY 2005-2006 for the Library:

- Library Renovation
- Collection Development Plan
- Yankee Book Project

Library Renovation

Completion of the LRC Renovation project was the major activity involving the Sinclair Library in FY 2005-2006. The stated goal of the project was to **"Return the Library to the focal point of the academic campus as a technology enhanced learning resource as well as retaining the traditional resources."** Other goals included increased utilization, improved visibility, and flexible use of space and resources. Issues driving this project included:

- Trend of declining use (fewer people in the old facility);
- Trend of alternative information solutions (the Internet and digital products);
- Changing technologies made the old LRC obsolete (poured concrete difficult to retrofit);
- Inadequate instructional spaces on campus;
- Minimal environmental upgrades since 1972 (limited air, water, electrical infrastructures); and
- Underutilized spaces (unused corners, inefficient storage units, over-growth of collection).

The old Learning Resources Center (shown in Figure 3-1) had become an underutilized space in the heart of the campus. When built in the early 1970s, it was a good facility reflecting the best thinking of the time. However, this was an era before personal computers, the Internet, WIFI, cell phones, PDAs, and the like. The heating, ventilating, plumbing, and electrical infrastructure were also all outdated. The networking infrastructure was minimal, retrofitted on top of the poured concrete structure. Renovation had to begin, therefore, with a complete demolition of the old facility.

Figure 3-1. Old Learning Resources Center – Spring 2005.

The new Library design emphasized flexible use of space, incorporation of new technological infrastructure, increased capacity for future development, improved environmental controls, and above all, an emphasis on student learning. To do this, the space had to be inviting, comfortable, and suited to today's society. It had to include social as well as academic and technological features. It had to be a space that students could find and navigate with independence and comfort. Open sight lines, visible service points, and a variety of zones that appeal to different learning styles were all essential elements of the new Library. Figure 3-2 provides an architect's drawing of the planned facility.

Figure 3-2. Architect's drawing of New Library.

Key Features of the renovated facility include:

Twice the Access to Information Technology. Through the use of an Information Literacy Grant, the number of general purpose computers available to students has increased by 91% in the new Library. The old Teleport in Building 11 included 50 computers and the old LRC had 43 computers (including limited feature kiosks) available to students, a total of 93. The new Library includes:

88 desktop PCs on the open floor
24 desktop PCs on the loggia
30 desktop PCs in the library classroom / open computer lab
36 laptops with WIFI network capability
178 total computers

In addition, the English department Writing Center includes over 20 additional PCs for student use and the new Writing classroom includes 30 PCs. Developmental Education's Tutoring and Learning Center includes an additional 16 computers in its plans.

New Classrooms and Meeting Spaces. The old LRC had one room in which classes could view information searching demonstrations during orientation sessions. The new Library includes four fully equipped classrooms as follows:

- 1 podium classroom next to the Tutoring and Learning Center for Developmental Education
- 1 computer classroom next to the Writing Center for the English Department
- 1 computer classroom for information literacy instruction and general computer use during unscheduled times.
- 1 podium classroom for short term schedulable use by all faculty and staff

Small Group Study Rooms. Seven study rooms can be reserved by faculty and students for students to use when working on team projects, group assignments, and similar activities where there is likely to be extensive discussion, media use, and interactive work.

Faculty – Staff Meeting Rooms. Two new small meeting rooms will be available to faculty and staff.

Starbucks Café. In today's society, there is an affinity between information technology, books, reading, libraries, and coffee bars. In addition, experts recognize that learning is often a social activity, and it takes place where people can gather, interact, and socialize over food and drink. The Library's café (shown in Figure 3-3) provides just such a space.

Single Service Point. In an effort to break down the silos that often develop between college departments, the new Library features a single service desk (shown in Figure 3-3) where both Library and ITS Help Desk / Teleport services are available to students, faculty, and visitors. The goal of better customer service is enhanced by the coordination of staff, both at the desk and on the service floor.

Figure 3-3. Architect's drawing of Service Desk and Café.

Different Zones or Social-Learning Environments. The Library includes a number of different spaces designed to appeal to different people. These areas are distinguished both by function and by furnishings and fixtures. They look and feel different, thereby giving this one large room a dynamic sense of change.

- Grand Entry. Matching Glass and Stainless Steel stairs form an entry to the lower level with the Service Desk in the middle. The contrasting maple and ebony woods of the desk balance the man-made materials of the stairs. The ceilings are high, lighting is bright, and the area has a contemporary feel.
- Elevator Entry. Those users who need to access the lower level of the library via the Building 7 elevator will now enter the facility through an entrance that is as large and inviting as the glass stairs. Instead of being a secondary entrance, this entryway leads to major aisles that make moving through the space easy and intuitive.
- Café. The integrated café with white ceramic tile, bistro seating, TV, messaging system, trees, and Starbucks creates an exciting destination.
- Academic support sector. The Writing Center and Developmental Education share a common reception area and carpet treatment. The carpeting extends to the classroom and group study rooms. It is bold and bright, giving the zone a unique look and feel.
- Classic reading sector. This area is marked by different carpeting and furniture. Here, there is a mix of traditional library seating and comfortable overstuffed chairs. It will appeal to the student who seeks a slightly more traditional area in which to study or who still seeks that feeling of being surrounded by books.
- Quiet Reading Room. This room is intentionally traditional and classic in its wall treatments and furniture selections. The room includes built-in book shelves and high backed chairs. However, the key feature of this space is that it is the one designed quiet space in the new Library.
- High-Tech, High-Touch Technology Islands. The Library and Teleport computers have been combined on a common image and will be staffed by specially trained ITS staff. The furniture allows students to spread out their work and use the computers at the same time.

Staff who service this area are constantly on the floor, moving through the space to provide help when and where needed. Reference librarians will be available at all times in an on-call status.

- WIFI Zone. The entire facility is designed for wireless networking. Multiple antennas have been placed to allow access from both the loggia and the lower Library.
- Loggia. The new loggia will include individual and group seating as well as computer workstations. The northwest corner is geared toward study space and the southeast corner toward lounge and casual seating. The Kinko's-style printing operations will be located in the northeast corner near the Tartan Market Place entrance.

Qualitative/Quantitative Return on Investment:

- More efficient use of the space in the Library.
  - Underused corners in the old LRC that were used for storage and warehousing space have now been converted to academic support activities.
  - Four new classrooms have been added.
  - Improved staff office space has been created.
  - New floor space was added by filling in the light wells between the loggia and lower level.
  - The old garden which could not be used by anyone – only observed from the outside – is now the site of a café.
- Improved environmental control – a healthier building with better air exchange and HVAC.
- Improved networking infrastructure allows for current needs and future growth.
- More efficient library storage – Library book collections have been retained, but the amount of floor space allotted to book storage has been cut in half through more efficient shelving.
- Improved customer service.
  - Single service point for ease of use.
  - Library and Teleport support staff blended together. This assures the same training for all staff and sets a standard for consistent quality service that can serve as a model for other campus labs.
- Reclaiming space across campus – as other units move to the Library, the space they occupied on campus can be reassigned to new uses.
  - The Writing Center moved from Building 3.
  - The DEV Tutoring and Learning Center moved from Building 6.
  - The Teleport moved from Building 11.
- Improved access to information technology. In a recent month, 20% of all Sinclair students who wanted to use computers in the temporary library had to wait. Similar waits sometimes happen in the Teleport. The increase in computers should reduce the number and length of time students must wait for a computer.

Current Status: Construction began in 2005 (shown in Figure 3-4) and is scheduled to be completed on May 8, 2006. At that time a phased move-in will begin with the Library and Starbucks moving first, followed by the Teleport. The Writing Center and DEV Tutoring and Learning Center will move in June 2005. The Printing Center will be in place by fall. The Library plans to open for service in the new Library on May 15, 2006.

Target Completion Date: April 2006.

Figure 3-4. Library Renovation In-Process.

Collection Development Plan

The Library staff wrote a detailed statement on how it selects information content (literary, artistic, scholarly, scientific, informational, and recreational) for its collections, what form that content takes (i.e., books, digital file, magazine, video, etc.), whether it purchases or leases such material, and how it keeps its collections current. The goal of such a statement is to provide the librarians with guidance on what to purchase and provide the college community, especially faculty, with an explanation about the library that they can find meaningful. A second goal was to use this plan to guide the establishment of an automated selection tool available from the Library's primary book vendor. Following discussions with selected faculty groups and individuals, the Library determined that a clearer, less jargon-filled statement of guiding principles would work better as a management and communications tool.

Qualitative/Quantitative Return on Investment: This document will provide a tool to assure that college resources are spent on the right materials at the right time, and that long term storage and maintenance costs are minimized by removing content that is outdated, inaccurate, or out-of-scope.

Target Completion Date: June 2006

Actual Completion Date: On target for a June 2006 completion.

Yankee Book Project

Academic libraries often use jobbers to purchase most of their book materials. These jobs may be thought of as wholesale supply houses for the library book trade. They offer price discounts and incentives not available when individual libraries have to do small purchases from hundreds of different publishers. This project involved three phases: 1) the switch to Yankee Books for day-to-day purchases; 2) improved selection decision-making through use of Yankee's Approval Plan services; and 3) a cost/benefits study of added software to integrate the Yankee system with the Library's III cataloging system.

Qualitative/Quantitative Return on Investment: Yankee already won a statewide OhioLINK RFP so we know discounts and performance are good and we enjoy the benefits of group rates. Additional value features include the capability to see what other OhioLINK libraries (80 across the state) are ordering, and thereby minimize duplication of material that can be borrowed for free rather than purchased with scarce funds. Next, the Library partially instituted Yankees Approval Plan features, saving staff time with selection.

Target Completion Date: December 2005

Actual Completion Date: December 2005

Systems Development & Maintenance

Following are the Major Accomplishments for FY 2005-2006 for the Systems Development & Maintenance Department:

- Convert Bursar Office to Colleague's POS Processes
- Staff Professional Development - Object Oriented Programming
- Faculty Pay Load Process
- Sponsored Billing Revisions
- Colleague R18 Preparation
- Replace On-line Card Office
- HEI Reporting - Faculty, Facilities, and Financials
- Expand Business Intelligence Initiative
- SAS Implementation (Project DAWN)
- Course Management System Selection
- Colleague Changes - Mini-terms
- Document Imaging - Feasibility Study
- Career Planning & Placement Technology - Feasibility Study
- Curriculum Management Tool (Version 2.0)
- Student Success Plan (Version 3.0)
- Generic Workflow Engine - Online Forms and Approval Processes
- Develop New Portal

- Online Transcript Exchange
- Web Content Management System Update
- Improve Online Admission Application
- Develop Web Sites in Support of Instructional Master Plan
- Graphic Representation - Academic Program Requirements/Sequences
- Create System for Automatic Reset of Active Directory Passwords
- Create Sinclair Project Tracking Tool
- Establish a System for Web-based Surveying of Students
- Cohort Files for "Achieving the Dream" Activities
- SD&M Staff in Project Management Training
- Group Selection Feature in CMT
- Real-time Searching of Course Selections on Web
- Search Features of www.sinclair.edu
- System to Collect Web Use Statistics
- Integrate Angel XEI with Colleague
- Change Processes to Allow for Instant Registration

Convert Bursar Office to Colleague's POS Processes

The Bursar office's current POS system is antiquated and lacking in sufficient vendor support. The Colleague system has most of the functionality of the current POS system. This project involved putting the Colleague functionality into full production and creating custom programming for missing functionality.

This project was put on hiatus for the FY 2005-2006 plan period due to illness of required personnel.

Qualitative/Quantitative Return on Investment: None to report at this time.

Cost savings/Cost avoidance anticipated for the project: Purchasing a third-party POS system for the Bursar's Office is estimated to be in the range of $150,000 based on the fact that $285,000 was recently spent on a larger and more complex bookstore POS system.

Target Completion Date: December 2005

Actual Completion Date: Indefinite – project in hiatus

Staff Professional Development - Object Oriented Programming

Administrative Systems has on staff individuals who are very knowledgeable in object oriented programming languages. This project calls for the scheduling of formal training sessions to be led by these individuals for the benefit of others in the Administrative Systems area. The project is designed to enhance knowledge of current programming languages throughout Administrative Systems.

The project has progressed as planned during FY2005-2006. Approximately eight training sessions have been conducted for Administrative Systems staff. The training has progressed to the point where trained individuals are writing elementary JAVA programs.

Qualitative/Quantitative Return on Investment: Significant progress has been made in expanding staff understanding of object oriented programming principles.

Cost savings/Cost avoidance anticipated for the project: Current rates for contracting for Java programming skills run, at a minimum, $60 per hour. At this rate, the project costs would be recouped if eight weeks of assigned tasks could be transferred from external consultants to internal staff. Over the first six months of FY 2005, Administrative Systems spent $43,200 for contracted programming services.

Target Completion Date: June 2006

Actual Completion Date: June 2006

Faculty Pay Load Process

It was expected that during FY 2005-2006, the committee examining faculty pay load processes would complete its work and have its recommendations accepted. However, the committee changed course approximately midway through the year. Specifically, they determined that the Colleague faculty payload product could not provide the functionality that Sinclair's process requires. The project's executive leader decided that the project as originally envisioned would need to end, and that a different approach would need to be taken to improve faculty payload processes. This different approach is included in Section 4.

Qualitative/Quantitative Return on Investment: The project has led to consensus that Sinclair needs to create a custom faculty payload system and that a commercially available solution does not satisfy the college's functional requirements.

Target Completion Date: June 2006

Actual Completion Date: Project as originally planned was terminated by the executive sponsor in February 2006. The project with a different scope is included in the FY2006-2007 plan.

Sponsored Billing Revisions

Due to the staff situation in the Bursar's Office (see previous **Convert Bursar office to Colleague's POS processes** project) time was not available to see this project through to completion. What has been completed is to create a non-customized version of the Colleague software on a test server so that a comparison can be made between the functionality of the generic version and the current state of Sinclair's custom code. By the end of the FY 2005-2006

plan year, it is expected that this comparison will be completed. The comparison will then be used to chart the course for future action.

Qualitative/Quantitative Return on Investment: Movement away from customization of ERP code has the potential to reduce ongoing maintenance costs.

Cost savings/Cost avoidance anticipated for the project: Twelve times a year Sinclair's software vendor tailors revisions to their base line software in order to accommodate Sinclair's custom code for sponsored billing. This tailoring takes place every time that the vendor releases patches to their baseline software. On average, Sinclair spends approximately $20,000 per year to maintain these custom revisions.

Target Completion Date: December 2005

Actual Completion Date: The comparison component of the project will be completed by June 2006. Other components of the project are in hiatus until the staffing situation in the Bursar's office is resolved.

Colleague R18 Preparation

The next Colleague version was scheduled to be released in summer 2005. It was anticipated that Sinclair would adopt the new release in FY 2006-07. In order to prepare for this release, activities such as the following needed to take place:

- Convert all I descriptors to computed columns;
- Convert all custom programming to R18 standards;
- Run all planning tools and converters; and
- Deploy the User Interface (UI) campus wide.

The vendor of Colleague R18 delayed release of the product until February 2006. However, the expected quantity of work on R18 preparation identified above has been completed. IT was decided to delay the conversion to R18 until at least FY 2007-2008. Consequently, the timeline for completing all conversion work has been extended. This project continues into the FY2006-2007 plan and is reflected as a project for that period.

Qualitative/Quantitative Return on Investment: The Colleague R18 version is expected to have major changes in its underlying computer architecture. These changes should allow the product to be integrated more easily with third party software, which should open additional software solution options for Sinclair.

Cost savings/Cost avoidance anticipated for the project: Transition to R18 positions Sinclair to take advantage of future product benefits such as database independence and more efficient Java code.

Target Completion Date: June 2006

Actual Completion Date: June 2006, for this phase of preparation

Replace On-line Card Office

Currently online transactions to Sinclair's one-card system are made through the vendor's off campus service center and are provided as part of the vendor's base product. Originally, the vendor stated that starting in FY 2005-2006, these online card office services would be at an additional fee. However, the online card office vendor changed the timing of the decision to discontinue free access to the hosted software. The vendor now has set January 2007 as the conversion date. Despite this change, most of the preparation work for this conversion has been completed. All conversion costs have been identified, and the Business Services office is now evaluating these costs with the goal of including them in the FY 2006-2007 budget.

Qualitative/Quantitative Return on Investment: The qualitative value of this project is that students will continue to have the same level of service from a new online card office. However, this continuation of service will come at the cost of additional expense to Sinclair.

Cost savings/Cost avoidance anticipated for the project: There is no direct cost savings or cost avoidance identified with this project.

Target Completion Date: December 2005

Actual Completion Date: June 2006

HEI Reporting - Faculty, Facilities, and Financials

The HEI reporting requirements to the Ohio Board of Regents (OBOR) fall into four areas: enrollment, personnel, facilities and financial reporting. The enrollment component of HEI reporting was addressed in FY 2004-05. This project involved adding the required data elements to the data warehouse and creating reports that would support the other required areas.

There was not sufficient staff time available from the Data Warehousing and Business iNtelligence (DAWN) staff to complete this project. Their efforts were devoted almost exclusively to the SAS implementation project.

Qualitative/Quantitative Return on Investment: There was no ROI for this project.

Cost savings/Cost avoidance anticipated for the project: HEI reporting is required by OBOR. The primary benefit is the reduction of personnel costs in the support and maintenance of current reporting methods. These costs are estimated to be .1 FTE or approximately $6,000 per year. An additional benefit is the ability to analyze the data with business intelligence tools.

Target Completion Date: January 2006

Actual Completion Date: The project will not be completed during the FY2005-2006 time period. It will be rolled over into FY 2006-2007.

Expand Business Intelligence Initiative

This project was canceled and replaced by the SAS Implementation (Project DAWN).

SAS Implementation (Project DAWN)

The SAS Institute is making a major commitment to develop products and services that promote cooperative efforts between K12 and higher education. It is Sinclair's strategic vision to be a founding member of this initiative.

This project is underway and is on schedule. The overall SAS implementation is planned to span a four year period. The following are highlights of what has been accomplished during the first year:

- SAS hardware and software has been installed and tested.
- The Sinclair data warehouse has been integrated with SAS tools.
- Sinclair staff has been trained to use SAS tools, (e.g., Enterprise Guide, Enterprise Miner, Web Reports Studio, Information Delivery Portal, ETL studio, Enterprise Manager).
- An admissions Enterprise Miner project has been completed.
- SAS Financial Management implementation is underway.

The following reports have been developed and have been made available to the campus community via the DAWN Information Delivery Portal:

- The Top 100 Report;
- The Accuplacer Report;
- The enrollment management cube;
- The admissions cube; and
- Program review reports.

Qualitative/Quantitative Return on Investment: The overarching goal of Project DAWN is to provide the campus with tools that will support "a culture of evidence" and that will promote "data-driven" decision making.

Estimated Cost of Project: **$**1.2 million over a four year period.

Cost savings/Cost avoidance anticipated for the project: Effective use of SAS tools will allow Sinclair to compete on a level playing field with all entities in the higher education market. Intelligence gleaned using SAS tools has the potential for substantial cost savings in the coming years as more decisions are predicated on analysis of available data.

Target Completion Date: June 2006 – continues as a project in FY2006-2007

Actual Completion Date: June 2006 – continues as a project in FY2006-2007

Course Management System Selection

Sinclair's distance learning initiatives may be able to benefit from features included in the most recent versions of course management software. The RFP process for the selection of a learning management system has been completed, and the Angel Learning Management System has been selected. In addition, implementation plans have been developed, pilot hardware has been purchased, software has been installed, and a pilot running of Angle LMS courses is scheduled for Summer 2006.

Qualitative/Quantitative Return on Investment: The RFP process uncovered the fact that the Angel LMS was written by, and written for, individuals who are teachers first and technology practitioners second. The product is substantially more pedagogically sound than other systems that were evaluated.

Cost savings/Cost avoidance anticipated for the project: Sinclair currently subscribes to two course management systems. The Angel LMS will reduce annual licensing fees by approximately $30,000 per year.

Target Completion Date: September 2005

Actual Completion Date: January 2006

Colleague Changes - Mini-terms

Sinclair has made the strategic decision to offer mini terms between quarters. This decision necessitates changes to some Colleague setup and reporting processes.

Qualitative/Quantitative Return on Investment: In addition to preparing for changes brought about by mini terms, this project has had the additional benefit of preparing the Colleague system to accept the non-traditional course scheduling patterns required by the fast-track learning centers.

Cost savings/Cost avoidance anticipated for the project: Per Sinclair's budget office, target expenditures per FTE student are between $6500 and $7000 per year. New FTE students are estimated to bring in additional revenue in this same range. Conversion of Colleague to accommodate mini terms supports attracting new FTE's.

Target Completion Date: October 2005

Actual Completion Date: October 2005

Document Imaging – Feasibility Study

Many of Sinclair's processes, especially in the student services area, are very paper intensive. There are products on the market that have the potential to reduce costs associated with the processing, storage, and retrieval of documents. This project involves establishing a group from across the campus to examine how these products could be successfully implemented at Sinclair.

In light of current budget constraints, it was not prudent at this time to pursue this new technology. Thus, the project was delayed and has been included in the FY2006-2007 plan.

Target Completion Date: October 2005

Actual Completion Date: The project will not be completed during the FY2005-2006 time period. It will be rolled over into FY 2006-2007.

Career Planning & Placement Technology – Feasibility Study

Career Planning & Placement believes that an infusion of web and/or desktop software features into office processes has the potential to significantly increase the quality of service to students. This project provided systems analyst resources to the office with the goal of identifying those process changes or software purchases that are most likely to provide the greatest return on investment and the greatest increase in services to students.

The analysis has been completed and areas have been identified where software has the potential to significantly improve services to students. These potential software areas have been included for further evaluation in the FY2006-2007 Plan.

Qualitative/Quantitative Return on Investment: This project suggests that the implementation of Customer Relationship Management software has the potential to significantly improve the student's college experience.

Cost savings/Cost avoidance anticipated for the project: There was no direct cost benefit or cost avoidance during FY2005-2006.

Target Completion Date: March 2006

Actual Completion Date: March 2006

Curriculum Management Tool (Version 2.0)

This project involved creating enhancements to the existing CMT product. These enhancements included 1) adding a build feature for new and revised programs; 2) including tabs for each quarter in a program sequence; and 3) adding the ability for faculty and students to add assessment of

course outcomes. Additionally, features have been added to CMT that allow for the creation of course syllabi and catalog copy.

Qualitative/Quantitative Return on Investment: Sinclair has traditionally faced the challenge of maintaining consistency among and between its various curriculum description systems. CMT has reduced this problem by serving as the sole source for curricular information used to populate the ERP system, the college catalog, and course syllabi.

Cost savings/Cost avoidance anticipated for the project: One expected outcome from CMT is a better alignment of course offerings with student expectations and needs which will, in turn, lead to higher enrollments in courses.

Target Completion Date: June 2006

Actual Completion Date: June 2006

Student Success Plan (Version 3.0)

A Title III grant calls for software development in support of student retention to take place during the entire five year span. The Student Success Plan (Version 3.0) project involves the programming associated with the third year of the grant.

The project has continued on time and on target. One of the significant enhancements made during FY2005-2006 is the introduction of an early alert function within SSP. This feature allows faculty to easily send electronic notices to counselors when at-risk students are falling behind in their course work. SSP continues to receive national recognition. The software program received Macromedia's Higher Education Innovation award during 2005, as shown in Figure 3-5.

Qualitative/Quantitative Return on Investment: Research on SSP participants indicates that they now are retained from quarter to quarter at a rate equal to that of non at-risk students. This is a statistically significant change from retention rates prior to the introduction of SSP.

Cost savings/Cost avoidance anticipated for the project: There are currently approximately 4000 at-risk students participating in SSP. If SSP is successful in retaining half of the 2000 whom, according to national statistics, would traditionally stop out, this means additional student fee/subsidy revenue of $3,250,000 annually. (Sinclair's budget office estimates $6,500 to $7,000 revenue per FTE. A headcount of 1000 students will generally equate to about 500 FTE.)

Target Completion Date: June 2006

Actual Completion Date: June 2006

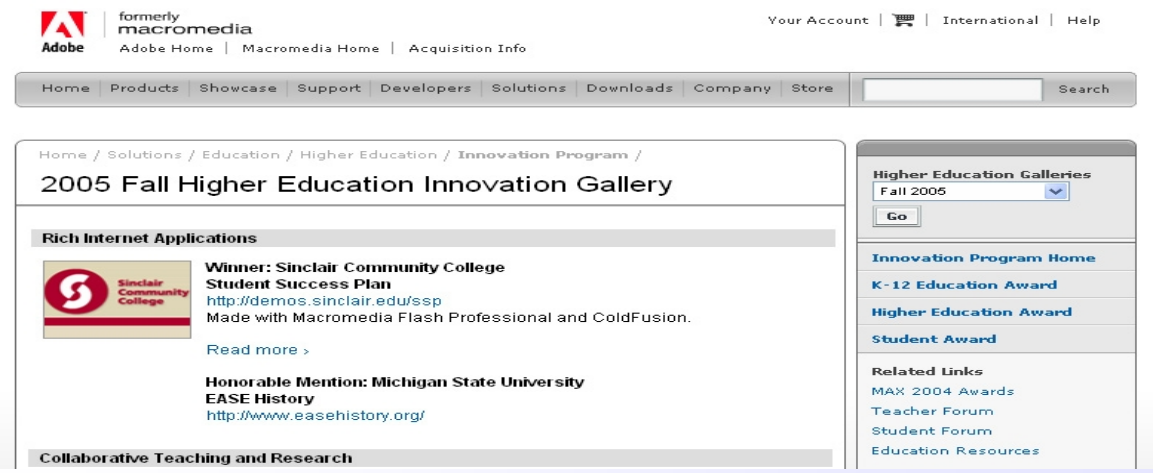


Figure 3-5. Web announcement of SSP's Macromedia Innovation Award.

Generic Workflow Engine – Online Forms and Approval Processes

This project entails modifying the workflow engine supporting CMT such that the engine can be used with other forms and other approval processes such as grant coversheets with approvals. This project would also incorporate adding an electronic signature approval feature to the workflow engine.

There was not sufficient time available from the Web Systems staff to complete this project. The project has been moved to FY2006-2007.

Qualitative/Quantitative Return on Investment: A specific ROI amount has not been determined for this project. However, the grants office estimates that availability of such a tool would substantially decrease the amount of time they needed to be out of the office while seeking signatures for grant applications.

Cost savings/Cost avoidance anticipated for the project: The recently implemented on-line requisition system resulted in a reduction of approximately 500 hours of manual processing of requisition requests. This project could realize similar reductions in manual processing.

Target Completion Date: December 2005

Actual Completion Date: The project will not be completed during the FY2005-2006 time period.

Develop New Portal

The currently used portal is based upon proprietary software that does not allow customization to meet Sinclair's unique needs. Web systems possesses the technical expertise to create an internally developed portal that would allow for specific customization of Sinclair's environment. The portal would seamlessly integrate with Sinclair's course management system and would

incorporate features such as photo images on class rosters. One of the first steps in this project was to perform a detailed ROI analysis. From this analysis, it was determined that the payback period would run into six years, and this was too long of a time period to justify the expenditure of resources needed to develop a custom portal. Simultaneously, the project to select a new learning management system was progressing, and it was determined that the selected LMS included fundamental portal features. These portal features came as part of the base LMS product. After further research, it was determined that the LMS portal could serve as the superstructure for Sinclair's portal, and this superstructure could be converted to the Sinclair portal look and feel with considerably less work than that required for creating a custom portal. Consequently, this project has been carried over to the FY2006-2007 plan, and the scope of the project has been scaled back to remove much of the custom work.

Qualitative/Quantitative Return on Investment: A portal presence gives a single web front door for all student transactions with Sinclair. This single front door allows the college to tailor communications to specific student groups and to assure that consistent, pertinent, and timely communications are directed to students.

Cost savings/Cost avoidance anticipated for the project: There was no cost benefit or avoidance for FY 2005-2006.

Target Completion Date: April 2006

Actual Completion Date: This project has been reduced in scope and has been carried over to the FY2006-2007 plan.

Online Transcript Exchange

The explosion of e-commerce has placed a spotlight on the need for institutions to be able to exchange electronic copies of student transcripts. Both national and state efforts are underway – Speede nationally, CAS in Ohio. This project involved the identification and implementation of the technology most appropriate to meet Sinclair's needs.

This project is on target and will be completed on schedule. When originally planned, the project called for the creation of a software system that would support electronic transcript exchange between Sinclair and Wright State University – the number one recipient of Sinclair transcripts. Wright State, however, needed to pull out of the project since most of their time was focused on converting to a new ERP system. New partners were found in the University of Cincinnati and Cincinnati State Community and Technical College. The software has been written to implement this project, and testing of transcript exchange is taking place between partners.

Qualitative/Quantitative Return on Investment: One side benefit of implementing this project is the opening of the possibility of electronically evaluating exchanged transcripts to determine transfer course equivalencies. This has been a completely manual process in the past, and there is the chance of significant benefit by reducing workload and increasing accuracy.

Cost savings/Cost avoidance anticipated for the project: Sinclair currently employs 2.0 FTE staff to process transcript requests – one FTE for incoming requests and another for outgoing requests. Online transcript exchange has the potential to make this processing much more efficient.

Target Completion Date: April 2006

Actual Completion Date: April 2006

Web Content Management System Update

The current web content management system is operating on software that is no longer supported by the vendor. Sinclair has the necessary licenses to move to a supported version of the software. This project involved devoting the necessary staff time to move web content for both the Internet and the Intranet to the supported software.

This project has taken longer than originally planned, but it is expected to be completed within this plan year.

Qualitative/Quantitative Return on Investment: A web content management system is essential to the efficient management of a website as large and complex as Sinclair's. The CMS allows for the distribution of updating and content management tasks to the actual owners of the information while still allowing enforcement of consistent look and feel rules throughout the site.

Cost savings/Cost avoidance anticipated for the project: The recently implemented online requisition system resulted in a reduction of approximately 500 hours of manual processing of requisition requests. This project could realize similar reductions in manual processing.

Target Completion Date: August 2005

Actual Completion Date: May 2006

Improve Online Admissions Application

This project included the specific items: 1) creating a web-based academic program selection feature; and 2) improving navigation. Specific application paths for selective admissions programs was an additional feature to be considered as part of the project.

The project has taken longer than expected to complete, but the improvements to the online application have now been moved into the production environment. The project has taken a slightly different track than that described in the preceding paragraph. Instead of creating a web-based academic program selection feature, it was decided to completely rewrite the existing web application process. It was determined that the old process presented too many usability defects

to support the addition of new features such as academic program selection, and that a complete rewrite was in order.

Qualitative/Quantitative Return on Investment: The building of an admissions model using SAS analytical software has shown that subsequent enrollment behavior can be forecast directly from information provided at the time of completing an application. Consequently, efforts to improve the collection of this application information can have a direct impact on future enrollments. The better the application data, the better the enrollment prediction model will work, and the better the model works, the better we can focus recruitment resources to those applicants most likely to enroll.

Cost savings/Cost avoidance anticipated for the project: Per Sinclair's budget office, target expenditures per FTE student are between $6500 and $7000 per year. New FTE students are estimated to bring in additional revenue in this same range. Enhanced navigation and improved selection of academic programs should result in the enrollment and/or retention of additional FTE students.

Target Completion Date: September 2005

Actual Completion Date: March 2006

Develop Web Sites in Support of Instructional Master Plan

The instructional master plan identified the need to increase web visibility for several academic areas. This project involved working with identified academic areas to specify web content and to create web templates for the content that would be maintained by the end user.

The Instructional Master Plan has not been specific in identifying which web sites are in need of development. However, during the course of the plan year, it has become increasingly obvious that instructional emphasis is directed toward promoting the fast track learning centers. Consequently, this project has emphasized the creation of web sites in support of these centers. The project is on schedule and is expected to be complete within this plan year.

Qualitative/Quantitative Return on Investment: When these sites are moved to the production environment, the Omniture *Site Catalyst* web tracking software will be used to measure the sites' impact.

Cost savings/Cost avoidance anticipated for the project: Per Sinclair's budget office, target expenditures per FTE student are between $6500 and $7000 per year. New FTE students are estimated to bring in additional revenue in this same range. Improved instructional websites should result in the enrollment and/or retention of additional FTE students.

Target Completion Date: March 2006

Actual Completion Date: May 2006

Major Accomplishment for FY 2005-2006

Graphic Representation - Academic Program Requirements/Sequences

This project involved creating an alternative way to display program courses and sequencing on the web. Currently this information is displayed in text format. The intent of this project was to create an alternative graphical representation.

A prototype of the graphic display has been created and has been passed to the academic department for evaluation. Pending acceptance of the prototype, it is expected that this project will be completed as projected.

Qualitative/Quantitative Return on Investment: The project is based on the belief that a graphic representation of program flow will be more meaningful to students and will result in clearer communication of program requirements and expectations.

Cost savings/Cost avoidance anticipated for the project: Per Sinclair's budget office, target expenditures per FTE student are between $6500 and $7000 per year. New FTE students are estimated to bring in additional revenue in this same range. Enhanced presentation style should result in the enrollment and/or retention of additional FTE students.

Target Completion Date: May 2006

Actual Completion Date: May 2006

Create System for Automatic Reset of Active Directory Passwords

The Help Desk receives a large number of requests from users to reset forgotten passwords. This project involved either the creation of an unattended web process that would allow users to reset forgotten passwords or the selection of a third-party product that would accomplish the same result.

Qualitative/Quantitative Return on Investment: It is expected that this product will eliminate the need for the Help Desk to assist in password reset for several thousand accounts each year.

Cost savings/Cost avoidance anticipated for the project: 3 staff person months (approximately $16,125) per year.

Target Completion Date: January 2006

Actual Completion Date: April 2006

Major Accomplishment for FY 2005-2006

Note: The remaining System Development & Maintenance projects were not identified in the FY 2005-2006 plan. They were added at a later date.

Create Sinclair Project Tracking Tool

For several years Sinclair's Information Technology Division has been using a project tracking tool. This project involved making enhancements to this tool to increase its functionality. Enhancements included the addition of a metric to track project resource consumption, additional reporting features, and an extension of the tool's applicability to offices outside of IT.

Qualitative/Quantitative Return on Investment: This product makes it possible to track all Sinclair strategic planning initiatives using one tool that is accessible by all Sinclair staff.

Estimated Cost of Project: 6 staff person months (approximately $32,250)

Cost savings/Cost avoidance anticipated for the project: As this product is extended throughout campus projects, it will be possible to more accurately predict project resource needs and thus more closely align project costs with budgeted resources.

Target Completion Date: December 2005

Actual Completion Date: December 2005

Establish a System for Web-based Surveying of Students

Almost all continuous quality improvement processes are founded upon the principle that they are driven by feedback from customers. The purpose of this project was the implementation of a survey tool to facilitate web-based collection of feedback information from students. It is expected that the product will increase the timeliness and comprehensiveness of information collected from students.

Qualitative/Quantitative Return on Investment: Students expect rapid response from service providers. This tool will afford Sinclair the ability to have actionable information available in a timely manner.

Estimated Cost of Project: 4 staff person months (approximately $21,500)

Cost savings/Cost avoidance anticipated for the project: It is expected that rapidly available actionable information will support actions to improve student retention. Per Sinclair's budget office, each retained FTE generates approximately $6500 to $7000 in revenue per year.

Target Completion Date: November 2005

Actual Completion Date: May 2006

Cohort Files for "Achieving the Dream" Activities

Sinclair has elected to participate in an activity called "Achieving the Dream," which is funded by the Lumina Foundation. This activity involves creating or continuing student support services that have been quantitatively demonstrated to support student success. An essential first step in "Achieving the Dream" was to identify cohorts of students who are to be used as the measurement groups for assessing support service success. This project involved performing the work associated with identifying "Achieving the Dream" cohorts.

Qualitative/Quantitative Return on Investment: One of the most significant challenges facing community colleges is the ability to demonstrate that students are successful in achieving their goals. "Achieving the Dream" has the potential to be a major assist in meeting this challenge.

Estimated Cost of Project: 2 staff person months (approximately $10,750)

Cost savings/Cost avoidance anticipated for the project: There is no direct cost savings/cost avoidance associated with this project.

Target Completion Date: September 2005

Actual Completion Date: September 2005

SD&M Staff in Project Management Training

Project management skills have been demonstrated to add value to and reduce costs of successfully completing projects. This activity called for devoting a percentage of web systems staff time to participating in training for project management skills. Specifically, one individual from web-systems was a member of the second cohort of ITS' training program for program management.

Qualitative/Quantitative Return on Investment: It is expected that improved project management skills will result in future projects taking less time and being completed on schedule.

Estimated Cost of Project: 1 staff person month (approximately $5,375)

Cost savings/Cost avoidance anticipated for the project: Each staff person month costs approximately $5,375. If improved project management skill can eliminate 10% of staff time from a project, then this equates to $538 for each staff person month within a project.

Target Completion Date: June 2006

Actual Completion Date: June 2006

Group Selection Feature in CMT

Most Sinclair academic programs adopt component-based architecture when specifying program requirements. Some programs, however, in liberal arts use menu based architecture. In menu-based architecture, students complete program requirements by selecting courses from menus of related courses. CMT version 1.0 has robust features to support component-based architecture. The menu-based architecture features need improvement. This project calls for making these improvements to CMT

Qualitative/Quantitative Return on Investment: This project will increase the functionality of CMT for chairs of liberal arts programs.

Estimated Cost of Project: 2 staff person months (approximately $10,750)

Cost savings/Cost avoidance anticipated for the project: Project will result in chairs spending less time when updating program information in CMT.

Target Completion Date: June 2006

Actual Completion Date: June 2006

Real-time Searching of Course Selections on Web

Because of the size of Sinclair's operation and resulting number of courses offered, it is sometimes difficult to provide web-based, real-time access to information, especially when delivering this information simultaneously to a large number of users. This limitation is particularly noticeable with respect to real-time look-up of open courses. Past solutions to this problem have taken the approach of publishing course openings on a scheduled basis, every fifteen minutes for example. However, with demand increasing, this solution is less and less viable. This project involved finding and putting in place a solution that would allow for real-time access to open course information (shown in Figure 3-6).

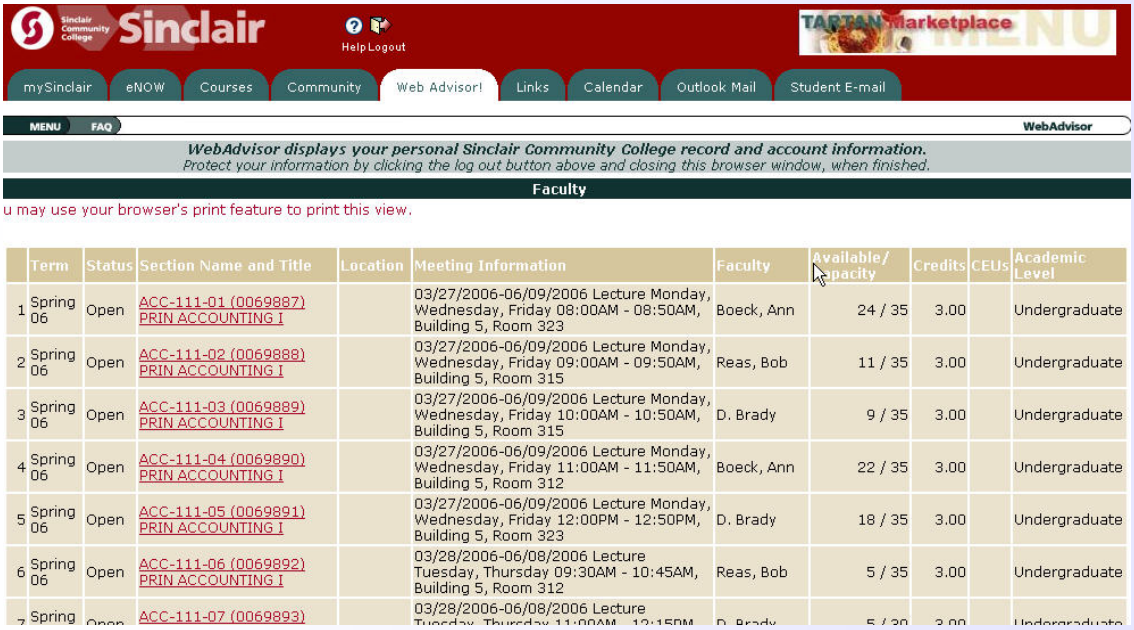
Qualitative/Quantitative Return on Investment: Timeliness and usability of course information will increase.

Estimated Cost of Project: 3 staff person months (approximately $16,125)

Cost savings/Cost avoidance anticipated for the project: The registration counter will need to do less rework as a result of students building their schedules with more timely information.

Target Completion Date: June 2006

Actual Completion Date: June 2006



	Term	Status	Section Name and Title	Location	Meeting Information	Faculty	Available/ Capacity	Credits	CEUs	Academic Level
1	Spring 06	Open	ACC-111-01 (0069887) PRIN ACCOUNTING I		03/27/2006-06/09/2006 Lecture Monday, Wednesday, Friday 08:00AM - 08:50AM, Building 5, Room 323	Boeck, Ann	24 / 35	3.00		Undergraduate
2	Spring 06	Open	ACC-111-02 (0069888) PRIN ACCOUNTING I		03/27/2006-06/09/2006 Lecture Monday, Wednesday, Friday 09:00AM - 09:50AM, Building 5, Room 315	Reas, Bob	11 / 35	3.00		Undergraduate
3	Spring 06	Open	ACC-111-03 (0069889) PRIN ACCOUNTING I		03/27/2006-06/09/2006 Lecture Monday, Wednesday, Friday 10:00AM - 10:50AM, Building 5, Room 315	D. Brady	9 / 35	3.00		Undergraduate
4	Spring 06	Open	ACC-111-04 (0069890) PRIN ACCOUNTING I		03/27/2006-06/09/2006 Lecture Monday, Wednesday, Friday 11:00AM - 11:50AM, Building 5, Room 312	Boeck, Ann	22 / 35	3.00		Undergraduate
5	Spring 06	Open	ACC-111-05 (0069891) PRIN ACCOUNTING I		03/27/2006-06/09/2006 Lecture Monday, Wednesday, Friday 12:00PM - 12:50PM, Building 5, Room 323	D. Brady	18 / 35	3.00		Undergraduate
6	Spring 06	Open	ACC-111-06 (0069892) PRIN ACCOUNTING I		03/28/2006-06/08/2006 Lecture Tuesday, Thursday 09:30AM - 10:45AM, Building 5, Room 312	Reas, Bob	5 / 35	3.00		Undergraduate
7	Spring	Open	ACC-111-07 (0069893)		03/28/2006-06/08/2006 Lecture	D. Brady	5 / 30	3.00		Undergraduate

Figure 3-6. Real-time Access to Course Information.

Search Features of www.sinclair.edu

Sinclair's external website www.sinclair.edu, was put in place approximately four years ago. At that time, a search engine was included in the site that met the indexing needs of that time. Since then, the demand on the site has grown to over 50,000 page views per day. This increased demand has outstripped the capabilities of the site's search engine. This project involved the installation of a Google search appliance which is housed on Sinclair's site and will utilize Google search algorithms.

Qualitative/Quantitative Return on Investment: The project should significantly increase the ease of use and functionality of www.sinclair.edu.

Estimated Cost of Project: $3,000 for the appliance and one staff person month (approximately $5,375)

Cost savings/Cost avoidance anticipated for the project: The project will not result in specific cost savings/cost avoidance.

Target Completion Date: June 2006

Actual Completion Date: May 2006

Major Accomplishment for FY 2005-2006

System to Collect Web Use Statistics

Over the past decade the rate at which the web has been adopted as the preferred mode for conducting business has been absolutely astounding. Without question, the web has become the front door to most of Sinclair's communication efforts. This phenomenal increase in use has created the need to know more about patterns of usage (e.g., how many web hits, when, where do users go, for how long, what path is followed, etc.). This project involved the installation and use of a product from Omniture Corporation called Site Catalyst, which is specifically designed to answer the types of questions posed above.

Qualitative/Quantitative Return on Investment: These statistics will be critical to future planning for marketing and promotion initiatives.

Estimated Cost of Project: $5,000 start-up, $1,250/month subscription, 3 staff person months to set up (approximately $16,125)

Cost savings/Cost avoidance anticipated for the project: Better information should result in better marketing and promotions which should increase enrollments. Per Sinclair's budget office, each FTE generates approximately $6500 and $7000 in revenue per year.

Target Completion Date: June 2006

Actual Completion Date: June 2006

Integrate Angel XEI with Colleague

Sinclair will be converting to a new Learning Management System in Summer 2006. This change requires that the processes to port student information from Colleague to the LMS need to be changed. This project included the work associated with making this change, such as rewriting the Colleague extract process and remapping Colleague to LMS data elements.

Qualitative/Quantitative Return on Investment: In additional to the pedagogic advantages inherent in the Angel LMS, this change will allow the use of more sophisticated Colleague-to-LMS transfer software and will reduce the complexity of this transfer.

Estimated Cost of Project: 3 staff person months (approximately $16,125)

Cost savings/Cost avoidance anticipated for the project: Using the Angel LMS will reduce annual licensing fees by approximately $30,000.

Target Completion Date: June 2006

Actual Completion Date: June 2006

Change Processes to Allow for Instant Registration

Current application-to-registration processes are set up such that an applicant needs to wait for overnight processing before his/her Web Advisor account is created. Web Advisor is the tool students use to do online registration for classes. This project involved putting revised processes in place so that the applicant's Web Advisor account is created very soon after submission of the application. Having the account available in near real-time allowed application and registration transactions to be viewed by the user as seamless. This project is the first part of a multi-staged project designed to allow applicants access to the full range of web services Sinclair provides (e.g., single sign on, learning management system, portal, library services, etc.). Adding these additional services is a project included in the FY2006-2007 plan.

Qualitative/Quantitative Return on Investment: New applicants carry an expectation that all web services will have an instantaneous response feature similar to that experienced when using services such as e-Bay or Amazon.com. This project moved Sinclair's web services closer to this instantaneous response goal.

Estimated Cost of Project: 3 staff person months (approximately $16,125)

Cost savings/Cost avoidance anticipated for the project: Assuming that a rapid application-to-registration capability will reduce the applicant losses caused by an overnight wait, this project will bring in approximately $6500 to $7000 in new revenue for each FTE it produces.

Target Completion Date: June 2006

Actual Completion Date: June 2006

Information Technology Services

Following are the Major Accomplishments for FY 2005-2006 for the Information Technology Services Department:

- Help Desk Process Improvements
- Improved Communication
- Network Security Enhancements
- Evaluate Additional Exchange Capabilities
- Server Consolidation
- Mac/Windows Networking
- Voice Over IP Pilot
- Internet Capacity Expansion
- PC/Printer Inventory
- Plato Web Access Feasibility Study
- Classroom Network Control

- Pay for Print
- TutorTrac Implementation
- Windows XP SP2 Deployment
- Portable Document Camera Pilot
- Lab/Classroom Facilities Improvements
- Pilot Test of Tablet PC for Classroom Presentations
- Lab Support Improvements
- IP Video Conferencing
- Synergy to Crestron Conversion
- Purging SPAM
- Wireless Networking Expansion
- Digital Asset Management Expansion
- Information Security Policy
- Data/Information Classification
- It Brochures/Quick Guides
- Facilities Management Use of Magic
- 2005 IT Controls Audit
- WSUS - Workstation Patching
- Server Image Standardization
- Upgrade Transcend Voicemail System
- HIPAA Status Evaluation/Re-Evaluation
- Payment Card Industry (PCI) Standards Evaluation and Response
- HB104, Personal Information Breach Notification, Assessment and Response Plan
- Incident Response Plan Revision
- Security Architecture Model
- ITS Procedure Documentation Repository

Help Desk Process Improvements

In July 2004, Information Technology Services established a departmental Continuous Improvement Target (CIT) to gain a better understanding of customer expectations by interviewing customers and documenting these findings. Each employee in ITS interviewed three employees on campus to learn about their expectations for the following services provided by ITS:

- Administrative and academic network station software management;
- PC, printer, scanner and other desktop hardware, software, and network installation and support;
- Help Desk support;
- Information Technology policy and procedure development including user documentation;
- Lab management – CIL and Teleport;
- Media Services including multimedia classroom podiums and other audiovisual equipment installation and support;
- Network system access;
- Network application availability;

- Scantron services including surveys, test scanning and grading;
- Telephone services including installations and voice mail;
- Use of licensed Microsoft software for business use, both on campus and at home; and
- Word Processing.

A team was formed to address the customer expectations for Help Desk support. The team focused on researching and developing processes to address the following user expectations:

- The Help Desk needs to be knowledgeable in all areas of service provided by the IT Division.
- Users need better communication about the status of tickets and ticket resolutions.
- There is a need for better communication of unavailable services.
- There is a need for improved communication to the Help Desk on the release of new services.

The cross-functional team was formed with representatives from different user areas of the college including: Colleague users, Sinclair faculty, lab coordinators, Systems Development and Maintenance, Information Technology Services, Help Desk, Systems and Networking; Media Services, Network Operations Center, and Technical Services.

The team's purpose was to identify processes to improve support provided by the Help Desk. The team was asked to review the customer expectations feedback about Help Desk communications. The team was then asked to provide additional feedback and to interview users in their departments, other campus departments, campus groups, etc. They were then asked to share this information at the team meetings. The team held brainstorming sessions to review the input and discuss available options for improving Help Desk support. Other colleges were contacted as well and asked about their Help Desk communication processes.

Quantitative/Qualitative Return on Investment: Addressing these areas results in increased user satisfaction since their service expectations will be met. Having users on the team has given them the opportunity to identify specific areas for changes that have impacted their departments and peers. This builds a solid relationship with the users and a foundation of trust to work from for future IT projects.

Target Completion Date: June 2006

Current status: The team is compiling a list of recommendations to be presented to the Director, Information Technology Services. The team recommendations will be reviewed and implemented in FY 2006-2007(See also Help Desk Improvements).

Improved Communication

A need for improved communication efforts by Information Technology Services was identified by the Customer Expectation project. ITS wanted to investigate and identify issues that may be

hampering communication between the department and campus users, between ITS and other campus departments, between ITS and other IT departments, and between individual groups within ITS itself. A team consisting of staff members from all areas within ITS and users from various customer areas was created to investigate ways in which ITS can improve its communication efforts.

Identified areas where ITS could improve communication include:

- Ensure faculty, staff and students are getting communication when there is a problem with services, especially if it stops faculty and/or students from meeting learning/teaching objectives.
- Ensure internal communication processes work hand-in-hand with external communication processes.
- Have a main point of contact for communications internally and externally.

The team also made the following recommendations to ensure faculty, staff and students are getting the communication they need for critical issues:

- Messages need to be posted on our.sinclair and my.sinclair.
- Send emails to All Sinclair Users.
- Use voice mail – Send voice mail to all users when a critical problem occurs.

The team recommended that to ensure internal communication processes work hand-in-hand with external communication processes:

- Communications between the Help Desk and 2nd/3rd level support within ITS must be improved. The Help Desk staff needs to be kept in the know about what steps have been taken to resolve a problem and the status of the problem.
- Problem phone message at Help Desk needs to be up-to-date.
- Announcements on Help Desk Tickets Online need to be up-to-date.

The team also recommended that an IT Communication Coordinator be designated. This could be someone in the department responsible for communication within IT and to the users. This person would be responsible for communicating new services, changes to current services, upgrades and critical issues.

The team also identified the following action items:

- Create a standard message title and have a standard sender (Help Desk) for emails from ITS that would be easily recognized by staff and faculty. Formatting the body of the information is also important.
- Create distribution lists for email and voice mail when needed.
- Ensure communication is accurate and timely to Help Desk.
- Post information on my.sinclair and our.sinclair when needed.

Qualitative/Quantitative Return on Investment: The above recommendations are designed to increase communication within ITS and between ITS and other campus departments. Communication problems contribute to unsolved problems, wasted time, and wasted resources. Improved communication will save time and resources and contribute to IT problem solving.

Cost savings/Cost avoidance identified with the project: All recommendations utilize existing resources such as email, phones, existing communication tools, and current staff. The recommendations utilized additional staff time and utilized existing tools in new ways.

Target Completion Date: June 2006

Current Status: The team is working on documenting their final recommendations. The implementation of these recommendations will take place during FY 2006-2007.

Network Security Enhancements

Information Technology Services is responsible for maintaining a secure, manageable, and scalable IT system that facilitates a balance between secure and collaborative network computing for the College's students, faculty, and staff. ITS completed a great deal of work researching, testing, and implementing technologies that address specific issues for the College network; however, the College faced some complex challenges in achieving a truly secure LAN solution.

The growth in wireless networking, the need to provide protection from the introduction of wired and wireless "guest" computing devices, and the need to protect the network from network-borne viruses and worms led the ITS team to develop a strategy for a Secure LAN Solution. This strategy was completed in October 2004, and it has provided a roadmap for the implementation of network switch port-based authentication; the authentication, verification, and provisioning of guest and unknown devices; and the identification, isolation, and remediation of problems with un-patched or virus-infected PCs and other devices.

The resulting plan consists of five phases:

I. **Acceptable Use Policy** – utilizes a policy hierarchy as the basis for populating user roles with services and rules to match the desired network behavior. The policy defines the various user roles that can be assigned to a network switch-port and the allowable communications for each role.

II. **NMS (Network Management System) Applications**– the tools for getting the system installed. The NMS applications assist in the administrative tasks necessary to quickly deploy tasks such as device management, switch configuration backup and restore, firmware upgrades, device inventory management and change control, and policy configuration and deployment.

III. **DIR (Dynamic Intrusion Response)** – implementation of response processes to network security events. Implementation includes use of a Quarantine role, Enterasys Dragon IDS and Netsight Automated Security Manager (ASM) to perform responses.

IV. **Authentication (Phase I)** – addresses the authentication steps for imaged PCs (a Sinclair PC with a standard set of software including antivirus and security patches). After the imaged PC is recognized by the system, the user's role is defined upon login to a network switch-port and the policy that enforces that user role is applied.

V. **Authentication (Phase II)** – addresses the authentication for non-imaged PCs. Non-imaged PCs are scanned by the system. If the non-imaged PC has problems, the system places the PC in quarantine in a pre-defined remediation role. If the PC has no problems or its problems have been resolved by the system, it is assigned an Unknown PC role which limits user access to services such as web access.

The plan defines a clear path towards a network where access to network resources is based on the role of the user, the configuration of the computing device being used, and the verifiability that the device is problem-free. The implementation of the plan began in December 2004, and all phases of design and modifications to the infrastructure are complete. All wireless access and wireless devices are now 100% secured by this system. Wired ports and workstations are in the process of being modified so that all wired access and wired devices will also be secured by the system. When the plan has been fully implemented, there will be no ability for a computer to communicate on the Sinclair network without the user of the device passing an authentication process. Also, the plan will provide for different levels of access based on whether the device is a Sinclair-imaged computer or a device with an unknown configuration.

Qualitative/Quantitative Return on Investment: Every person that uses, or attempts to use, the Sinclair Community College network including current and future students, alumni, and conferences/seminar attendees, develops an opinion about the College's network. This experience contributes to user opinion of Sinclair Community College as an educational institution and contributes to the reputation of the institution and ultimately impacts enrollment and funding. In today's IT climate, users expect the network to be everywhere and available at all times, but they expect it to be secure as well; this is the balance that must be maintained through the implementation of this plan.

Cost savings/Cost avoidance: Security incidents can create intangible costs to the College such as lost productivity or lack of customer satisfaction. In addition, they can create breaches of confidential information that could cause financial penalties for the College. Minimizing the possibility of these types of incidents is absolutely critical.

Target Completion Date: June 2006

Current status: The plan's implementation began in December 2004 with the definition of the various roles in which users and devices can be authenticated. The next two phases, NMS and Dynamic Intrusion Response, were completed in February 2005. These three initial phases were all fairly easy to implement in short time-frames due to their minimal impact on existing services. The authentication phases have both been implemented but will take several months to become fully functional due to the changes that must be made to the computers and other network attached devices. These changes are currently underway using documented processes, and the network grows more secure with every step toward the project's completion.

Evaluate Additional Exchange Capabilities

Sinclair's upgrade to Microsoft Exchange 2003 brought with it enhanced security, manageability and performance, as well as functionality and interface enhancements to Outlook Web Access (OWA). Besides enhancing what was available with Exchange 2000, Exchange 2003 extends the capabilities of our messaging system to include improved mobile device support, workflow support utilizing digital signatures, and real time collaboration capabilities. The purpose of this project was to research and evaluate these additional features of Microsoft Exchange 2003.

There has been a lot of market interest lately with Blackberry devices and their ability to use "push" technology to send email from a Blackberry server to the mobile device as the email arrives using the cellular data network. However, the Blackberry technology requires additional hardware and software purchases. With the release of Service Pack 2 for Exchange 2003, this technology is no longer exclusive to Blackberry. Exchange Server 2003 SP2 provides native support for Windows Mobile Pocket PC Devices such as PDAs and Smartphone's. This support is enabled globally at the Exchange server and can be enabled and disabled for individual users.

Exchange Server 2003 also provides Outlook Mobile Access (OMA), which is similar to Outlook Web Access (OWA). OMA's web interface is optimized for the Pocket PC version of Internet Explorer, allowing text to be easily read. The only requirement for use of OMA is an Internet connection and a Windows Mobile device. The disadvantage of OMA is that attachments are not available through its web interface, and some users may prefer larger text than OMA provides.

PDA/Smartphone devices successfully evaluated include various HP iPAQ's and a Verizon XZ6700 Smartphone running Windows Mobile 2003 or Windows Mobile 5.0. These devices are shown in Figure 3-7. We also evaluated the cellular data networks from Verizon (EVDO) and Cingular (GPRS). Of these, the Verizon data network appeared faster during our testing.

Figure 3-7. HP iPAQ's and Verizon Smartphones were tested with Microsoft Outlook Mobile Access.

ActiveSync version 3.7.1 or later is required on the client to configure synchronizations of items directly with the Exchange servers rather than communicating through a desktop PC. ActiveSync allows the user to synchronize the Outlook Inbox, Calendar, Contacts, and Tasks. The capability to synchronize these items through the users PC and over the Internet, make access available from virtually anywhere. Synchronization with the Exchange server can be scheduled as often as 5 minutes apart. In addition, files can be synchronized with the user's PC so that Microsoft Office documents such as Microsoft Word and Microsoft Excel can be viewed and edited.

Another option new to Exchange 2003 is called Always Up to Date Notification (AUDN) and is available for Smartphones only, and not PDAs. As a new email message arrives at the Exchange server, a text message is sent to the mobile device telling it to synchronize with the server. This simulated "push" technology allows the mobile device to receive new email content within 3 minutes of its arrival on the Exchange server. However, during testing we found that this generated a large number of text messages with a significant increase in cellular phone charges. Because of this, we have disabled AUDN on the Exchange Servers. True "push" technology is available only on Windows Mobile 5.0, and requires an upgrade that has not been released at this time.

Qualitative/Quantitative Return on Investment: The existing Exchange Server 2003 network architecture with support for Windows Mobile Devices seems to be the most cost-efficient alternative, providing identical functionality to the Blackberry, in addition to better interoperability with Microsoft Office products. Any device with Windows Mobile 2003 or 5.0 is supported.

Cost savings/Cost avoidance identified with the project: Sinclair can have identical functionality using features inherent in Exchange 2003 without incurring the extra costs associated with Blackberry technology. Based on 500 users, which is the recommended limit for one Blackberry server, the cost would be $28,800 for software only, not including hardware and maintenance costs. These costs would increase linearly as more users were added to the system. In addition, proprietary Blackberry devices would be required.

Target Completion Date: January 2006

Current Status: This project is essentially complete with the exception of documentation regarding the potential of using digital signatures. The availability of PDAs to connect wirelessly to the Sinclair network will be communicated soon as an additional way for PDAs to use OMA and the new ActiveSync capabilities.

Server Consolidation

Information Technology Services maintains a plan for the annual Renewal & Replacement (R&R) of Information Technology infrastructure components. This plan is used to project infrastructure expenditures over a five year period to provide the College's leadership with information to aid in budget planning. Each year during the annual planning and budgeting cycle, the R&R plan is updated with any new information that would change expected expenditures for the coming year as well as the next four years.

Each item that is identified on the R&R plan has a useful life. This useful life along with the total cost of the equipment determines the funds that must be set aside each year to replace the equipment as each component reaches the end of its life. If replaced on a one-to-one basis, ITS would have needed to replace 39 Windows file servers that will have reached the end of their four year useful lives in FY2005-2006.

The purpose of this project was to develop a plan for server consolidation using the 39 Windows file servers which were scheduled for replacement. The plan focused on three aspects of server consolidation:

1. Data Consolidation – Consolidating databases and storage systems to make the data more accessible or manageable. The SQL servers were consolidated in this manner and resulted in a cost savings and greater redundancy for these critical systems.
2. Physical Consolidation – Consolidating servers that are running the same operating system and the same applications into larger, more powerful systems. The file servers and web servers were consolidated in this manner
3. Application Consolidation – Involves hosting diverse applications on the same physical hardware using third party software to partition the various applications from one another. Test servers and ISA servers were consolidated in this manner using an application called VMWare. This resulted in a decrease in the number of servers purchased to run the same services.

Quantitative/Qualitative Return on Investment: Excluding server hardware costs, each server represents numerous ongoing operational costs. Some of these costs are quantitative (i.e., backup tapes, data storage, licensing, etc.) while some are more qualitative, opportunity costs (i.e., maintenance, support, etc.). While these cost reductions are not linear due to the fact that we are not decreasing the number of services provided, both quantitative and opportunity costs were reduced by approximately 40% due to only having to purchase 23 servers instead of 39.

Cost savings/Cost avoidance anticipated for the project: The FY 2005-2006 budget for Server R&R was $328,000. Through server consolidation, we were able to decrease the actual expenditure to $210,000. This allowed us to purchase additional servers for mid-year projects such as SAS and Angel without having to request additional funds. We still have over $60,000 remaining in the budget, which will be returned for funding next year's projects.

Target Completion Date: December 2005

Actual Completion Date: February 2006

Mac/Windows Networking

Sinclair Community College has 3750 Windows PCs and 150 Macintosh (Mac) computers. Windows PCs and Macintosh computers have historically spoken different languages requiring special configurations to work together. However, the Macs were still semi-isolated from Sinclair's

primary Windows network. With the release of Mac OS X, Apple's new operating system, this separation of Macs and PCs may no longer be necessary since they now can communicate using the same language. This new operating system, plus the increase in requests for Macs from Sinclair departments, has prompted ITS to re-evaluate its processes for supporting Macintosh computers.

We researched the interoperability features of Mac OS X to see how this operating system can be integrated into Sinclair's network. With the release of the OS X operating system, Macs can now communicate over the network using the standard TCP/IP protocol, which Windows networks also use. We have been successful in configuring our test system to log into the network using Active Directory account information, map home directories and printers, and access email from our Exchange servers using Entourage as depicted in Figure 3-8. No third party products were necessary to accomplish this; however, the Directory Access component included with OS X had to be upgraded to the latest version.

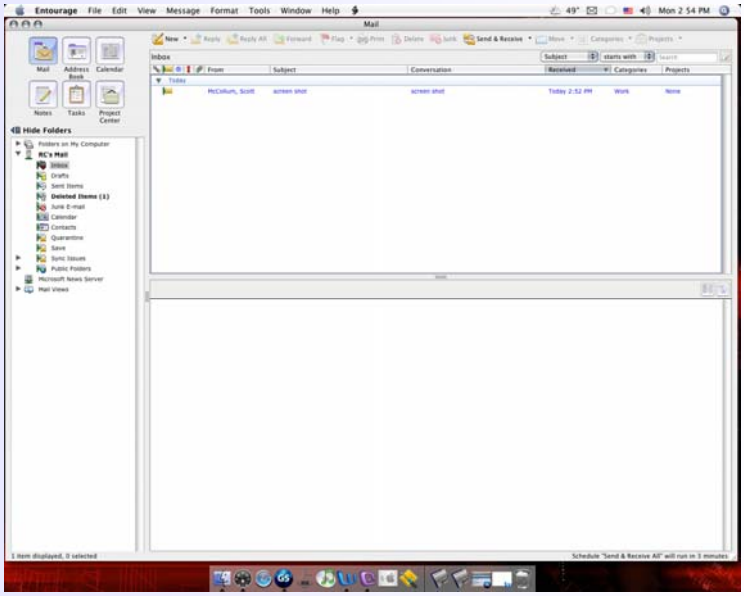


Figure 3-8. Entourage is Microsoft's version of Outlook for the Mac.

Quantitative/Qualitative Return on Investment: Currently, the Macs on campus are administered by the departments that have purchased them because their needs are significantly different than those of Windows PCs. This project has shown that for general access to network resources Windows Active Directory and Windows file/print/email servers can be used to meet the needs of the users provided the Mac operating system used is OS X. However, automated management of Mac computers would still require a Mac server if we wanted to manage the Macs similar to the way we manage Windows PCs.

Cost savings/Cost avoidance anticipated for the project: It was determined that Windows servers can provide network resources to users using Mac computers providing Mac OS X is used and the Mac is configured properly. This could allow future Mac server requests to be addressed using existing Windows servers which would result in cost savings in hardware, software, and support.

Target Completion Date: May 2006

Current Status: ITS is in the process of developing processes, procedures and software configurations necessary to configure Mac computers for communication on Sinclair's network. This will include processes related to port based authentication.

Voice Over IP Pilot

This project was originally intended to provide a better understanding of the Voice Over IP (VoIP) technology, its operation, and its effects on the present SCC network. However, due to the need to supply phone systems for the new Fast Track Learning Centers, it was decided to view this project from a longer range point of view and plan an overall strategy. A consultant who specialized in higher education voice telecommunications was engaged and, after reviewing the needs of the Fast Track Learning Centers and an on campus pilot system, the ShoreTel VoIP system was selected as the vendor of choice for this new technology.

Qualitative/Quantitative Return on Investment: The ShoreTel Small Business Edition system provides a reliable, scaleable PBX at a reasonable cost, both now and in the future for remote locations. The system's scalability and distributed architecture make it an economical choice for the eventual replacement of the campus PBX as well.

Cost savings/Cost avoidance: Both systems for the Fast Track Learning Centers came in at budget estimates and the pilot model was lower than originally projected. The eventual replacement of the campus PBX could create cost savings by allowing voice traffic to use the same telecommunication lines that connect the Fast Track Learning Centers to the data network rather than purchasing separate voice lines.

Target Completion Date: March 2006

Current Status: Selection of the technology was completed on 3/9/2006. The system will be implemented at the Englewood location by the end of April 2006. The system will be implemented at the Huber Heights location in August 2006. The pilot is expected to be operational in July 2006.

Internet Capacity Expansion

Because of the increased demand for more access to the Internet for both academic and administrative uses, it was necessary to review alternatives for providing an economic plan to increase bandwidth. Based on input from a number of network providers, access to our primary Internet service provider, OARnet, will be provided by AT&T. The bandwidth will be more than doubled, and there will be throughput efficiencies based on the type of network access now provided. Scalability for future bandwidth was also included in the design of this access. The secondary Internet access provider (donet) also provided an economical and scaleable method to increase bandwidth through a partnership with Innovative Fiber Solutions using a Free Space Optics system.

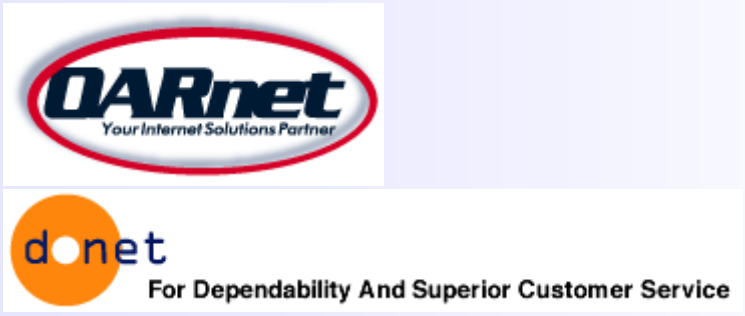


Figure 3-9. OARnet and Donet are the providers of Sinclair's redundant Internet connections.

Qualitative/Quantitative Return on Investment: Both Internet access providers offer considerable support and high quality service.

Cost savings/Cost avoidance: While negotiating with AT&T (formerly SBC) for a new contract for our existing services, a considerable cost savings of over $23,000 annually was achieved and will be used to pay for the increased cost of the Internet expansion.

Target Completion Date: October 2005

Current Status: The installation of the new Internet access to OARnet was delayed due to contract issues with the State of Ohio but was completed on 3/24/2006. The new Internet access to donet is expected to be completed in July 2006.

PC/Printer Inventory

ITS implemented a PC and Network Printer inventory database this year, illustrated in Figure 3-10, which includes all on and off campus PCs and Network printers. The documentation for maintaining the PC Physical Inventory has also been written and implemented. The inventory process includes all steps in the life of the IT equipment including adding all new equipment and the movement of equipment from storage to installation to surplus. The information that is tracked includes the model number, serial number, date of purchase and purchase order number.

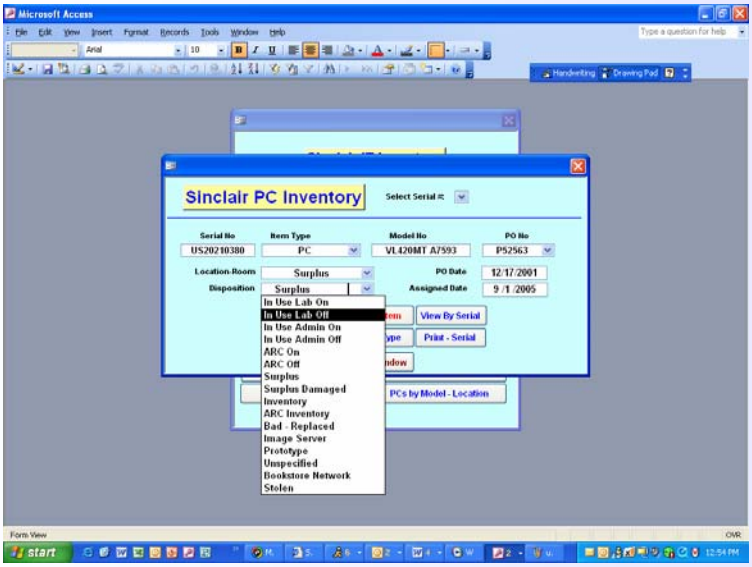


Figure 3-10 The Physical Inventory database.

The process for receiving equipment into storage, installing the equipment, and removing the old equipment is all documented in the PC inventory process documentation. The documentation also includes procedures for the monthly PC inventory, which counts the actual PCs in inventory and compares this to the data in the database; and the bi-monthly PC inventory, which is a random selection of PCs listed in the inventory database from both on and off campus locations, to spot check the accuracy of processes.

Reports have been created that will compare the data in the PC physical inventory with the data in the Altiris database, which are collected through automated processes that are part of the Sinclair standard PC image. This will provide the ability to verify if all the PCs shown as being installed in the inventory have the Altiris agent loaded on them and show up in the Altiris database inventory.

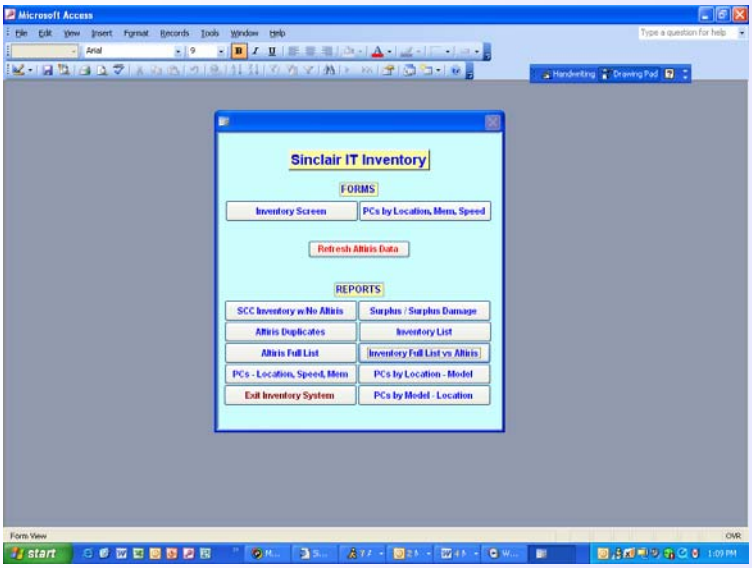


Figure 3-11 The Physical Inventory database reports.

Quantitative/Qualitative Return on Investment: Documentation of the PC and Network Printer inventory processes is a significant part of this project. This includes all procedures for tracking the PCs once they have arrived on campus, have been installed, and are ultimately sent to surplus. This documentation can be used to train new technical staff on the IT equipment inventory process and the forms that must be completed. This project also provides Sinclair Community College with a tracking tool to isolate serial numbers and determine if hardware has been stolen. The documentation addresses the requirement of the internal audit performed by the Sinclair Community College Accounting department and will be provided to auditors whenever an audit of the PC and Network printer inventory system is scheduled.

Cost savings/Cost avoidance identified with the project: The College will avoid incurring costs associated with the theft of college property, which might otherwise go undetected.

Target Completion Date: June 2006

Actual Completion Date: February 2006

Plato Web Access Feasibility Study

Sinclair Community College has been implementing Plato labs at high school locations to reach out to future Sinclair students. Plato, a learning software application, tests the students to determine which academic areas the students are deficient in and to determine which sets of curriculum are needed to help the students. Plato brings the students up to their proper grade levels for college entrance to avoid developmental classes.

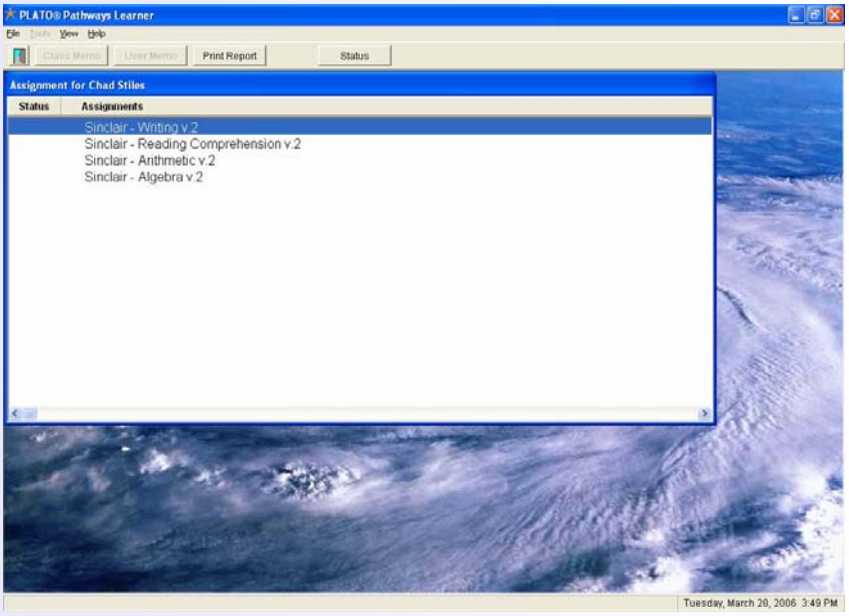


Figure 3-12. LAN version of Plato.

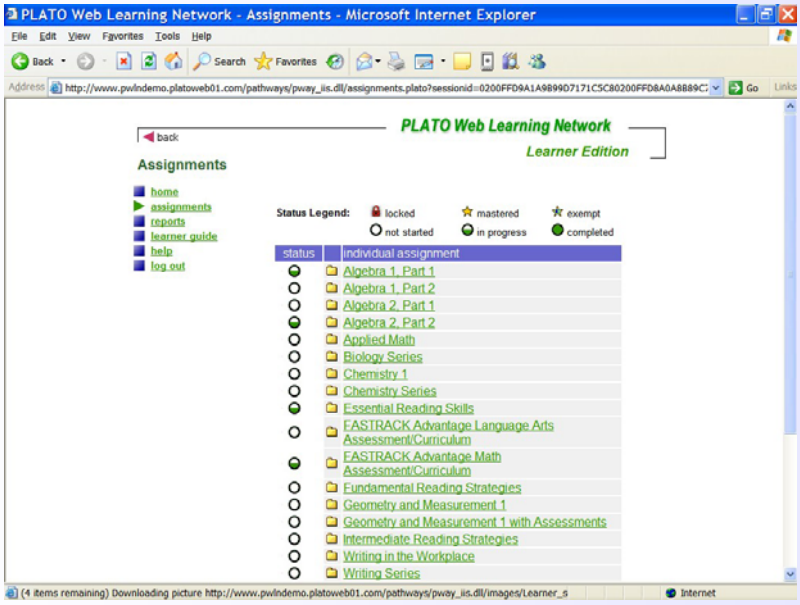


Figure 3-13. Web version of Plato.

Sinclair implemented four more Plato labs this year at Fairmont, Belmont, Fairborn and Trotwood high schools. These are all LAN based installations (shown in Figure 3-12), which means that every site has its own server, and the PCs run the application from that server. Over the past year, ITS has investigated the possibility of changing to a web version of Plato (shown in Figure 3-13) in order to save costs. The alternatives that were researched included: (1) having an Internet Service Provider host the web version of Plato; (2) hosting the web version at Sinclair and connecting the Plato sites via a dedicated T1 connection from each high school; and (3) a Hybrid System with a web server at the Internet Service Provider and the database and license server maintained on the Sinclair campus.

It was determined that on-going cost savings could be achieved by implementing the Plato web version. However, Outreach Services believes that the reporting capabilities of the LAN version are much better than the web version. Also, there are some customizations that Plato created for Sinclair that will not work with the web version. For the current time, the LAN-based version of Plato will continue to be used.

Qualitative/Quantitative Return on Investment: The results of this project indicate that having web-based services at remote locations could be more economical. As the web version of Plato software matures another study will be performed.

Cost savings/Cost avoidance identified with the project: Since there was no change recommended, there are no changes to the costs associated with running Plato.

Target Completion Date: June 2006

Actual Completion Date: November 2005

Classroom Network Control

Instructors requested the ability to use a software application that would allow them to disable and re-enable the network connection to the PCs in the classroom. ITS researched methods for instructors to control the network access in computer classrooms and labs and determined one of the products tested met those requirements. It is possible to disable the keyboard and black out the monitor so the students cannot work on the PC when the instructor is lecturing, as illustrated in Figure 3-14.

Figure 3-14. Capability for faculty to disable student use of computers.

We are planning to demonstrate this software to faculty and ask them to determine if it will meet their requirements. If the product meets faculty requirements, we will communicate the availability of this product for installation in computer classrooms and labs.

Qualitative/Quantitative Return on Investment: Several different methods of sharing screens between teacher and student computers were being used on campus. All of these products required different levels of support and some have expensive hardware components. The product that ITS has identified is a software-only solution that is reasonably priced and can be installed in any classroom.

Cost savings/Cost avoidance identified with the project: The cost of replacing expensive hardware switching devices and supporting multiple systems will no longer be necessary if this system is purchased.

Target Completion Date: June 2006

Current Status: A product has been identified and demonstrations of this product are being scheduled with faculty.

Pay for Print

Information Technology Services purchased GoPrint, a pay-for-print solution in order to meet the many challenges labs face when dealing with printing issues.

Some of these issues include:

- Waste created when users print large documents they do not need;
- Increasing supply costs; and
- The need to keep up-to-date with printing technologies.

GoPrint is a web based pay-print solution to be used by the labs and classrooms on campus. When a student chooses to print from a classroom or lab workstation the GoPrint popup screen (shown in Figure 3-15) will appear and require the student to login and be authenticated. Students will enter their network login, which is the same ID that they use to login to the my.Sinclair portal.

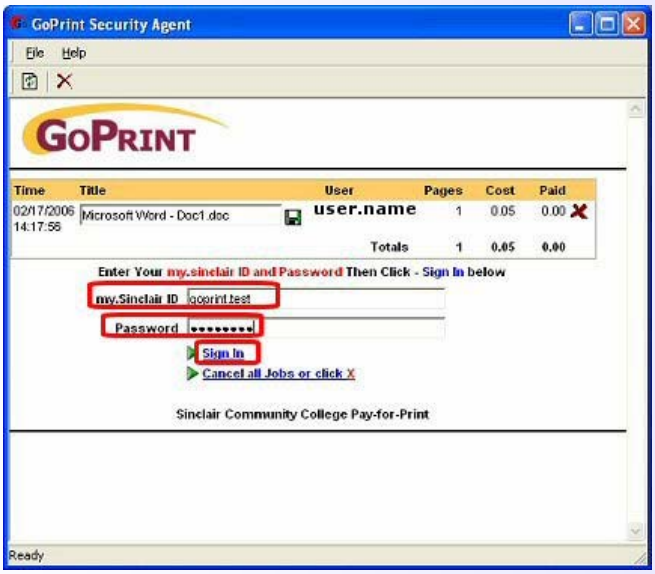


Figure 3-15. GoPrint pop-up window.

This ID will be associated with the individual's Tard Card account in order to charge for the print job. Each registered student will also be given a number of "free prints" each quarter before their account begins to be charged. The ability to use the network login rather than requiring students to remember an additional password that would be assigned to their Tartan Card account was a customization that ITS worked with GoPrint to develop.

Qualitative/Quantitative Return on Investment: GoPrint was purchased to reduce printing costs by decreasing the amount of waste. When students are not required to pay for their printing they are less likely to be responsible in their use of the service. The money that is collected from students will be used to help fund the supplies budgets of those departments that use the system and could allow assistance in funding the renewal and replacement of printers.

Cost savings/Cost avoidance anticipated for the project: In 2005, the Teleport's printers printed 1,400,000 pages. If charging for printing causes the total printed pages to be reduced to 1,000,000 and half of these pages are charged while the other half is provided for free, the system would collect $25,000.

Target Completion Date: March 2006

Current Status: Sinclair will pilot the GoPrint system during Spring Quarter starting April 17, 2006. Students will not be charged during the pilot.

TutorTrac Implementation

Sinclair's part-time and student employees play a major role in providing quality customer service. One of the biggest challenges many departments face is creating a schedule for these employees due to the difficulty of matching employee availability with service hours that must be covered. Tutorial Services was using an application developed in Access '97 for scheduling. Because this application was no longer being supported, Tutorial Services purchased TutorTrac, a web-based, in-house scheduling application.

ITS worked with Tutorial Services and RedRock software to install and configure TutorTrac (shown in Figure 3-16). Assisting Tutorial Services also involved training and documenting procedures. Tutorial Services began implementing TutorTrac for scheduling test exams Winter Quarter 2006 with full implementation planned for Summer quarter 2006.

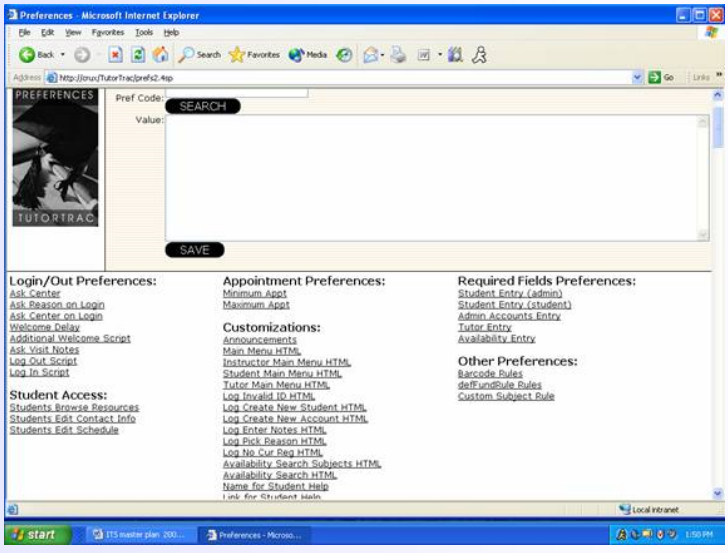


Figure 3-16. TutorTrac Scheduling Application.

Qualitative/Quantitative Return on Investment: The ability to schedule students that need tutoring assistance with available tutors is an important function within the Tutorial Services office. Since Tutorial Services' previous scheduling application was no longer supported, the implementation of TutorTrac was essential to continue this important function.

Cost savings/Cost avoidance identified with the project: The inability to provide an automated tool for matching tutors to students would require many more hours to be spent manually matching these schedules, which would cause higher personnel costs.

Target Completion Date: December 2005

Actual Completion Date: January 2006

Windows XP SP2 Deployment

To provide enhanced security for desktop PCs at Sinclair, Information Technology Services began implementing Windows XP Service Pack 2 campus-wide on February 13, 2006**.** Service Pack 2 had been tested extensively and had already been implemented on Building 13 PCs and on most computer lab PCs. In addition, Service Pack 2 had already been installed on PCs re-imaged since Fall 2005 and on all new PCs assigned since Fall 2005. The SP 2 implementation was communicated through articles on our.sinclair.edu. User instructions were also created. The Service Pack 2 installation process was implemented through the Windows Software Update Service (WSUS) process already used on campus for software updates. An example is shown in Figure 3-17.

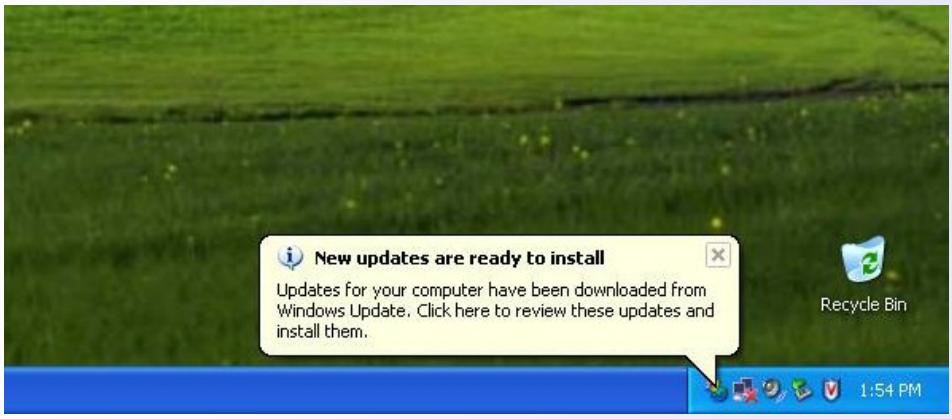


Figure 3-17. Update icon in the bottom right corner of PC screens.

The Service Pack 2 installation took approximately 30-45 minutes. Users were then instructed to follow the installation instructions in the Windows Software Update Service process. Users were able to continue to use their PCs while Service Pack 2 was being installed. They were required to reboot their PCs after the installation to complete the SP2 implementation.

A number of changes were noticeable after the Service Pack 2 installation. They include:

- **A Pop-up Blocker**
  In Internet Explorer, a Pop-up Blocker that blocks advertisements and other types of pop-up windows is now utilized, as illustrated in Figure 3-18. Pop-ups can contain spyware and other types of unwanted software.

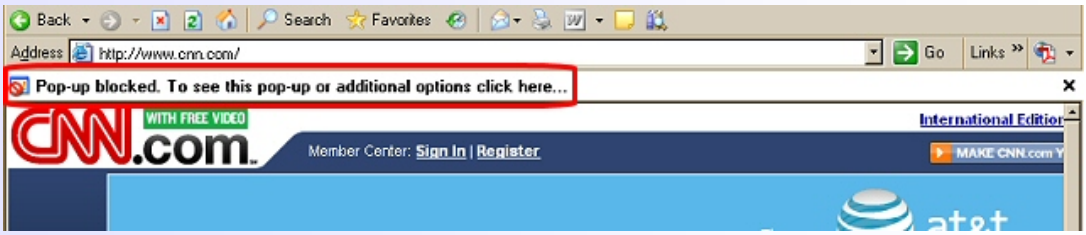


Figure 3-18. Pop-up Blocked Message.

- **Internet Explorer Information Bar**
  An Information Bar now appears in Internet Explorer when attempting to download files from the Internet, as shown in Figure 3-19.

Figure 3-19. Information bar with download message.

- **The Windows Software Update Service (WSUS) looks slightly different.**
  A new update icon is used and the update steps have changed.

- **A desktop firewall was installed on the user PCs.**
  The desktop firewall options are shown in Figure 3-20.

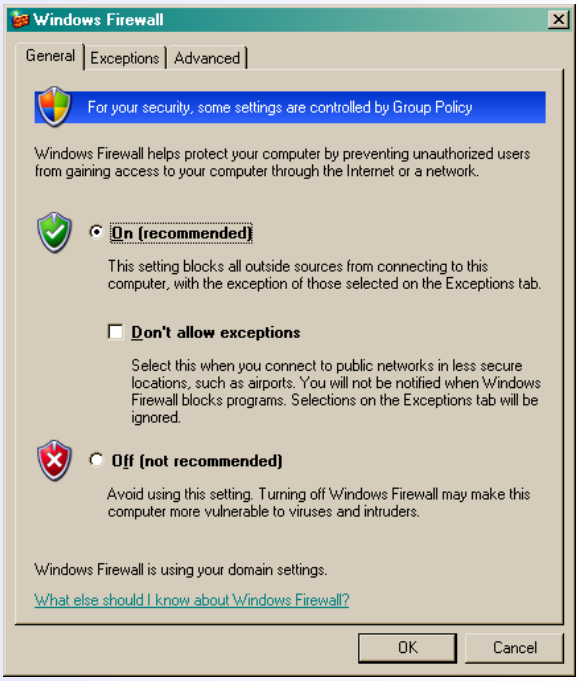


Figure 3-20. Windows firewall.

Additional information about the Windows Software Update Service (WSUS) can be found at the following link: http://our.sinclair.edu/sites/its/itswebsite/it_policies/procedures/its/sus/sus.htm

Qualitative/Quantitative return on Investment: By implementing Windows XP SP 2 campus-wide, the campus network is protected from viruses and other infections, which can disrupt the network and result in lost productivity and resources.

Cost savings/Cost avoidance: Lost productivity and resources can result in lost time and money for the College.

Target Completion Date: December 2005

Actual Completion Date: March 2006

Portable Document Camera Pilot

Sinclair standard multimedia podium rooms use a piece of equipment called a document camera, which provides functionality similar to the nearly obsolete overhead transparency projector. The document cameras currently used in standard multimedia classrooms are not portable and are expensive. This project was pursued to research possible future overhead transparency projector and document camera replacement solutions.

Qualitative/Quantitative Return on Investment: The obsolescence of the overhead projector, which is commonly used across the campus, has caused a need for research into current and less expensive technologies that provide the same function for the learning environment. This project was a part of that research and provided important information about the new portable document camera solutions.

Cost savings/Cost avoidance identified with the project: Maintaining obsolete technology is costly. This and other solutions are being tested to take the place of the fading technology so that Sinclair can remain technically current as well as avoid the repair costs to older equipment.

Target Completion Date: December 2005

Actual Completion Date: October 2005

Lab/Classroom Facilities Improvements

ITS provides support for the computing and networking needs of Labs and Classrooms. In some of the classrooms and labs, faculty require student interaction and the ability to provide an unobstructed view between student and instructor. At this time, laptops have been purchased and placed in certain areas to accommodate these needs.

A team with members from faculty, ITS, and Planning and Construction investigated different desk styles that would improve the field of view between students and instructor. The desk selected by the team will become the standard at Sinclair for these types of space requirements. The desk is a 6' x 3 ½' two person desk that holds two flat screen monitors with movable arms that allow the monitor to be moved out of the field of vision. The PC system unit is placed under the desk in a sling out of the field of vision, and the keyboard is on a moveable tray freeing needed desk space for the students.

Qualitative/Quantitative Return on Investment: Improving the furniture that is used in computer labs and classrooms can help improve student learning by giving students more space and improving their line of sight to the instructor.

Cost savings/Cost avoidance identified with the project: With standardized desks that improve the field of view for the students and instructor, ITS hopes to be able to replace the laptops currently being used when their useful lives have expired with PCs resulting in a cost savings on equipment.

Target Completion Date: April 2006

Actual Completion Date: March 2006

Pilot Test of Tablet PC for Classroom Presentations

The purpose of this pilot test was to allow the instructor maximum maneuverability while wirelessly projecting audio and video from a Tablet PC to the projector. Specifically the notepad function was tested as a replacement for the functionality of overhead transparency projectors, which are now nearly obsolete technology.

Qualitative/Quantitative Return on Investment: The obsolescence of the overhead projector, which is commonly used across the campus, has caused a need for research into current and less expensive technologies that provide the same function for the learning environment. This project was part of that research and provided important information about the new portable document camera solutions.

Cost savings/Cost avoidance identified with the project: Maintaining obsolete technology is costly. This and other solutions are being tested and propose to take the place of the fading technology so that Sinclair can remain technically current as well as avoid the repair costs to older equipment.

Target Completion Date: December 2005

Actual Completion Date: November 2005

Lab Support Improvements

To better serve students in classrooms and labs, learning tools are needed to enhance the quality of support. As the ability to enhance learning through technology becomes more integrated in these learning tools, it is imperative that Sinclair provides standard policies and procedures, comprehensive student support, and coordination for these classrooms and labs.

ITS offered training to Lab Coordinators and their part-time and student employees. These sessions included training on:

- **Financial Aid** - Employees learned how to assist students with the online financial aid application.
- **Sexual Harassment** - Employees learned the definition and meaning of sexual harassment, explored the associated issues, and addressed the expected behavior for a safe environment.
- **Dealing with Difficult Guests** - Employees watched a video on recognizing, understanding and taking care of difficult customers.
- **Team Building Activity** – Employees participated in an activity to get to know other lab staff employees.
- **SAM –** Employees learned how to use SAM, an assessment and training tool for Microsoft Office 2003, to enhance knowledge of the Microsoft Office applications.
- **my.Sinclair** – Employees learned how to help students use their e-mail and Web Advisor accounts.
- **Customer Service** – New Employees attended this introduction to customer service. The session also reinforces and encourages the excellent service qualities of seasoned employees.

ITS also defined standard policies and procedures for the CIL, Library and Teleport. This allowed ease of training, scheduling, and the rotating of staff in these three areas.

Qualitative/Quantitative Return on Investment: Offering training in communication, customer service, problem solving, applications, and standardizing policies and procedures has improved student support.

Cost savings/Cost avoidance identified with the project: Ineffective computer lab support can lead to lost productivity as well as decreased student satisfaction and success, which could directly affect revenue.

Target Completion Date: December 2005

Actual Completion Date: December 2005

IP Video Conferencing

Media Services, in partnership with other Information Technology staff, investigated ways to do on-campus IP (Internet Protocol) videoconferencing using existing Internet bandwidth as much as possible. Media Services also investigated desktop videoconferencing on campus with the intent of establishing standards for the campus. IP videoconferencing would potentially be used for current Distance Learning initiatives as well as for the Fast Track Learning Centers, Warren County, and any other expansion initiatives.

Qualitative/Quantitative Return on Investment: The use of IP videoconferencing could allow the college to offer videoconferencing services in many more locations than are currently served by the fixed location videoconferencing.

Cost savings/Cost avoidance identified with the project: Costs could be saved or avoided in the future by being able to provide additional distance learning classes in more locations without increasing campus infrastructure.

Target Completion Date: February 2006

Current Status: Media Services worked with the Network Engineers to test IP videoconferencing across the existing network. Successful tests were performed. However, the time involved in set-up of the network policies for each test connection was greater than planned. Media Services has recommended an interim solution for campus IP videoconferencing that proposes to use dedicated IP videoconferencing equipment and bandwidth and the campus Digital Asset Management system for digital course storage. This proposed solution is a first step towards a live streaming solution for campus IP videoconferencing.

A team has been established to research how the campus would use IP videoconferencing capabilities and to submit IP videoconferencing solutions for review and action. A survey tool has been developed by committee members to collect data about how Sinclair employees would most like to use IP videoconferencing capabilities. The goal is to interview 110 staff members representing all areas of the campus. Over 50 college employees have been interviewed to date. The committee expects to submit recommendations by June 30, 2006.

Synergy to Crestron Conversion

Media Services completed the installation of a new multimedia control system for one of the existing interactive learning classrooms, room 14-108, in September 2005 as described in the FY 2004-2005 project to Upgrade CIL Media Equipment. This became necessary because the existing multimedia control system is aging, and we are experiencing costly repairs. Additionally, it is no longer supported by the original vendor, making an upgrade path for this system impossible. We were able to install the new Crestron control system in such a way that both the old and the new control systems would work simultaneously in order to ensure that no Distance Learning initiatives would be negatively affected by the change. This project also included

upgrading nine multimedia classrooms in the Center for Interactive Learning from AMX/Synergy control to Crestron multimedia control during August 2005.

Media Services tested the new control system in room 14-108 during the fall of 2005. During FY 2005-2006, Media Services has been working to ensure that the new multimedia control system is fully functional. When we are assured that the system is functioning properly, Media Services will convert the remaining interactive learning classrooms to the new control system during the winter of 2006. We expect to complete this conversion using existing R & R funds.

Qualitative/Quantitative Return on Investment: In order to provide effective technological teaching tools for the learning environment, the technology must be user friendly and have the same look and feel throughout the campus. This Crestron conversion provides continuity in the user interface of the multimedia control system.

Cost savings/Cost avoidance identified with the project: Estimating the useful life of equipment and performing replacements before that equipment starts to fail not only saves money in repair costs, but also prevents loss of revenue due to the inability to provide a service in a satisfactory way to the customer.

Target Completion Date: September 2006

Current Status: Room 14-108 and the nine classrooms in the Center for Interactive learning have been upgraded and are now using Crestron control. The Crestron control system that was put in place for the head-end in August 2005 was not an effective solution. It did not provide the cross-point switching that is necessary to the operation of the control console. This was a no cost solution and was recommended to Sinclair due to the cost savings. A new solution has been selected. Media Services expects to complete this conversion along with the upgrade of the two remaining distance learning classrooms, using existing R & R funds, during December 2006.

Purging SPAM

Prior to this project, ITS provided an application called SpamAssassin in which email with the characteristics of SPAM (unsolicited or “junk” email) was marked with a tag that could be used by the College’s email users to filter or delete the mail. Over the past year, the amount of SPAM mail received by College mailboxes has almost tripled. It was determined that we could no longer afford to waste valuable College resources by continuing to allow such large volumes of SPAM mail to enter user mailboxes.

With an upgrade to the SpamAssassin application, we were seeing a very small number of false positives (email that is falsely tagged as SPAM). Because of this, we felt very confident that we could implement a system that would delete mail messages identified as SPAM before they reached user mailboxes, rather than simply tagging them. We are providing users a “digest” (shown in Figure 3-21) of messages that were not delivered so they can review for legitimate messages deleted and contact the sender if necessary.

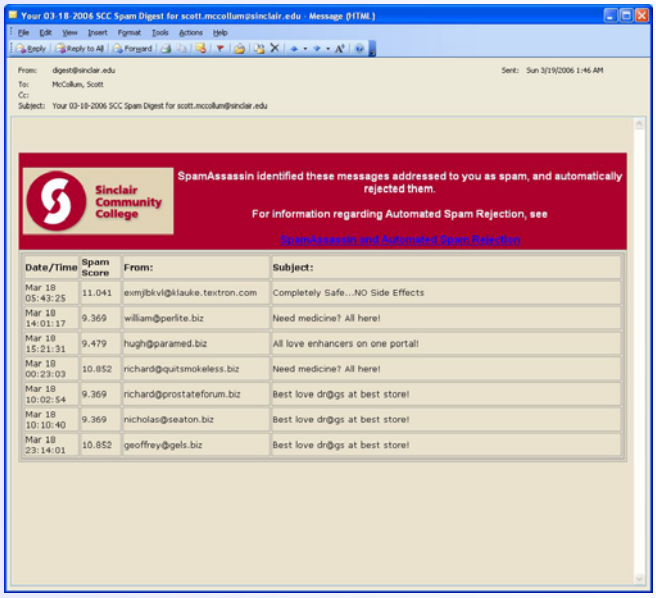


Figure 3-21. SpamAssassin email "digest".

Qualitative/Quantitative Return on Investment: The system that rejects emails and creates the digest was built with existing tools by ITS staff. The system has increased security, decreased waste of system resources, and lessened negative impact on user productivity.

Cost savings/Cost avoidance identified with the project: Many systems are available to provide the type of functionality that this system provides, and they are very costly. Because we developed the system ourselves, we were able to save approximately $25,000. We also avoided costs that might have been necessary to increase mail storage capacity.

Target Completion Date: December 2005

Actual Completion Date: June 2005

Wireless Networking Expansion

While wireless network access was available in over 20 different locations on the Dayton campus, the use had been limited to those areas where campus users requested the connectivity for a very specific use. Most of these locations were classrooms that had requested funding for the student use of wireless laptops. In addition, wireless network access was added to the atriums of 4 buildings.

These wireless access locations only supported the use of College-owned laptops with the Sinclair administrative software image. Information about these locations and access had been publicized on the College News and other publications. In November 2005, the wireless network access was expanded on the Sinclair Dayton campus to additional types of users and to additional types of devices.

The wireless access implementation has three levels of service as shown in Table 3-1. Each provides a different level of service based on the type of user and type of device that is being connected. The first two levels have been a part of our plans since we started implementing wireless, and the first level is what we were already providing prior to this project. The second level which was made available during the Spring of 2006 allows college employees to connect using non-college owned or non-imaged devices such as PDAs or personally-owned laptops.

Access Level	User	Device
Level One This is the highest level of access. The user must login with their Sinclair network username and password. Access is similar to access to a wired campus network connection.	**College Employees** This includes all faculty, staff, and student employees. It also includes student use of login IDs that are assigned to campus lab computers.	**College-Owned Laptops and Tablet PCs with the Sinclair Administrative Software Image**
Level Two "Web Only" access similar to the type of access when connected to the Internet off-campus. The user must login with their Sinclair network username and password.	**College Employees** This includes all faculty, staff, and student employees. It also includes student use of login IDs that are assigned to campus lab computers.	**Wireless Devices without the Sinclair Administrative Image or Not Owned by the College** Examples would include PDAs, non-imaged laptops, personal laptops, smart phones.
Level Three This is a "Guest" access granting "Web Only" access similar to when a user is connected to the Internet off-campus. A login is NOT required.	**Anyone** This includes all students and the public.	**Any Type of Wireless Device**

Table 3-1. Wireless Access Strategy.

The third level of service is "guest" wireless. While we had an interest in providing this type of access since we began implementing wireless, we were concerned about the cost of the necessary infrastructure as well as the cost of providing support for those users. This led us to investigate vendors that would be willing to bear these costs and provide the service that our customers would require. In August 2005, we signed a contract with Harborlink to provide the guest wireless access in various public spaces across the Sinclair campus.

The relationship with Harborlink not only provides guest wireless access to the College at no cost, it also allows us to extend our first two levels of access into 30 additional spaces on the Dayton campus. Harborlink is also working with the City of Dayton to provide free wireless access throughout downtown so the same type of guest access that is available inside campus buildings is available in the external spaces around the campus buildings. Additional information about wireless access on the Dayton campus is available at: http://our.sinclair.edu/sites/its/itswebsite/it_policies/procedures/its/wrless/wrless.htm. As shown in Figure 3-22, posters were created to publicize the availability of the free "guest" wireless access. As noted in the Introduction, usage of the wireless service has increased steadily since initial installation.

Figure 3-22. Posters created to publicize the availability of free "guest" wireless access.

Qualitative/Quantitative Return on Investment: This project increased the number of wireless access locations, allowed faculty and staff to be more productive by accessing the campus network wirelessly, increased student satisfaction with the College, and benefited guests and visitors to the College.

Cost savings/Cost avoidance identified with the project: The agreement with Harborlink allowed the expansion of the college's secure enterprise wireless network into every building on the campus, while also providing student and guest wireless access at minimal cost. ITS had estimated that approximately $100,000 worth of equipment would be needed to implement this expansion. This project was completed for the cost of only $5,000, which paid for the installation of equipment.

Target Completion Date: June 2006

Actual Completion Date: November 2005 for Levels One and Three, March 2006 for Level Two

Digital Asset Management Expansion

This past year, ITS worked with campus users to create a vision for a system to store, catalog, index, search and deliver digital assets. A pilot implementation of this system was started using content from the Child and Family Education, Nursing, Automotive Engineering, and Physics departments. This system provided a "proof of concept" and an infrastructure that can easily be expanded.

During FY 2005-2006 funds were requested to expand the pilot infrastructure into a campus production digital asset management system. However, the complexity of the system has caused us to delay the expansion until increased usage is realized. This usage will be dependent on the development of procedures for the use of the system and a formalized training program, which are both under way.

Qualitative/Quantitative Return on Investment: Not applicable due to this project being delayed.

Cost savings/Cost avoidance identified with the project: Not applicable due to this project being delayed.

Target Completion Date: June 2006

Current Status: The funds that were requested for the expansion of the Digital Asset Management System have been returned to the College for use on other projects. Once the demand for the system warrants expansion, funds will be requested.

Sinclair Information Security Policy

Sinclair's Information Security Policy formally establishes an information security program within the College. Most of Sinclair Community College's financial, administrative, and student systems are accessible through the campus network. As such, they are vulnerable to security breaches that may compromise sensitive information and expose the College to asset losses and other risks. The objectives of the information security program established by the policy include:

- Establish a college-wide approach to information security, including appropriate security awareness training and education for constituents.
- Comply with federal and state statutes and regulations regarding the collection, maintenance, use, and security of information assets.
- Establish and implement prudent, reasonable and effective practices for the protection and security of information assets, including protection of sensitive and confidential information against accidental or deliberate unauthorized disclosure, modification or destruction.
- Develop effective mechanisms for responding to real or perceived incidents involving breaches of information security.

The Information Security Policy establishes a program charged with ensuring the College meets or exceeds its legal and ethical responsibilities for securing its critical and sensitive information assets.

Qualitative/Quantitative Return on Investment: The organizational structure and processes of the information security program have been in place and approved by Sinclair's administration since April of 2003. This policy formalizes and officially sanctions the program and authorizes information security team members to develop and provide official guidance to constituents and to build a foundation to guide, direct, and communicate continuous development and implementation

of risk-based information security processes. Adoption of a written, formal policy also improves the College's ability to comply with numerous federal and state statutes and adopt industry standard effective practices.

Cost savings/Cost avoidance identified with the project: Implementation of an effective security program reduces legal exposure, liability, and associated costs. These costs are potentially significant. For example, the state statute requiring notification and disclosure of any security breach involving unencrypted or unredacted personal information establishes a threshold of $250,000 in expenses before any substitute methods may be used for the notification process. The statute also provides for civil penalties of up to $10,000 per day levied against non-compliant institutions.

Target Completion Date: October 2005

Actual Completion Date: April 2006

Data/Information Classification

This project is a subset of the ongoing information asset identification project. It is a dynamic project that will be continuously updated and modified. To effectively implement a risk-based security program, the institution must know what information is collected/stored and any associated protection strategies required. The data/information classification project includes:

- Establishing Information Classification Criteria, primarily based on confidentiality;
- Classifying existing Information by broad category or type;
- Providing guidelines for classifying new Information;
- Reinforcing Information 'Ownership' Criteria; and
- Documenting primary 'Ownership' of Information.

Phase 1 of the project involved classification of General Ledger and other Financial data, Phase II classified HR data and shared GL/HR data, Phase III involved classification of Student and remaining shared data. An example of the Classification Matrix is provided in Figure 3-23.

Qualitative/Quantitative Return on Investment: Classifying information is the primary step to implementing a targeted information security program. Identifying exactly what information needs to be protected, and to what level it needs to be protected allows resources to be dedicated to protecting the confidentiality and integrity of critical/sensitive information. This also provides increasing availability and access to non-sensitive and aggregate information to facilitate more comprehensive data mining/analysis to support data-driven decision making.

Cost savings/Cost avoidance identified with the project: Information security based on sensitivity and risk to the specific information permits security resources to be targeted to 'protect

what needs to be protected' as opposed to 'protect everything' or 'protect it because it might need to be protected'.

Sinclair Information Classification Matrix

Updated 3/10/06

Type of Information	Primary Owner or Repository	Confidentiality Classification	Applicable Legislation or Standard
Campus Police/Law Enforcement records	Campus Police	Confidential	
Checking account (accounts payable) information	Accounting	Confidential	
Student Class Schedules	RSR	Confidential	FERPA
College Credit Card Information	Accounting/Purchasing	Confidential	PCI,
Degree awarded and date	Registrar	Public	FERPA
Digitally captured identification photos	RSR/Departments	Public (Directory)	FERPA
Direct Deposit account information	Payroll	Confidential	HB104
Donor information	Foundation	Confidential	
E-mail address (Sinclair provided)	ITS	Public	
Employee Background Checks	HR	Confidential	
Employee Contracts	HR/Department	Confidential	
Employee degrees, certificates, or awards	HR	Public (Directory)	

Figure 3-23. Sinclair Information Classification Matrix.

Target Completion Date: March 2006

Actual Completion Date: March 2006

IT Brochures/Quick Guides

During the creation of communication materials for the Student IT Orientations, a need for some online documentation and informational quick guides for student IT services and issues was identified. Examples are shown in Figures 3-24 through 3-27.

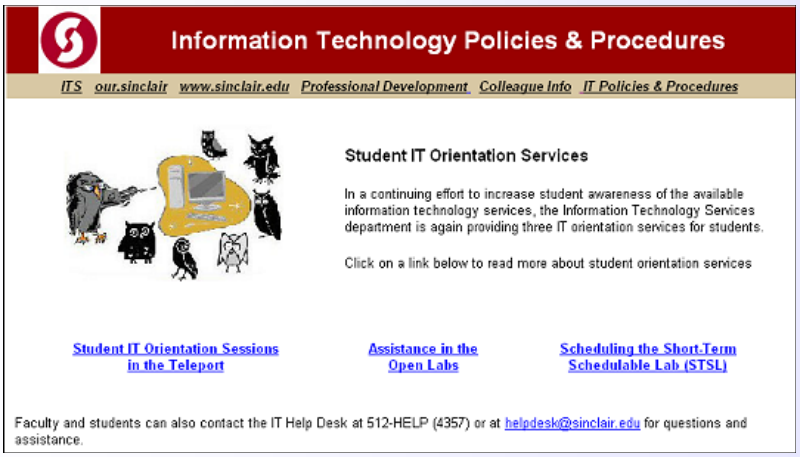


Figure 3-24. Web page with Student IT Orientation information.

Figure 3-25. Helpful information posted on the Help Desk page on www.sinclair.edu.

Figure 3-26. Quick guide created to assist with logging into my.Sinclair .

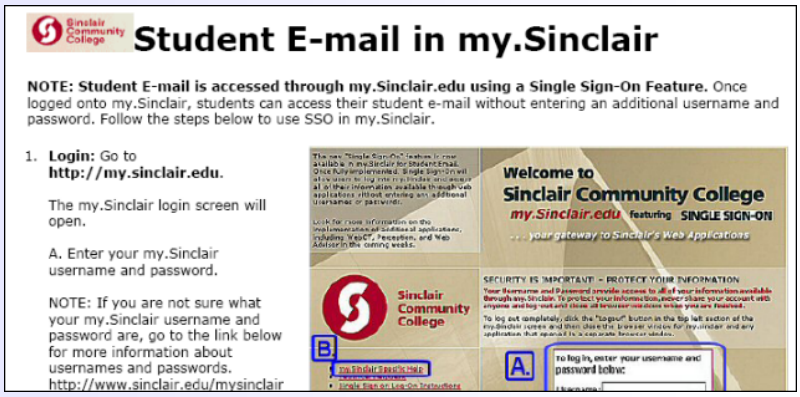


Figure 3-27. Quick guide created for getting started with Student Email.

Additional quick guides for student IT support resources, student IT account benefits, and student account responsibilities are planned. The quick guides are also being published online.

Qualitative/Quantitative return on investment: Sinclair students will be better informed about IT resources and services available to them. IT staff can gain feedback from students on IT services and resources. Publishing the quick guides online also provides access to the information for distance students or students who cannot attend the orientation sessions.

Cost savings/Cost avoidance: The quick guides utilize existing tools and staff so no additional costs were incurred. Providing improved communication also assists with reducing support costs by allowing users to answer their own questions.

Target Completion Date: July 2005

Actual Completion Date: Initial completion August 2005. This will also be an ongoing project as new guides are created.

Facilities Management Use of Magic

Previously, Facilities Management used Maximo, a tool that allowed Sinclair faculty or staff to enter work requests, to report equipment or facilities problems, and to check the status of work requests. Facilities Management also used Maximo to: assign, view, and track work requests; run reports; search for and order items or services; check the status of an order; and complete the order process. The Magic Total Service Desk already used in the IT Division for IT problems provided most of the same functions and with some modifications could provide all of the functions.

To improve support, eliminate duplicate tools, and reduce costs, Facilities Management and ITS investigated the use of Magic as a replacement for Maximo. After researching the costs and extensively testing Magic's functionality with Facilities Management's needs, Facilities Management decided to implement Magic Total Service Desk for their problem tracking system.

Before Magic could be piloted and then implemented for Facilities, it had to be reconfigured to add the many subjects, groups, processes, and business rules for Facilities Management. ITS was also not satisfied with the self-service function of Magic so we worked with Web Systems staff to create an interface in which users could easily login and report problems. This same interface was later ported to the IT self-service function.

Qualitative/Quantitative Return on Investment: ITS staff will be able to utilize their knowledge of the Magic software to support Facilities Management's use of the system.

Cost savings/Cost avoidance identified with the project: Facilities Management and ITS saved thousands of dollars by using the same tool to support their customers. This savings came from the elimination of costs of the Maximo software as well as the server that the software ran on.

Target Completion Date: June 2005

Actual Completion Date: August 2005

2005 IT Controls Audit

The State of Ohio requires all publicly funded institutions to undergo an annual financial audit conducted by an objective third party auditing firm. A subset of this audit is an audit of Information Technology controls as they relate to the security of financial information. In 2005, this audit was conducted by the consulting firm Crowe-Chizek.

Prior to the 9/22/05 on-site visit, the IT controls auditor submitted an extensive list of policies, procedures, and other documentation to be reviewed during the audit. The auditor reviewed all documentation for compliance with information security 'effective practices'. During the on-site visit, the auditor randomly selected processes and procedures to test and verify.

The auditor found no significant discrepancies in Sinclair's IT controls. No Management Letter comments were generated. The auditor did suggest re-evaluating controls in three minor areas. These areas were re-evaluated by IT staff using a risk-assessment process, and current controls were deemed appropriate based on the risk, cost, and appropriateness of tighter controls. A response was submitted to the CIO.

Qualitative/Quantitative Return on Investment: Audits conducted by objective third parties who specialize in specific areas provide valuable insight to current effective practices. Audits also validate that the controls and processes used within the institution meet or exceed 'due diligence' requirements practiced by other similar institutions.

Cost savings/Cost avoidance identified with the project: Audits verify that appropriate controls are in place and reduce the risk of fines, sanctions, and poor public reputation associated with security leaks and noncompliance with statutes.

Target Completion Date: October 2005

Actual Completion Date: October 2005

WSUS - Worskstation Patching

We increasingly depend on our network infrastructure for day-to-day business needs and educating our students. However, the threat of malicious viruses, spy ware and worms is also increasing, causing Information Technology Services to investigate ways to help protect our network environment.

The Microsoft Windows operating system, while easy to use, has had its share of vulnerabilities when it comes to permitting unauthorized users access to a corporate network. Microsoft itself realizes these vulnerabilities and produces critical security patches for their system vulnerabilities on the second Tuesday of every month and makes them available to users. Research has shown

that the most efficient way to be protected against attacks is to ensure that every machine in the environment has the latest patches installed. It only takes one computer that is not patched to threaten the stability of the entire network. However, poorly written or tested patches can cause as much of a problem as the vulnerability they are trying to protect against. So it is important to test each patch prior to deploying it to all computers.

This project investigated the use of Microsoft Windows Server Update Service (WSUS) for patching workstations and comparing it to Altiris and Microsoft Software Update Service (SUS), two products already used by ITS. The decision was made to use WSUS for patches because it has more features than SUS and appears more reliable and easier to use and manage than Altiris. Also of critical importance was the ability to group workstations for testing patches prior to deploying across campus. WSUS can only be used with Microsoft products at this time, so we still may need to use Altiris for non-Microsoft products. However, Microsoft is encouraging and enabling other vendors to use its WSUS framework for the deployment of application updates and patches. The update screen for the WSUS application is shown in Figure 3-28.

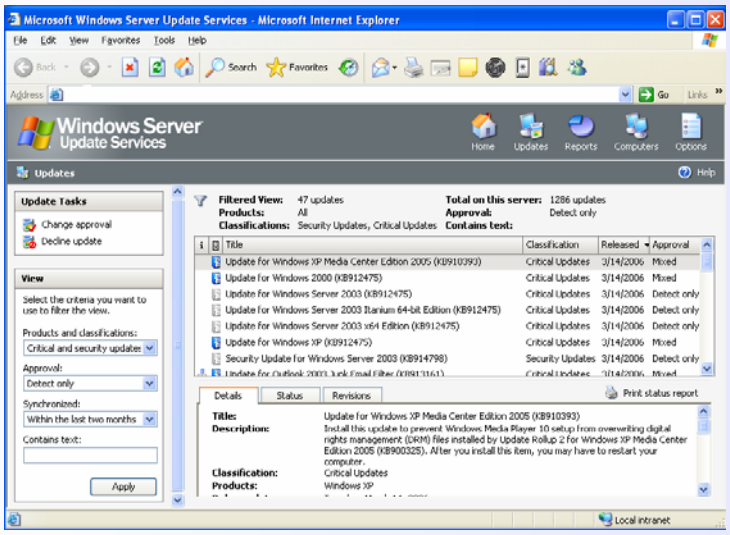


Figure 3-28. Update screen of the WSUS application.

Quantitative/Qualitative Return on Investment: The ROI of this project is hard to quantify/ qualify because the effects on our network if we were not patching workstations regularly cannot be over estimated. However, given the frequency that new threats are released, it is highly probable that this project may have already shown a positive ROI.

Cost savings/Cost avoidance anticipated for the project: There are many patching systems available and some of them provide better functionality than WSUS. However, this product provides functionality that is “good enough” and Microsoft provides the software free of charge.

Target Completion Date: August /2005

Actual Completion Date: August 2005

Server Image Standardization

Whenever a server is initially set up or re-deployed, it needs to have an operating system installed as well as various applications that help ITS monitor and maintain the network. The scope of this project was to develop a process whereby an application called Altiris would be used to build and deploy a standardized Microsoft Windows Server software image.

Scripted installations were built for the Compaq DL380 G3 servers running Windows Server 2003 Standard, Advanced and WSE editions. In addition, all the other software applications that are included in a "base" server installation were included in the script.

Quantitative/Qualitative Return on Investment: It is estimated that for an individual server using the scripted installation through Altiris saves approximately 4 hours of Systems Engineer time compared to installing the software using a manual, iterative process. When multiple servers need to be set up, this image can be deployed to all of them at the same time, compounding the time savings. The time saved can then be used in other areas.

Cost savings/Cost avoidance anticipated for the project: The department saves costs indirectly in two different ways. First, the number of hours that it takes to build a server is reduced, allowing Engineers to work on other projects. Second, servers which are not configured according to the department's defined standard can cause increased costs as a result of downtime.

Target Completion Date: April 2005

Actual Completion Date: July 2005

Upgrade Transcend Voicemail System

The AVST voice mail system associated with the current phone system was acquired in July 2000, and was due for an upgrade from a product replacement standpoint. An upgraded voice mail system was implemented this year. The upgrade included a newer operating system (Windows Server 2003), which ensured future support for software upgrades and also included new features for all SCC staff and faculty. Some of the new features now available include the date and time stamp notification on all messages, additional extended greeting, and user control of message notification. Although not implemented at this time, the system now has the capability to provide unified messaging with the current Outlook/Exchange system.

Quantitative/Qualitative Return on Investment: The software on the old system was running on an older operating system which was no longer going to be supported by the supplier. Consequently, if the system had not been upgraded, ITS would have faced the possibility of supporting a system without any supplier help or second tier support.

Cost savings/Cost avoidance anticipated for the project: With the increased dependence on voice mail as a productive tool on campus, the offset of time and money involved to support the older product was avoided. In terms of overall costs, the upgrade saved the college over $56,000

because this was an upgrade of an existing system versus the cost of a new system.

Target Completion Date: August 2005

Actual Completion Date: January 2006

HIPAA Status Evaluation/Re-Evaluation

When the HIPAA (Health Insurance Portability and Accountability Act) Privacy Rule compliance date initially approached, it was determined HIPAA did not apply to Sinclair as an institution as we did not perform covered electronic transactions. However, as the College migrated to a partially self-insured model, and as the Dental and ALH programs adopted current technology in their curricula, the types of healthcare-related transactions changed. A working group was formed to evaluate current status, and the group determined Sinclair fits the definition of a 'hybrid' institution and that specific departments within the College must comply.

A compliance checklist was drafted listing all Administrative, Physical, and Technical safeguards required by the HIPAA Security Rule. Using the checklist, it was determined that Sinclair meets the technical safeguards for all centrally stored/managed data. A possible improvement for consideration is adoption of a solution to provide encryption of personal health information in storage. Sinclair also meets the majority of administrative safeguards within IT span of control. A college-wide team has been formed to address issues.

Quantitative/Qualitative Return on Investment: HIPAA is a Federal statute; compliance is mandatory for any US entity involved in providing/administering healthcare or a health plan and processes transactions involving personal health information electronically.

Cost savings/Cost avoidance anticipated for the project: Primary impact is on cost avoidance. The US Department of Health & Human Services can impose penalties of between $100 to $25,000 for violations or non-compliance.

Target Completion Date: November 2005

Actual Completion Date: March 2006

Payment Card Industry (PCI) Standards Evaluation and Response

In response to the increase in reported security breaches of credit card information, the major credit card companies developed a set of information security standards, the Payment Card Industry (PCI) standards, and mandated compliance for all entities who engage in electronic credit card processing. The standards were effective June 30, 2005. Currently, SCC is level 4, and is in full compliance with the standards. We expect to reach level 3 in the near future. A compliance checklist has been developed and will be implemented when the compliance threshold is reached.

Quantitative/Qualitative Return on Investment: The PCI Standards sponsors have indicated they will suspend or remove the ability to process credit card transactions of non-compliant entities. They have also implemented a significant 'penalty fee' policy for violators.

Cost savings/Cost avoidance anticipated for the project: Losing the ability to process credit card transactions would have a significant impact not only on the institution, but also on our students.

Target Completion Date: October 2005

Actual Completion Date: October 2005

HB104, Personal Information Breach Notification, Assessment and Response Plan

House Bill 104 applies to nearly every agency, person, or other entity that does business in Ohio and that maintains systems containing personal information of Ohio residents. The Act requires covered entities to notify the individual resident in the event of a security breach that resulted in, or may result in, unauthorized access to the resident's personal information—unless this information was encrypted or redacted (e.g., SSN truncated to last 4 digits). The Act was passed by the Ohio General Assembly and signed by Governor Taft on Nov. 17, 2005; it became effective Feb. 17, 2006.

While Sinclair has not experienced any breach of security that would be impacted by this statute, due diligence required development of a proactive response plan in the event of such an incident, a re-assessment of the risks of this type of breach occurring, and recommendation of tools to help mitigate the risk. The incident response plan was modified to incorporate the reporting process. Sinclair Leadership Council was briefed on the act and its significance (during the Information Security Policy presentation). A recommendation was made to modify the Acceptable Use Policy to require encryption on portable devices and media. An additional recommendation is finding and implementing a user-friendly but enterprise managed encryption tool for all College-owned portable devices such as notebook and tablet PCs.

Quantitative/Qualitative Return on Investment: ROI is primarily based on proactive measures to prevent a covered incident from occurring (see cost avoidance). Preventing unauthorized disclosure of personal information is an expectation of Sinclair stakeholders and is the 'right thing to do.' Implementation policies and procedures, coupled with tools such as encryption software, is less expensive than the cost of a reportable breach—in real costs and in public perception of Sinclair.

Cost savings/Cost avoidance anticipated for the project: The primary impact is cost avoidance. HB104 establishes a threshold of $250,000 in expenses before any substitute methods may be used for the notification process. The statute also provides for civil penalties of up to $10,000 per day be levied against non-compliant institutions.

Major Accomplishment for FY 2005-2006

Target Completion Date: February 2006

Actual Completion Date: February 2006

Incident Response Plan Revision

Sinclair's information security incident response plan was revised to incorporate a two-tier approach—an 'initial response' process that is primarily a technical approach, and a 'management response' that is triggered based on severity and potential impact of an incident. A central incident reporting process was developed, published, and communicated. A standardized form for documentation of incidents, as well as a standard response checklist/flowchart was developed for use by responders. Provisions for identifying breaches of personal information were incorporated. Processes for assisting with law enforcement investigations and other legal issues are addressed within the response plan.

Quantitative/Qualitative Return on Investment: Numerous studies have demonstrated that institutions with a response plan identify, contain, and recover from information security breaches more rapidly, more successfully, and at less operational cost than those who fail to plan. The standardized response process and central reporting process streamline detection and response capability, should ultimately reduce recovery time and expense, and will assist in prevention of recurrence via a 'lessons learned' review.

Cost savings/Cost avoidance anticipated for the project: Primary impact is cost avoidance. Cost of planning and preparation involves primarily staff time and training. Cost of an extended outage impacts instruction, registration, financial aid, and nearly every business operation campus-wide.

Target Completion Date: June 2006

Current Status: The plan is complete with the exception of documenting the processes for assisting with law enforcement investigations.

Security Architecture Model

The distributed nature of today's information systems environment has greatly reduced the effectiveness of the traditional 'perimeter' security model. The always on, global access provided by current systems requires complex and interrelated security measures across the information systems infrastructure. The goal of the security architecture model project is to capture and show the primary security controls and methods in place throughout the campus systems infrastructure. The model's foundation is a physical connectivity diagram of the network, and security controls used at each layer of the OSI Security model and TCP/IP model are illustrated and/or detailed.

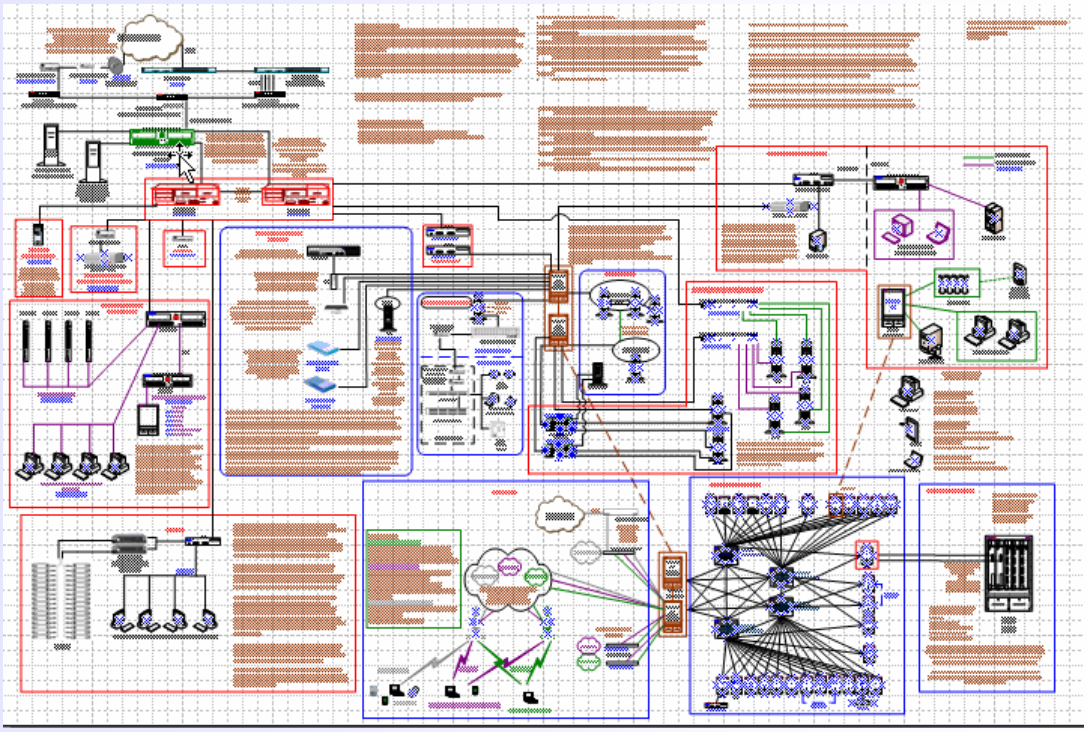


Figure 3-29. Security architecture - a physical connectivity diagram of the network's security controls.

Quantitative/Qualitative Return on Investment: The complexity of information security controls has resulted in distributed responsibilities throughout the network. A single, comprehensive architecture model illustrates dependencies and inter-relationships between systems, and the security controls of each. The model can be used to assist with troubleshooting when issues arise, and can also assist with planning and implementation of future technologies and projects. As new technologies are implemented, systems planners and engineers can use the model to evaluate how the new technology can 'plug-in' using existing security controls.

Cost savings/Cost avoidance anticipated for the project: The model's cost savings/ avoidance impact is qualitative. In planning, it is less expensive to build-in security than to add-on after the project. The model assists planners with identifying existing controls that may be leveraged and identifies intersections where additional controls may be required for security of the information being processed.

Target Completion Date: August 2005

Actual Completion Date: March 2006

ITS Procedure Documentation Repository

Information Technology Services had as a goal the creation of a documentation repository for official ITS procedures. SharePoint had already been implemented for the project management

initiative and as an informal way for ITS staff to share various forms of documentation so SharePoint was chosen as the tool to house the ITS procedures. Another goal was to standardize the review process and format for ITS procedures to ensure quality control. A final goal was to store the procedures in such a way that they would be easily accessible to ITS staff and backed up regularly.

A site was created on SharePoint for an ITS Procedures manual, and a procedures template document was created. Both of these were presented to ITS managers for review/revision. Then, they were presented to ITS staff for implementation. An illustration of the site is shown in Figure 3-30, and the procedures template is shown in Figure 3-31.

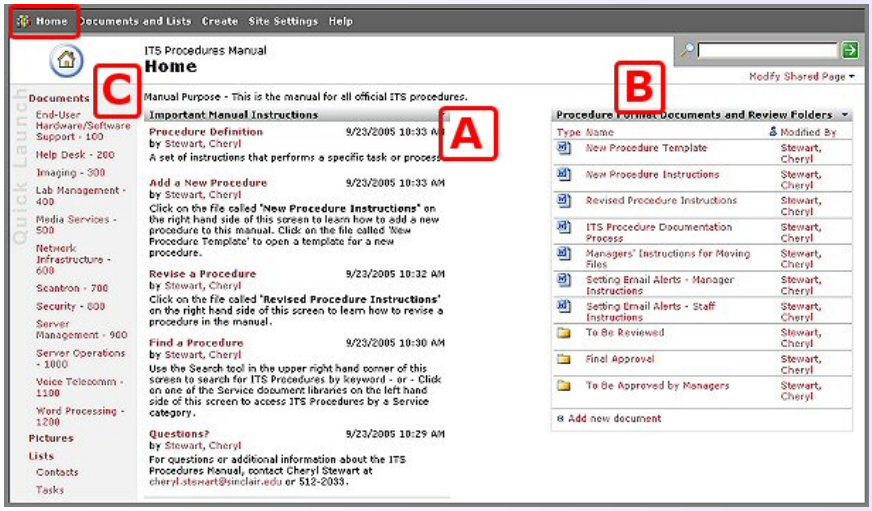


Figure 3-30. The Microsoft SharePoint Server's interface for the ITS department's procedures repository.

The following are depicted in Figure 3-30:

A. **Manual Instructions –** list of items giving short instructions on using the manual.

B. **Documents and Review Folders –** list of instructions, format documents, and review folders.

C. **Documents –** Approved procedures organized by services provided by ITS. ITS staff have already added a number of procedures that are in various stages of review.

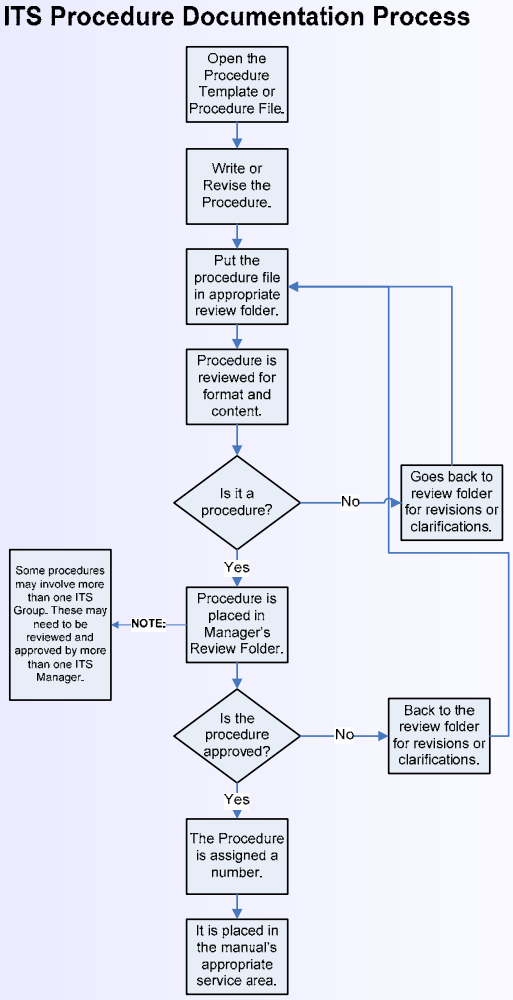


Figure 3-31. ITS Procedure Documentation Process.

Qualitative/Quantitative Return on Investment: Prior to the implementation of this project, ITS procedures were stored in various places such as department shares or the department areas on SharePoint. There was no standard format for all ITS procedures and no convenient way to search for them. The ITS Procedures Manual on SharePoint provides one area for storing official ITS procedures, and the manual can be searched by keyword. In addition, the manual contains a standard procedure template.

Cost savings/Cost avoidance anticipated for the project: Staff time/effort will be saved by having all procedures stored in one place with access provided to all staff. Quality control of procedures is also established through the template and review process. The cost of purchasing a system was avoided due to the fact that we already own the Microsoft SharePoint software.

Target Completion Date: December 2005

Actual Completion Date: The repository was completed in February 2006; however, this will be an ongoing project.

Section 4

Major Projects For FY 2006-2007

Major Projects for FY 2006-2007

A variety of innovative projects are in process or planned to start during FY 2006-2007. This section describes many of these major projects. Each project is color coded to reflect the Sinclair Strategic Cluster supported.

Library

Following are the Major Projects for FY 2006-2007 for the Library:

- Millennium Project
- Library Patron Database Project
- Measuring Student Response Project

Millennium Project

The Library's computer system is a turn-key product purchased from Innovative Interfaces, Inc. (III), the library vendor used since 1992 by all state university and community college libraries in Ohio because of the OhioLINK project. It includes modules or subsystems for circulation, materials booking, cataloging, serials, and acquisitions. The III OhioLINK consortium system facilitates direct lending of library materials between institutions via a direct patron request feature.

Although the vendor moved to a GUI product called Millennium (shown in Figure 4-1) about five years ago, Sinclair has continued to use the basic text version of the III software that was introduced in 1992. All new product development has taken place in Millennium. OhioLINK purchased the Circulation and Materials Booking modules for Sinclair, but the remaining modules have not been upgraded. This project involves conversion from the older software modules for cataloging, serial processing, and acquisitions to the current standard. In addition, it will provide improved report building capabilities for improved utilization data.

Qualitative/Quantitative Return on Investment: By purchasing the software in FY 2006-2007, Sinclair can participate in a group purchase contract that will lead to a 30% discount on the purchase price. Depending on when various OhioLINK schools implement Millennium, it should also be possible to share the costs of training with other schools, thereby realizing additional cost savings.

Target Completion Date: The modules will be implemented one at a time on a six to eight week schedule for each module. The order of implementation will depend on whether Sinclair can coordinate implementation with other schools in order to piggyback on training. Conversion of all modules will be complete by June 2007.

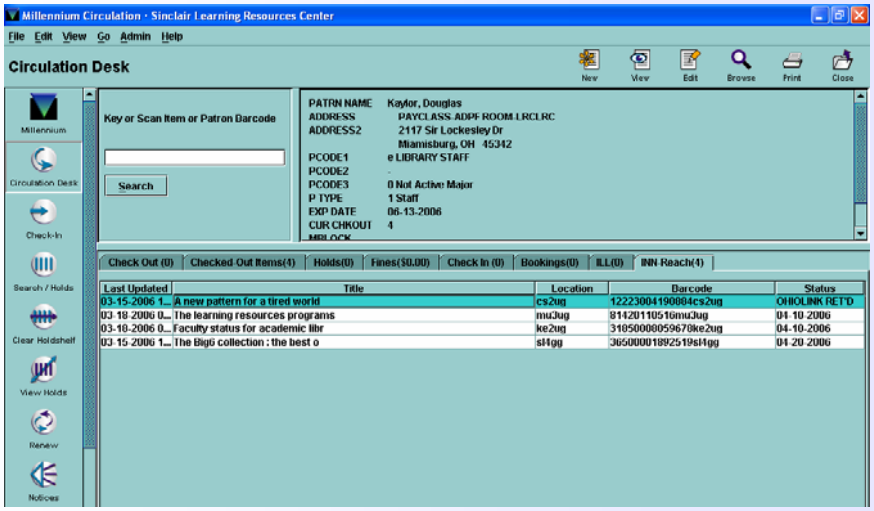


Figure 4-1. Millennium Circulation screen.

Library Patron Database Project

The Library patron database in the III Circulation system is built with data from the college's ERP system. Librarians or ITS staff transfer data in a series of "patron database loads" each quarter. It is a repetitive and labor intensive process. Patron data moves between the college's ERP system and the library's III system and between the library's III system and OhioLINK. This data is used to check out books, to facilitate OhioLINK borrowing between schools, and to authorize remote use of library research databases when students and faculty are off campus. It requires a separate user name and password from that used by students and faculty with my.Sinclair.

This project will include two elements: (1) Assure that data transfer between the library's III system and OhioLINK is secure. This will involve setting up data encryption via a SSL certificate on the library's system to secure communications with the central OhioLINK server. (2) Investigate the feasibility of setting up an active server link via the III LDAP module to eliminate the need for a separate username and password and allow for direct patron verification using the college's ERP system. Assuming this is technically feasible, the final result would be implementation.

Qualitative/Quantitative Return on Investment: Having secure student and faculty data is essential if the college is to observe the law and avoid identify theft. Reducing the need for a second user name and password represents a qualitative improvement in the ease-of-use for our end users. It also represents the first step in moving the library system into the college's single sign-on program.

Target Completion Date: The SSL certificate should be a completed during Summer Quarter 2006. The patron verification via LDAP will need to occur in the context of other IT programs. It is on the list of feasibility studies for Web Systems.

Measuring Student Response Project

Library instruction is an important part of information literacy education at Sinclair - one of the college's general education competencies. In most cases, however, library participation involves a single training event, and measuring the effectiveness of this training can be difficult because it is hard to gather meaningful data in a timely manner. One method of gathering timely data from student participants is to use an audience response system, such as those shown in Figure 4-2, where students use a remote control to answer questions. This kind of system could be used to conduct on-the-fly tests of student understanding. Response data is quantified in real time and captured for later analysis.

In this project, the library will investigate audience response systems that can be used in conjunction with library instruction sessions - both those that may already be owned by the college and those on the market today.

Qualitative/Quantitative Return on Investment: Measures of library information literacy instruction effectiveness are generally indirect - after the fact questions and comments made to faculty and the appearance of good sources in student papers and projects - neither of which can be directly measured or attributed to library instruction. Library instruction is expensive when faculty and librarian time are considered in addition to the dedication of an actual class period to the activity. If a relatively inexpensive and easy-to-use response system can be identified and used to provide immediate, measurable feedback to the librarian, classes can be better designed to respond to student needs.

Target Completion Date: December 2006

Figure 4-2. Audience Response System.

Systems Development & Maintenance

Following are the Major Projects for FY 2006-2007 for the Systems Development & Maintenance Department:

- Single-Sign-On Capabilities for Additional Web Services and Desktops
- Custom Programs to Improve Allied Health Selective Admissions Process
- Account Provisioning Processes
- Colleague Enhancements
- Processes to Improve Data Quality
- Project DAWN User Training
- Next Generation ERP
- Conduct Feasibility Studies
- Continue Project DAWN Implementation
- Retention Study Using Enterprise Miner
- Incorporate Web Tracking Statistics into IDP
- New Data Elements/Sources for DAWN
- Angel Learning Management System
- Web Systems Product Enhancements
- Redesign www.sinclair.edu
- Custom Faculty Payload Process
- Switch my.Sinclair.edu to Angel Portal
- Web-based Recruitment/Admissions Enhancements

Single-Sign-On Capabilities for Additional Web Services and Desktops

During FY 2005-2006 Sinclair implemented a single-sign-on (SSO) system that allowed students to access the Blackboard portal, Web Advisor, and WebCT with a single login (as shown in Figure 4-3). This projects calls for expanding the list of services that can be accessed via a single login. Examples of added features include the payment plan service (FACTS), the online card office, the library's Millennium III circulation system, and the Angel Learning Management System. In addition to expanding the single login capability to web-based services, this project also anticipates conducting a thorough pilot test of single-sign-on at the desktop for non-Sinclair services. This feature allows users to store authentication information for non-Sinclair services, such as external research databases, on their desktop machines. Once the user is authenticated on their desktop, these external account names and passwords become available to pass to these external services without the need to re-key authentication information.

Estimated Cost of Project: 2.5 staff person months (approximately $13,450)

Cost savings/Cost avoidance anticipated for the project: Approximately $60,000 of staff resources could be redirected from time spent logging into systems to time spent on more productive activities. (10 seconds per login * 3 logins/day * 1000 staff * 240 days per year at an average hourly cost of $30/hour)

Target Completion Date: November 2006

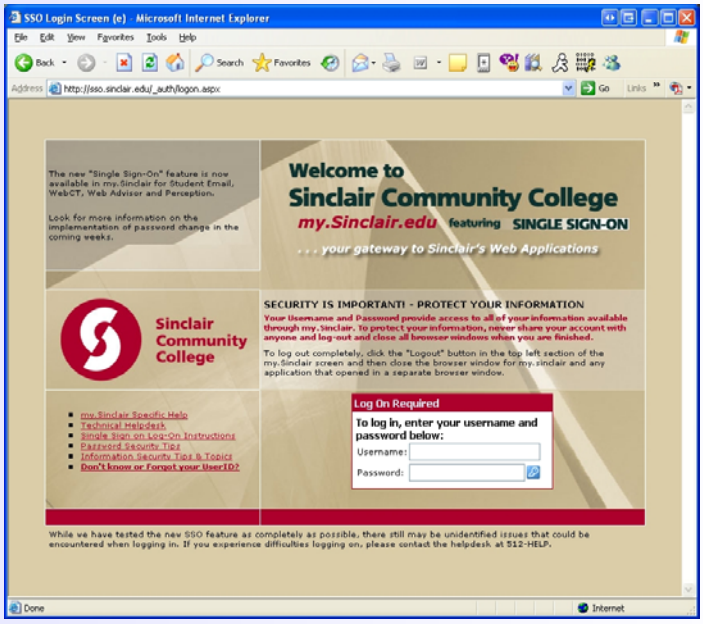


Figure 4-3. Web screen showing entry page for Single-Sign-On.

Custom Programs to Improve Allied Health Selective Admissions Process

This project calls for enhancing the current Allied Health selective admissions system. It is expected that these enhancements will focus on building into the admissions system the ability to capture data that can be used in predictive analytics. This analysis has the potential to allow more precise identification of those applicants who are likely to persist in Allied Health programs. Increased persistence should increase the program's throughput which will, in turn, reduce the time that new applicants are on a waiting list.

Estimated Cost of Project: 1 staff person month (approximately $5,375)

Cost savings/Cost avoidance anticipated for the project: Per Sinclair's budget office, each retained FTE generates approximately $6500 and $7000 of revenue per year.

Target Completion Date: December 2006

Account Provisioning Processes

The purpose of this project is to develop systems and practices that will allow instantaneous provisioning for the portal and the learning management system. This project is a continuation of the provisioning for registration, which was included in the previous year's projects. It is expected that improved provisioning will support customer relationship programs that are designed to increase applicant to enrollee conversions.

Estimated Cost of Project: 4.5 staff person months (approximately $24,200)

Cost savings/Cost avoidance anticipated for the project: Per Sinclair's budget office, each retained FTE generates approximately $6500 to $7000 in revenue per year.

Target Completion Date: December 2006

Colleague Enhancements

Colleague is Sinclair's Enterprise Resource Planning (ERP) system. This project involves the installation and implementation of new features within Colleague. Examples of these features include Web Advisor 3.0 and access to payroll advice statements via the web. The project also includes upgrading to Unidata 7.0. Unidata is the database management system supporting Colleague. Other components of this project include the support of the Colleague E-advising module (shown in Figure 4-4) and the creation of a book ordering interface with the bookstore's POS system.

Estimated Cost of Project: 24 staff person months (approximately $123,625)

Cost savings/Cost avoidance anticipated for the project: Savings will vary by the specific enhancements undertaken. For example, E-advising would likely increase retention and persistence, and this would result in a $6500 to $7000 increase in revenue per FTE retained.

Target Completion Date: June 2007

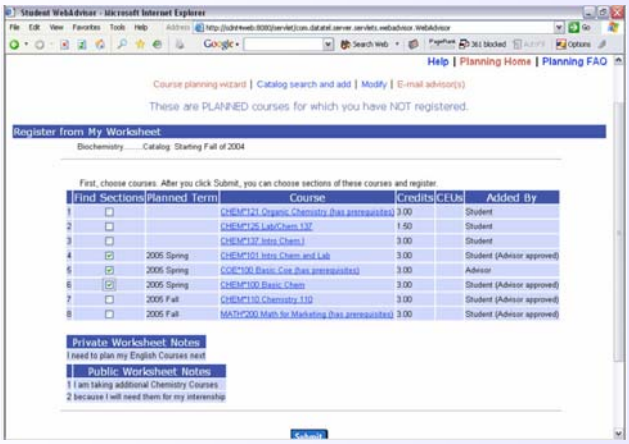


Figure 4-4. Web screen showing Colleague's e-advising module.

Processes to Improve Data Quality

Sinclair purchased a product called Data Flux as part of the Project DAWN package of software. The purpose for this project is to implement the Data Flux product in order to improve the quality of data being entered into the Colleague system and to identify records already within the Colleague

system in need of data cleansing and/or updating. Other components of this project include creating additional input edits for the online application and developing policies for how long no-show applicant data is retained.

Estimated Cost of Project: 6 staff person months (approximately $32,250)

Cost savings/Cost avoidance anticipated for the project: Data being entered into the ERP system is used to populate other data systems such as the learning management system, the portal, etc. Each time incorrect data enters the ERP, this error is propagated to other systems. Catching the data at entry will eliminate the time needed to clean data in each of these related data bases.

Target Completion Date: April 2007

Project DAWN User Training

The underlying goal of project DAWN is to place in users' hands the tools and data needed to allow "data-driven" decision making. Training is essential for users to be able to effectively use these tools. This project involves setting up a regular and consistent program of training opportunities covering the topics of Project DAWN features and tools, an example of which is shown in Figure 4-5. In addition, other training efforts will focus on Colleague graphical user interface features.

Estimated Cost of Project: 6 staff person months (approximately $32,250)

Cost savings/Cost avoidance anticipated for the project: Assume that 100 staff members could increase their productivity by 1/12 by knowing how to use DAWN tools. Using an average cost of a staff month of $5,400, this training investment would return $540,000 annually in increased productivity.

Target Completion Date: June 2007

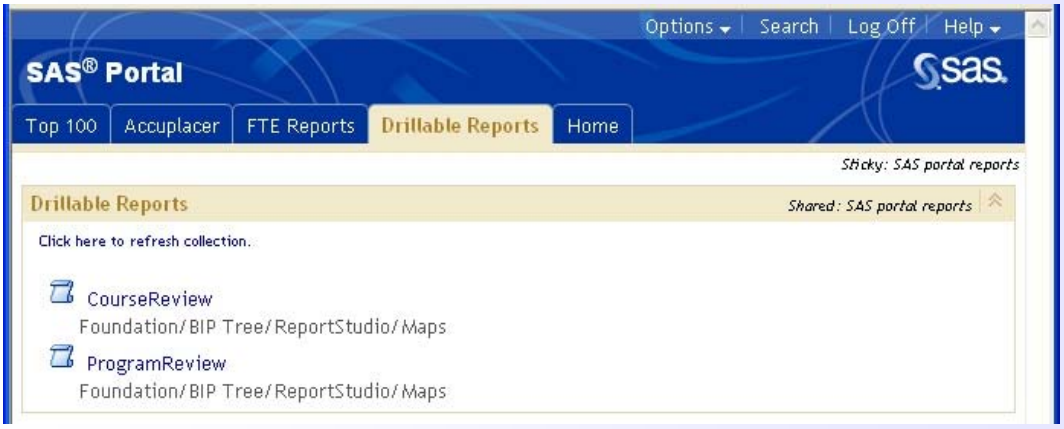


Figure 4-5. Web screen showing the Project DAWN Information Delivery Portal.

Next Generation ERP

Sinclair's ERP vendor has announced the release of a new version of Colleague, Release 18. This project is the continuation of efforts to prepare the existing version of the Colleague system so that it can be converted to Release 18. These preparations include activities such as bringing all custom code up to current coding standards and converting all custom built programs into JAVA-like syntax. This project also necessitates the hiring of an external consultant who will survey existing staff to help Sinclair set its future direction with respect to R18. Since the time investment for R18 is substantial, it seems wise to conduct a check of current user expectations to determine if an approach other than Colleague is warranted.

Estimated Cost of Project: 6 staff person months (approximately $32,250) plus the consultant fees and expenses of approximately $25,000.

Cost savings/Cost avoidance anticipated for the project: Consultant's report will identify costs/benefits of converting to alternative ERP vendors.

Target Completion Date: August 2006

Current Status: Preparations for transition to Colleague Release 18 were conducted during FY2005-2006. The specifics of these preparations can be found in Section 3.

Conduct Feasibility Studies

During the interview of users leading up to the creation of this plan, it became obvious that several offices hold a belief that there is technology available to support their work, but they are not sure what the technology is or how it might be applied to their work environments. As a result, this project requires conducting several feasibility studies to evaluate the potential benefits of new or

currently unused technologies. Examples of the topics to be studied include:

- Placing triggers on Colleague data so that the data warehouse can be updated in real-time;
- Lead-identification software;
- e-portfolios;
- Performance testing software;
- Employment interview software;
- Customer relationship management (CRM) software;
- Certification tracking software such as CORBUS;
- Colleague position control module;
- Practice room scheduling software; and
- Document imaging systems.

Estimated Cost of Project: 6 staff person months (approximately $32,250)

Cost savings/Cost avoidance anticipated for the project: Identification of ROI would be an outcome of each feasibility study. Specific cost savings/cost avoidance would be a function of the studies undertaken.

Target Completion Date: June 2007

Continue Project Dawn Implementation

Project DAWN represents a significant strategic commitment by Sinclair to create an organizational culture that advocates "data-driven" decision making. Important progress has been made with the rollout of the information delivery portal (as shown in Figure 4-6) and the first suite of OLAP cubes and reports. This project is a continuation of these efforts. Specifically, for the next year Project DAWN will focus on the implementation of the Financial Management (FM) module and the preparation of additional reports, cubes and information maps to support decision making.

Estimated Cost of Project: 30 staff person months (approximately $161,250)

Cost savings/Cost avoidance anticipated for the project: It is expected that "data-driven" decision making will result in increased enrollment and/or cost reductions. Per Sinclair's budget office, each retained FTE generates approximately $6500 to $7000 in revenue per year.

Target Completion Date: June 2007

Current Status: During FY2005-2006, the Project DAWN team installed business intelligence software, deployed the Information Delivery Portal, setup the FM module, and created a predictive model to score the enrollment likelihood of applicants.

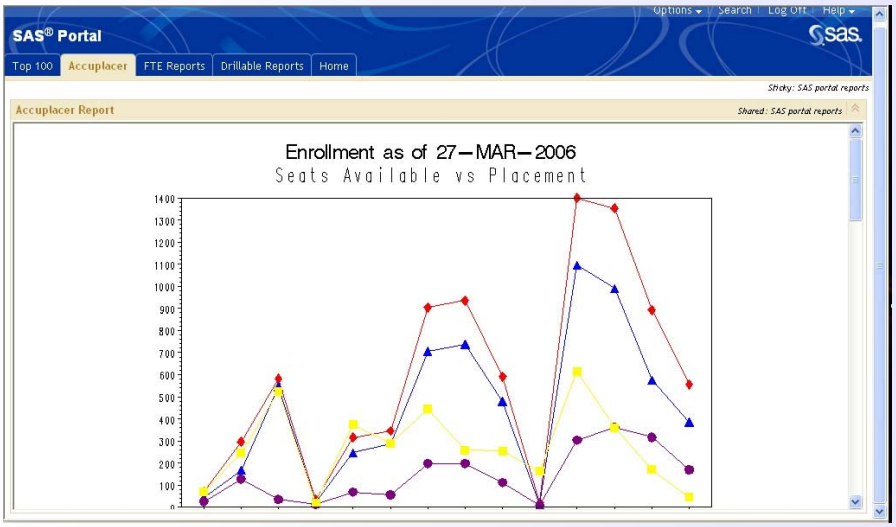


Figure 4-6. Web screen showing report accessed through the Information Delivery Portal.

Retention Study Using Enterprise Miner

During the past year, a great deal of internal analysis was conducted in support of a grant application to the Lumina Foundation. This analysis indicates that strong math and communication skills are primary indicators of future student success. This project involves the creation of a predictive model to identify student characteristics that are indicators of persistence for the math and English sequences of courses. This model would be used to assign a score to incoming students for the purpose of identifying those most in need of targeted support services.

Estimated Cost of Project: 1 staff person month (approximately $5,375)

Cost savings/Cost avoidance anticipated for the project: Per Sinclair's budget office, each retained FTE generates approximately $6500 to $7000 in revenue per year.

Target Completion Date: December 2006

Incorporate Web Tracking Statistics into IDP

During FY2005-2006, Web Systems purchased and installed a service from Omniture Corporation (shown in Figure 4-7) that facilitates the tracking of every navigation pattern followed by users of www.sinclair.edu. This project calls for the creation of a portlet in the Project DAWN IDP that will display this tracking information to decision makers so they can adjust web content to position the most sought after and heavily used information prominently on www.sinclair.edu.

Estimated Cost of Project: .5 staff person months (approximately $2,690)

Cost savings/Cost avoidance anticipated for the project: There are no known measures identifying the relationship between ease of website use and a student's decision to enroll. It is reasonable to expect that ease of use would translate into increased communication and thus a greater likelihood to enroll.

Target Completion Date: September 2006

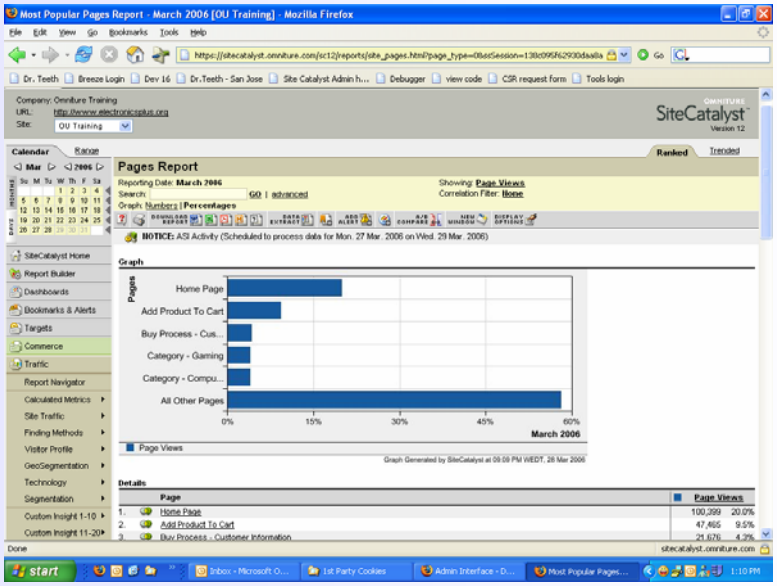


Figure 4-7. Web screen showing web usage statistics.

New Data Elements/Sources for DAWN

An analysis-based decision culture can only be successful within an environment that captures, cleans, and stores masses of data. This project calls for the continuation of processes already underway to make data sources available through the data warehouse. Specifically, the project will focus on porting data in the Colleague Human Resources transactional system into the warehouse. It is also anticipated that data sources outside of Colleague, such as the Online Card Office, will be extracted and transformed for inclusion in the warehouse.

Estimated Cost of Project: 12 staff person months (approximately $64,500)

Cost savings/Cost avoidance anticipated for the project: The potential for savings is a function of the data's use. For example, adding Human Resources data to the warehouse will enable the budget office to significantly improve the current models used to calculate "contribution margins".

Target Completion Date: June 2007

Current Status: During FY2005-2006 student and general ledger data were added to the data warehouse.

Angel Learning Management System

Implementation of the Angel Learning Management System, shown in Figure 4-8, will require the creation of new processes such as “seeding new quarters” with course information from previous terms, establishing archiving rules for course data retention, etc. In addition, this project includes all activities to support Distance Learning’s efforts to convert course content to the new LMS.

Estimated Cost of Project: 8 staff person months (approximately $43,000)

Cost savings/Cost avoidance anticipated for the project: Implementing the Angel LMS will save approximately $30,000 per year in license expenses currently paid to WebCT and Blackboard.

Target Completion Date: April 2007

Figure 4-8. Web screen showing the Angel Learning Management System.

Web Systems Product Enhancements

Over the past several years, Systems Development & Maintenance has produced an array of products that have enhanced the productivity and effectiveness of Sinclair operations. An example of the Sinclair Project Tracking Tool (SPTT) is shown in Figure 4-9. Every one of these products was produced with the intent that they would be enhanced and improved over time. This master plan item refers to the efforts that will need to be expended in the coming year to add features and functionality to products such as CMT, RFC, SPTT, SSP, etc. One specific enhancement within this item is to modify the approval process written into CMT so that it can accommodate the approval processes needed by the Grants office.

Estimated Cost of Project: 18 staff person months (approximately $96,750)

Cost savings/Cost avoidance anticipated for the project: Products such as CMT and SSP have become central to critical processes in the academic and student services areas. Product downtime and/or feature limitations now translate into unproductive use of academic and student services staff time.

Target Completion Date: June 2007

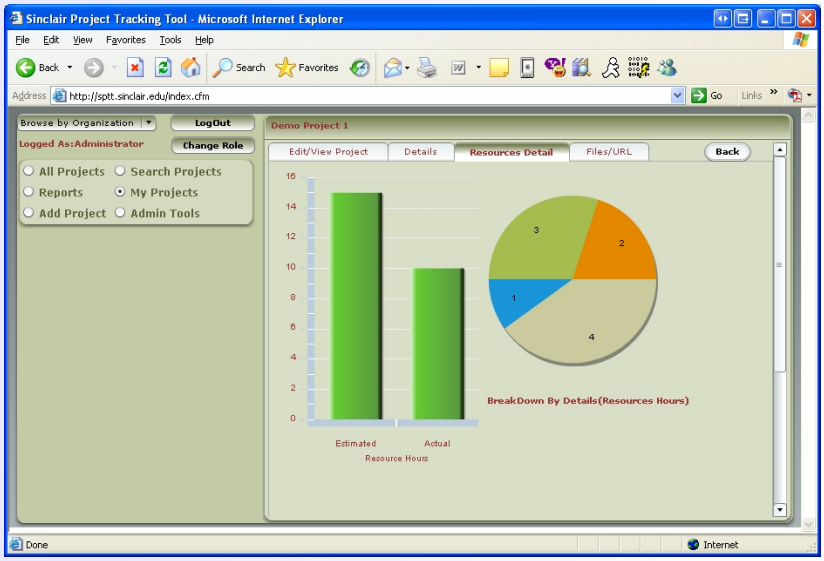


Figure 4-9. Web screen showing a page from the Sinclair Project Tracking Tool.

www.sinclair.edu Redesign

The current www.sinclair.edu site was constructed about four years ago. In web life cycle terms, the site is beyond middle age and will soon be reaching the end of its useful life. The purpose of this project is to effect a complete redesign of the www.sinclair.edu site so that it will make use of the most up-to-date technology features and will reflect the current standards of web design practice. Statistics gathered through the "Incorporate Web Tracking Statistics in IDP" project will guide design decisions. This should assure that the new design will place the most sought after and pertinent pages in convenient and easily accessible locations. On a specific note, the project will include the creation of a web site for the display and searching of Sinclair's Systems Portfolio. Such a site is a requirement of the AQIP accreditation process.

Estimated Cost of Project: 16 staff person months (approximately $86,000)

Cost savings/Cost avoidance anticipated for the project: It is expected that the redesign will infuse a strong marketing theme into www.sinclair.edu that is coordinated with other marketing campaigns run in print and radio. Using web usage statistics, it should be possible to evaluate the "impact" of marketing campaigns and to redirect marketing dollars accordingly.

Target Completion Date: April 2007

Custom Faculty Payload Process

Sinclair has an important need to accurately and quickly capture faculty workload data to support both payroll processes and budget analysis processes. This project involves the creation of a custom system that allows for the easy entry of workload information by academic chairs, the storing of this information in a central repository, and the creation of a data access system that will support the needs of multiple offices, (e.g., payroll, budget, VPI, IP&R).

Estimated Cost of Project: 6 staff person months (approximately $32,250)

Cost savings/Cost avoidance anticipated for the project: The primary cost benefit of this system is expected to be the ability to accurately associate instructional costs to instructional delivery expenses.

Target Completion Date: December 2006

Switch my.Sinclair.edu to Angel Portal

The decision to purchase the Angel Learning Management System resulted not only in the selection of a new LMS, but it also opened the possibility of reducing costs by allowing a transition from the Blackboard portal (shown in Figure 4-10) to the Angel portal. This project involves the work associated with making this transition. Specifically, the features currently available in the Blackboard portal will be replicated using the portal structure available in Angel.

Estimated Cost of Project: 1.5 staff person months (approximately $8,060)

Cost savings/Cost avoidance anticipated for the project: Use of the Angel portal will eliminate the need to pay approximately $26,000 annual license fees to Blackboard.

Target Completion Date: August 2006

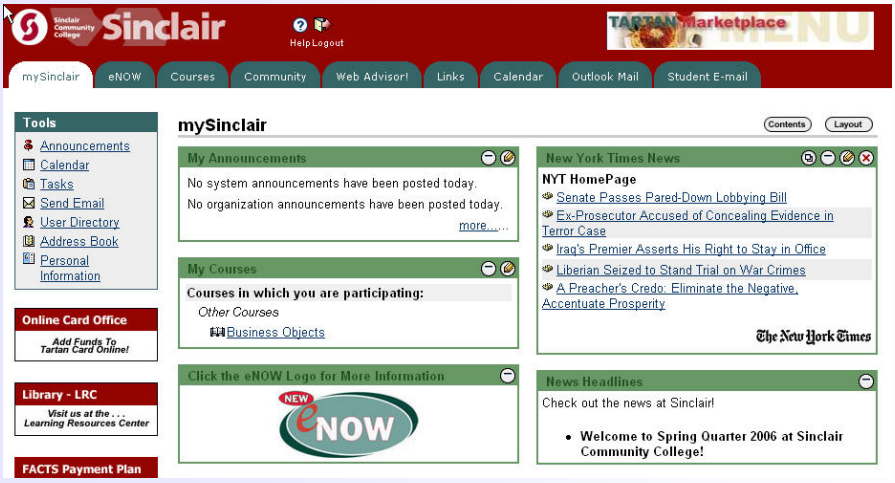


Figure 4-10. Web screen showing the my.Sinclair.edu portal.

Web-based Recruitment/Admissions Enhancements

Prospective students expect that Sinclair will communicate with them via their preferred communication methods such as online chat, blogs, and instant messaging (IM). This project involves making modifications to our current online recruitment tools to incorporate these additional means of communication. In addition, the project will examine the benefits associated with creating recruitment tools such as "searchable knowledge bases" and an "automated response" system.

Estimated Cost of Project: 2 staff person months (approximately $10,750)

Cost savings/Cost avoidance anticipated for the project: There is no specific model that associates enhanced communication experiences with increased enrollment, but it is reasonable to expect that such a relationship exists. Each new FTE results in $6500 to $7000 increased revenue per year.

Target Completion Date: December 2006

Information Technology Services

Following are the Major Projects for FY 2006-2007 for the Information Technology Services Department:

- Alternative Image Strategies
- VoIP Network Preparation
- Network Infrastructure Upgrade
- VoIP Pilot Project

- Campus Messaging System
- Sports Café Media Upgrade
- Distance Learning Classroom Upgrade
- Desktop Management Improvements
- Cable Head End Planning
- Pay for Print Implementation
- Communication Improvements
- Internal Process Security Review
- Internet Usage Optimization
- IT Lab Management Improvements
- SAN Expansion
- Systems Vulnerability Assessment Plan
- Guidelines and Tools for Security of Mobile Computing
- Magic Upgrade Planning
- Telecom Asset Management System

Alternative Image Strategies

ITS uses a number of tools for creating desktop workstation images and other tools that help with the deployment of those images over the network. These tools were selected based on the capabilities that were required as well as limitations of the Windows operating system and of the applications that need to be installed. This project will look at our processes and tools and compare them to other options that are available.

Some of the technologies that will be investigated include blade PCs, thin client computing platforms, virtual machine technologies, and application virtualization systems. While each of these technologies might appear to have its advantages, we need to evaluate them in the context of the way that Sinclair uses its classrooms and labs, and how the necessary software for particular academic programs need to be made available.

Estimated Cost of Project: There is no cost for this project as we will only be evaluating technologies. If we determine that there are technologies that could improve our processes, those costs will be budgeted for FY 2007-2008.

Cost savings/Cost avoidance anticipated for the project: Improving the flexibility of our image creation and deployment processes could save time for the technology staff that perform these tasks, while also allowing the college to more efficiently use its computer classrooms and labs.

Target Completion Date: May 2007

VoIP Network Preparation

As a result of the consultant's findings in the recommendations for telecommunications upgrade, and to accurately plan for the implementation of VoIP technology on an existing data infrastructure,

there are significant issues that need to be addressed such as reviewing our existing wiring, evaluating telecommunications closets for power and HVAC considerations, and reviewing performance assessments of the data network.

With IP telephony, power over Ethernet will also be a significant issue in the implementation. This is the ability to send power to a device over the same cable on which data is transmitted. Power over Ethernet becomes necessary due to the need to provide voice communication when power is not available in an office. These are the primary issues to be researched with recommendations for the successful implementation of the VoIP technology.

Estimated Cost of Project: No direct costs have been identified at this time. Some costs will be identified that will either be handled through the network infrastructure upgrade project or will be budgeted for FY 2007-2008.

Cost savings/Cost avoidance anticipated for the project: As issues are identified and addressed, unanticipated costs can be avoided and future cost expenditures can be planned so that the implementation of VoIP can be completed successfully.

Target Completion Date: May 2007

Network Infrastructure Upgrade

Information Technology Services maintains a plan for the annual renewal & replacement (R&R) of information technology infrastructure components, (as shown in Figure 4-11) which is used to project expenditures over a five year period. Each year, during the annual planning and budgeting cycle, the plan is updated with any new information that would change expected expenditures for the coming year, as well as the next four years.

Each item that is identified on the R&R plan is assigned a useful life. This useful life, along with the total cost of the equipment, determines the funds that must be set aside each year to replace the equipment when it has reached its end of life.

These devices, while at the forefront of technology when purchased, now use obsolete technology and will be replaced according to the college's R&R plan. This upgrade will also allow us to provide a 10 fold increase in speed within Sinclair's network core.

In FY 2005-2006, the "edge" devices were upgraded to the latest technology, which has enabled Sinclair to provide policy based networking and network port based security. For FY 2006-2007, the four core SmartSwitch 8600 routers will be upgraded, providing higher speed routing and 10 gigabit bandwidth within the network core.

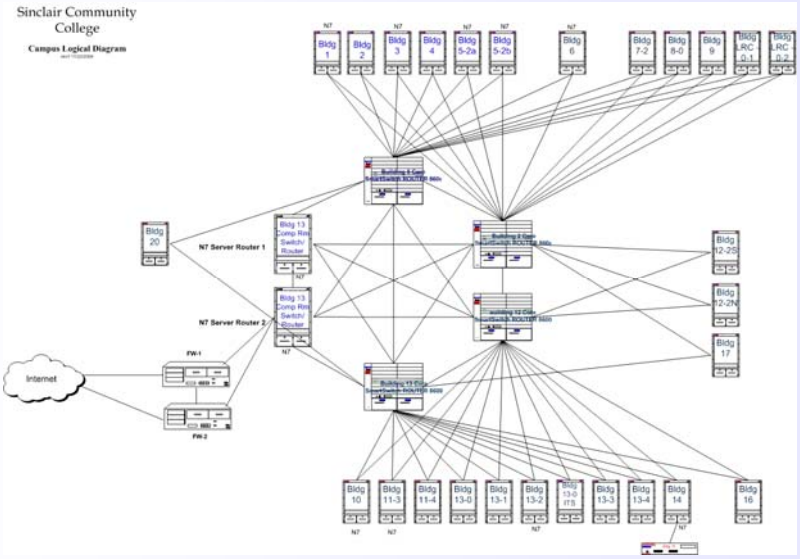


Figure 4-11. Sinclair Network Infrastructure.

The scope of this phase of the project will be to determine what equipment will be required in the core, to determine if any network architecture design modifications are required and to determine which vendors can provide the best solution. Any proposed solution will have to be compatible with existing edge equipment and services. Upgrading the core infrastructure will help ensure reliability in the network infrastructure and provide the increased performance necessary for future bandwidth and latency intensive applications, such as streaming media and voice over IP.

Estimated Cost of Project: $850,000

Cost savings/Cost avoidance anticipated for the project: Estimating the useful life of equipment and performing replacements before that equipment starts to fail not only saves money in repair costs, but also prevents loss of revenue due to the ability to provide a service in a satisfactory way to the customer.

Target Completion Date: December 2006

VoIP Pilot Project

This project was started in FY 2005-2006 due to the need to supply phone systems for the new Fast Track Learning Centers. As a result of the consultant's report: reviewing the current needs of the Fast Track Learning Centers and a pilot system, the ShoreTel VoIP system was selected as the vendor of choice for this new technology both for the Fast Track Learning Centers and the pilot. The actual pilot phase will commence this year with the installation of the pilot system, and incorporating it into the existing data infrastructure as well as providing connectivity to the existing Fujistu PBX. The trial will provide an evaluation of the VoIP capabilities and features and its remote administration functionality.

Estimated Cost of Project: $40,000.

Cost savings/Cost avoidance anticipated for the project: A trial will provide an opportunity in real-time to successfully put the product through testing and have potential users give feedback on its operations, features, and capabilities without a substantial investment. As a result of the trial, future capital expenditures in this technology can be planned with more experience and knowledge.

Target Completion Date: May 2007

Current Status: This project is continuing from the original project initiated in FY 2005-2006, and implementation will start in June 2006.

Campus Messaging System

This project is being implemented to meet three separate needs. First, Corporate and Community Services requires an updated messaging system to replace the existing message system used to post the daily schedule and events for corporate clients in Building 12. Second, Student Services has identified a need for a messaging system to post up-to-date information relating to student registration and financial aid. Third, there is a need to replace the existing video wall in the CIL. In addition, this system will provide the Public Information Office with a means to electronically post general interest messages such as athletic events, theater productions and the like. The project includes two new monitors for C&CS and three monitors for Student Services as well as the replacement for the video wall in Building 14.

Estimated Cost of Project: $150,000

Cost savings/Cost avoidance anticipated for the project: This project originated with a request from Corporate & Community Services to replace their messaging system. Funds that were requested for that purpose were combined with additional funds to create a single system that will meet that need and also the Student Services need, the Public Information need, and provide several channels for future expansion. Since the system will utilize the existing campus cable TV system for distribution, it will be possible to add additional locations and channels at a later date at minimal cost.

This system also provides for a website to distribute the same information over the Internet, making that information available to students and the public from any PC, on or off campus. The video wall replacement has been needed for some time as the current video wall has been extremely expensive to maintain. The proposed video wall should be easier and less expensive to maintain. In addition, the current video wall is no longer functioning and replacement parts are no longer available for it. It must be replaced to retain the high-tech look for the CIL.

Target Completion Date: September 2006

Current Status: The project is now in the consulting/engineering phase. CastNet has been selected for the messaging system hardware and software.

Sports Café Media Upgrade

The multimedia audio and control systems in the Student Activities Center require an upgrade in order to correct existing problems and meet current needs. While Media Services made some repairs and adjustments to the existing audio system, there is a need for additional equipment and more repairs to make the system perform adequately. The control system will be upgraded to use Crestron multimedia control, which is the current College standard.

Estimated Cost of Project: $30,000

Cost savings/Cost avoidance anticipated for the project: Costs will be saved in future maintenance by resolving ongoing problems with the systems. Man hours will also be saved in operation and support by simplifying, streamlining and standardizing the control system. The current multimedia control system was designed using an AMX/Panja control package which is out of date and cannot be updated without extensive cost to the College. The Crestron control source code will be provided to Sinclair along with the upgrade so that future upgrades will be less costly. Furthermore, maintenance and support costs will be reduced by updating equipment and simplifying and standardizing the control system.

Target Completion Date: September 2006

Current Status: This project is in the consulting/engineering phase.

Distance Learning Classroom Upgrade

Room 14-108 was successfully converted to Crestron control during the Synergy to Crestron conversion project completed in August 2005. The new system has been tested and is fully functional. This project will include the upgrade of the two remaining distance learning classrooms to Crestron control and the upgrade of the head end switching system in room 14-207. We expect to complete this conversion using existing R & R funds.

Estimated Cost of Project: Estimated cost of phase two of this project is $294,000.

Cost savings/Cost avoidance identified with the project: Estimating the useful life of equipment and performing replacements before that equipment starts to fail not only saves money in repair costs but also prevents loss of revenue due to the ability to provide a service in a satisfactory way to the customer.

Target Completion Date: December 2006

Major Projects for FY 2006-2007

Desktop Management Improvements

ITS has been working to consolidate all the components used for management of the desktop environment. These components are intertwined and dependent upon accurate data. A separate ITS team was created to focus on each component in FY 2005-2006. The teams discussed how each application worked and its purpose. All of the teams met monthly as a group to discuss their progress and issues.

The Desktop Management applications are e-Policy Orchestrator, McAfee Host Intrusion Prevention, the PC Physical Inventory, and Altiris. These applications working together can track to determine if a PC has all of the latest anti-virus files; if the windows patches are up to date; and if the PC is listed in inventory and shows up in the Altiris database as being in use on campus. The goal for FY 2006-2007 is to have all of these systems in use on every networked PC on campus, and to have all these systems reporting accurately. A daily report will list any discrepancies. The technicians will follow up daily and all discrepancies will be resolved. The desktop infrastructure will be maintained campus-wide as a whole with individual information available for each PC.

These improvements will provide a window into each individual PC for trouble-shooting and to determine if each PC is running all the agents required to keep the PC up to date with necessary Windows and anti-virus patches. The PC network on campus will be kept safe from unprotected PCs since the unprotected PCs will be isolated and deactivated until all required updates and agents are in place.

Estimated Cost of Project: ITS will not be expending funds on new products but rather fine tuning the products already implemented to provide a higher level of Desktop Management.

Quantitative/Qualitative Return on Investment: The return on investment will be a campus-wide PC network that is protected from individual PCs that do not utilize the college standards. These PCs will be disabled and not allowed to cause downtime on the network for other PC users.

Cost savings/Cost avoidance anticipated for the project: Our desktop management tools are key to our security strategy. Security incidents can create intangible costs to the College such as lost productivity or lack of customer satisfaction.

Target Completion Date: June 2007

Cable Head End Planning

Media Services will investigate upgrades to the cable head end required to make it compatible with the anticipated conversion to high definition television. It appears likely that all broadcast signals will be required to be in high definition by 2009. Our head end will need to be compatible with that in order to distribute cable signals to classrooms and other points on campus.

Estimated Cost of Project: This is a planning project so there will be no costs for this part of the project. Funds for the upgrade of this equipment will be requested in the FY 2007-2008 budget.

Cost savings/Cost avoidance anticipated for the project: Estimating the useful life of equipment and performing replacements before that equipment starts to fail not only saves money in repair costs but also prevents loss of revenue due to the ability to provide a service in a satisfactory way to the customer.

Target Completion Date: January 2007

Pay for Print Implementation

During FY 2005-2006, ITS had a project for the purpose of selecting a pay-for-print solution and implementing it. While a system was identified and purchased, the system required customization by the vendor, which delayed the system's implementation. The system that is being implemented, GoPrint, is a web based pay-print solution to be used by the labs/classrooms on campus.

When a student chooses to print from a workstation, a GoPrint popup screen appears and requires the student to login and be authenticated. Students will enter their my.Sinclair Login ID and password, which is in Active Directory. The student's Tartan Card ID is also in Active Directory associated with the student's Login ID. This is needed to debit a student's Tartan Card account for printing costs.

Estimated Cost of Project: $30,000

Cost savings/Cost avoidance anticipated for the project: Sinclair Community College purchased GoPrint to reduce costs by decreasing the amount of waste, to recover printing costs by charging users, and to provide better quality printers by using funds saved and/or collected for re-investment. An example would be: The College purchased 1,400,000 sheets of paper @ $6065 in 2004 for Teleport and CIL Labs. If Sinclair charged students .05 for 50% of the printing, the cost recovered would be $35,000

Target Completion Date: September 2007

Current Status: GoPrint is finalizing modifications to their system to allow students to use their network login rather than an additional ID that would be tied to their Tartan card. The GoPrint system will be piloted during Spring Quarter 2006 without charging students. Students will be charged for print jobs beginning in Summer quarter. Once the system is operating in the Teleport, we will begin working with other labs to implement the system.

Communication Improvements

To deliver messages more effectively, ITS has committed to breaking down the barriers that exist in the communication process by asking questions like who, how, when and what do we need to

communicate. To answer these questions, a team was formed to identify issues that may be hampering communication and to make recommendations to improve the ITS communication processes.

The purpose of this phase of the Communications Improvement project is to implement the recommendations made by a team in the planning stage to help improve the ITS department's communication with the College.

Estimated Cost of Project: There is no cost to implement this project other than the investment in time of the department's personnel.

Cost savings/Cost avoidance anticipated for the project: If information is reliable and easily available to users, time is saved by both users and ITS staff.

Target Completion Date: May 2007

Internal Process Security Review

The distributed nature of today's information systems environment, and the increasing expectation of 24x7x365 global access to information resources, results in an ever-increasing number of internal processes to 'endeavor to meet the need,' and an ever-increasing demand for rapid deployment. The distributed responsibilities throughout the IT division for design, development, implementation, administration, and management of these processes and projects sometimes leads to 'stovepipes' that can result in reducing the effectiveness of an existing control, or rendering such controls obsolete or redundant due to technological improvements.
The rapid pace of technology changes and the increasing complexity of information systems infrastructure further influence these processes.

This project involves reviewing selected internal IT processes to ensure that effective practices for information security are incorporated where required. Areas of focus will include, but are not limited to:

- change control processes;
- documentation;
- migration from development to test to production; and
- vulnerability/patch assessment and management.

The overall goal of the review is to ensure effective and efficient controls are in place in order to maximize the confidentiality, integrity, and availability of Sinclair's information assets. The project will be initiated with the selection of processes for review, then each process will be reviewed for criticality and/or past issues and will be prioritized. Each process will be reviewed by the CISO, process 'owner(s),' and the team charged with implementing/performing/maintaining the process. Results will be documented and submitted to the process owner and the CIO.

Estimated Cost: There will be no costs for conducting this review. It is possible that costs will be identified in order to mitigate some risks.

Cost savings/Cost avoidance identified with the project: Periodic review of IT division procedures serves as an internal audit control. Reviewing processes helps identify vulnerabilities that could lead to exploits, and very often identifies redundant processes or controls that add minimal or no value to protection of the asset. Ensuring that security controls are effective and efficient maximizes the College investment in security resources.

Cost savings may result from elimination of obsolete or redundant controls, but these savings may be offset by safeguards required to patch identified vulnerabilities. Cost avoidance is the most likely result. Implementing effective security as a preventive measure is less costly—in dollars and public image—than the loss of production and recovery costs associated with a breach.

Target Completion Date: June 2007

Internet Usage Optimization

The College's dependence on Internet connectivity continues to increase. While ITS has addressed this issue by increasing the capacity of our Internet connections, this is not the only strategy that should be pursued. In March 2006, ITS installed a piece of equipment called a PacketShaper (shown in Figure 4-12). The purpose of this device is to categorize network traffic and allow the manipulation of that traffic in order to improve network performance.

The main way that traffic will be manipulated is by defining the priority of traffic and by assigning limits to the amount of bandwidth that applications can use. This will give the most critical traffic the highest priority and give other less critical and non-business-related traffic lower priorities so that the quality of service for business critical functions can be assured.

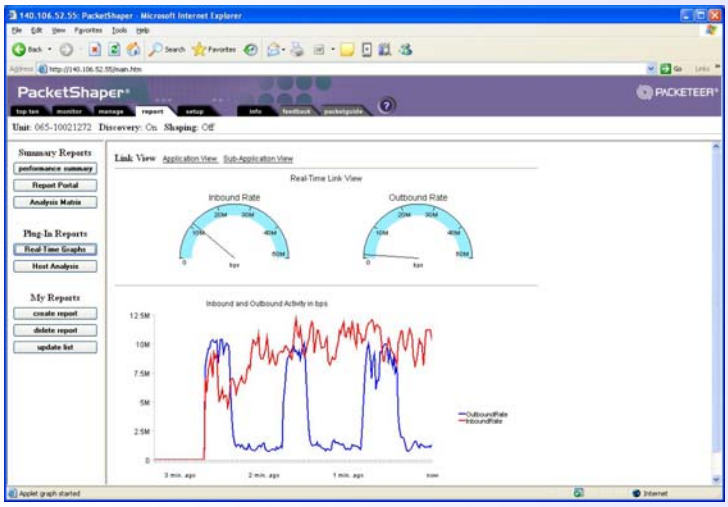


Figure 4-12. PacketShaper real-time utilization statistics.

Estimated Cost of Project: $23,000

Cost savings/Cost avoidance anticipated for the project: By making more efficient use of our Internet connection we will avoid the need to increase the capacity of the connection as quickly as we would have had to without any kind of bandwidth management.

Target Completion Date: December 2006

Current Status: The PacketShaper is installed and has been monitoring for several months in order to understand traffic before making changes to the way the traffic is handled.

IT Lab Management Improvements

The demands on Sinclair Community College's IT lab support are changing as a result of increased services and new technologies that must be supported. These changes will require a well thought-out plan for a team that includes full-time staff, part-time staff and student employees.

This project needs to look at current processes and procedures in the labs including:

- Hiring part-time and student employees;
- Training;
- Staffing needs;
- Software updates; and
- Coordination/communication with other technical staff to maintain technical hardware and software.

While making changes to processes and procedures, IT Lab Management must continue to provide an excellent work environment that encourages student success.

Estimated Cost of Project: There is no cost to implement this project other than the investment in time of the department's personnel.

Cost savings/Cost avoidance anticipated for the project: Improvements in staffing and the way different processes and procedures are handled could result in cost savings due to providing more service and support without adding additional staff.

Target Completion Date: April 2007

SAN Expansion

Sinclair's Storage Area Network (SAN) is a dedicated network for data storage devices (i.e., disk drives, tape drives, etc.). It is separate from the Local Area Network (LAN) that connects the workstations and servers. This separation allows high-speed access to data and applications by

the servers without impacting LAN traffic.

In the fall of 2004, Information Technology Services upgraded the SAN per the R&R schedule to provide increased storage space as well as better fault tolerance and performance. At this time, SAN disk storage capacity was increased from 4 TB to 9 TB. Of this, 1 TB was used for disk based backups leaving 8 TB for user data. Based on storage growth at Sinclair in the past, it was estimated that this 100% increase in storage space would be sufficient until the next replacement cycle in 2009. However, increased use of rich media in instruction along with an increased usage of centralized storage by faculty and staff has resulted in the consumption of storage space increasing at a faster rate than previously planned.

IT is anticipating that user requirements for centralized data storage will continue to increase at an accelerated pace. Storage requirements for critical software applications such as SAS, Colleague R18, SQL Cluster, and others will only help deplete Sinclair's storage resources at a faster rate. This project will involve expanding SAN storage space by 50%. This will be accomplished through the integration of a second disk storage cabinet along with additional SAN switches into Sinclair's existing SAN environment.

Estimated Cost: $250,000

Cost savings/Cost avoidance identified with the project: Without this increase in storage capacity, the College would not be able to continue providing some of the services that depend on data storage, and this could potentially impact revenue. This system also provides high availability through fault-tolerant components and integration with our other storage and backup systems, which insures minimal loss of service.

Target Completion Date: June 2007

Systems Vulnerability Assessment Plan

The increasing scope and span of information security attacks, coupled with the multiple systems access points and mobility of today's information systems environment, requires dynamic assessment and response. Nearly all systems have inherent vulnerabilities—software code can be faulty, global protocols have weaknesses, installation may be done improperly, and customization can bypass original safeguards. This project is similar to the internal process review project, but will focus on the systems and technology used as opposed to the processes employed. The goal of the project is to determine/document effective and efficient vulnerability assessment protocols for each major information system used by the College. One of the deliverables will be development of a specification document that can be submitted as part of an RFP when soliciting penetration testing from a third party security vendor.

Estimated Cost: There is no cost associated with conducting this review. It is possible that items might be identified that could incur cost if pursued.

Cost savings/Cost avoidance identified with the project: Recognizing and capitalizing on strengths, weaknesses, opportunities, and threats is fundamental to effectively and efficiently deploying information security resources. Vulnerability assessment is a proactive measure to assess weaknesses, identify possible exploitation, and apply effective mediation measures. It is historically less expensive to discover weaknesses than to recover from a malicious third party exploit.

Cost avoidance is the most likely result. Implementing effective security as a preventive measure is less costly—in dollars and public image—than the loss of production and recovery costs associated with a breach.

Target Completion Date: June 2007

Guidelines and Tools for Security of Mobile Computing

Information systems are getting increasingly smaller and more portable, and also more robust and powerful. Free wireless access is available throughout downtown Dayton. Notebook systems, tablet PCs, PDAs, Blackberries, and mobile telephones are ubiquitous. Today's mobile phones have as much or more functionality and resources than the desktop PCs of just a few years ago. However, the 'always connected' lifestyle these devices and systems bring, also inject varying degrees of risk to the information accessed and/or stored in the systems. Convenience generally overrides security.

This project will develop guidelines and recommend tools for increasing the safety of information processed by Sinclair's increasingly mobile stakeholders. Guidelines will be developed and published for situations such as safe use of public PCs, safe use of public wireless, accessing Sinclair resources via home systems, security of notebook computers, and other topics related to mobile computing. Mobile devices owned by the College will be evaluated for risk, and appropriate, user-friendly, mitigation measures, and tools will be recommended, developed, and implemented.

Estimated Cost: There is no cost associated with conducting this review. It is possible that items might be identified that could incur cost if pursued.

Cost savings/Cost avoidance identified with the project: Incorporating mobile computing into the overall information security program is essential for the program to succeed. Historically, the 'bad guys' attack the weakest—most vulnerable—part of the system. Deploying the most effective security controls on the 'wired' network infrastructure is futile if the remote access and mobile access methods are not as equally secure. As with most security measures, cost avoidance is the most likely result.

Target Completion Date: January 2007

Magic Upgrade Planning

Magic Total Service Desk (shown in Figure 4-13) is used by the Help Desk and Facilities Management to assign, view and track requests, run reports and allow Sinclair faculty, staff or students to enter work requests to report problems and check the status of requests.

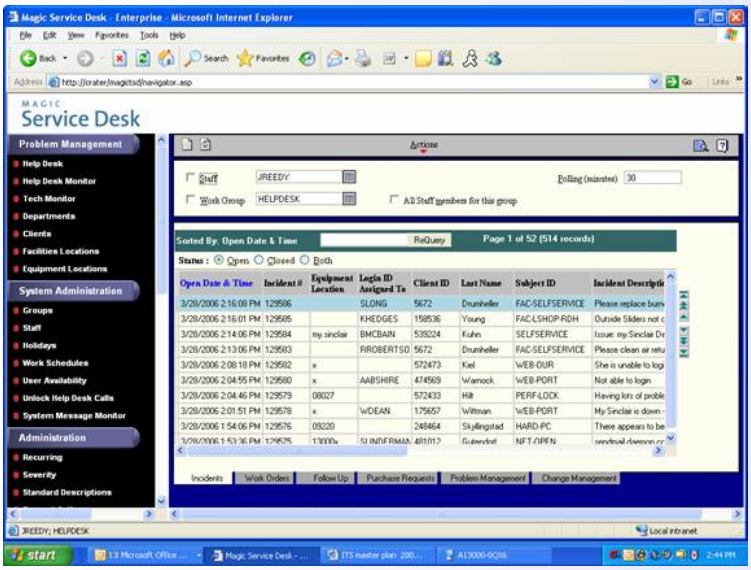


Figure 4-13. Magic Service Desk.

The objective of this project is to determine the obstacles in upgrading to Magic 9.0 and to develop the plan for implementation. These obstacles could include migration of the business rules, subjects, groups and support staff data. The fact that Facilities Management is using Magic will also be a factor in development of the plan. By upgrading, ITS is looking to take advantage of the benefits from the newest release which includes support for Microsoft Active Directory, SQL 2005, and spell checking.

Target Completion Date: October 2006

Cost savings/Cost avoidance identified with the project: Upgrades to systems are mandatory in order to maintain a vendor's support. The upgrade for Magic is covered under our maintenance plan so there is no additional cost for the upgrade. Enhancements will provide resource savings for IT. Facilities Management, and user departments as new functionality might allow processes to be made more efficient.

Telecom Asset Management System

Sinclair currently uses several independent, non-integrated systems to track and manage staff and administrative billing of telephone expenses. The number of manual processes and the lack of integration creates significant additional work for SCC personnel and creates an opportunity for error in billing and tracking of assets and services. The lack of web accessible billing statements creates extra processing costs and limits the ability to monitor telecom expenses on a timely basis.

Major Projects for FY 2006-2007

A centralized database accessible by administrators anywhere on campus which contains information on billing would greatly enhance this process and also provide efficiencies in the administration of call accounting detail, assets, phone/cell services, and telecom circuits. This will become more critical as SCC expands to multiple campuses and the need for centralization of information becomes more critical to efficiently operate the billing process which includes asset inventory, billing information, and call accounting for phone call detail.

Estimated Cost of Project: $50,000

Cost savings/Cost avoidance anticipated for the project: Existing systems are limited in terms of capabilities for future campus expansion. A centralized system approach will achieve future cost efficiencies as well as growth capabilities. Reduction of manual processes will increase accuracy and promote more efficient use of time.

Target Completion Date: June 2007

Section 5

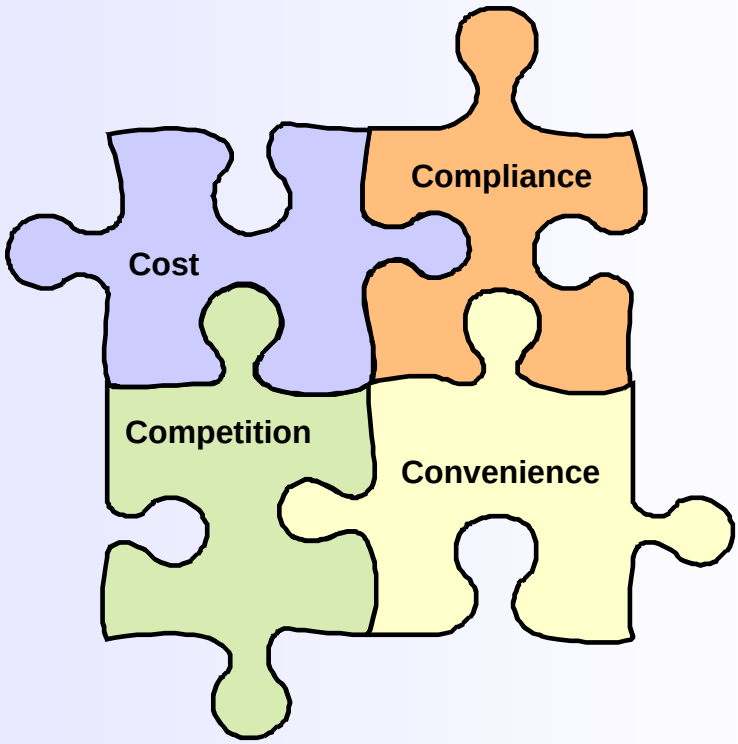
Top Ten Issues

Top Ten Issues

The Top Ten Issues Leaders Need to Understand about Information Technology

In today's knowledge economy, a comprehensive understanding of Information Technology (IT) is an essential component of leadership. The pervasiveness of IT throughout the academy is unparalleled, consuming enormous amounts of resources (human and capital). However, IT is the driving force behind the day-to-day operations and the key to the future.

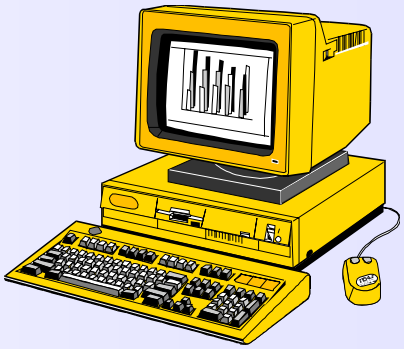
The fundamental reasons behind the need for higher education leaders to understand the importance of Information Technology can be expressed as the four "Cs":



- **Cost** – the cost implications of IT are enormous and must be comprehended by all leaders.
- **Compliance** – more and more government laws and regulations have IT undertones, and compliance with them can be time-consuming and costly.
- **Competition** – competition, especially from the for-profit sector, is becoming more and more difficult to combat, and comprehensive IT services are essential to even have a chance to compete.
- **Convenience** – students, especially the younger generation of students, expect immediacy and convenience, and IT is the only real solution to both of those demands.

Top Ten Issues

The Top Ten Issues tend to change from year to year in concert with emerging technological innovations; however, the issues described in this document have been critical to higher education institutions for several years, and will continue to be in the foreseeable future.



1. Security and Identity Management
2. Data Warehouse, Business Intelligence, and Predictive Analytics
3. Administrative/ERP Systems
4. E-Learning
5. Faculty Professional Development and Support
6. Information Technology Infrastructure Management
7. Information Technology and Library Integration
8. Information Technology Strategic Planning and Governance
9. Organization Strategy
10. Service Oriented Architecture

These issues are described in more detail on the subsequent pages.

Top Ten Issues

#1 Security and Identity Management

Ensuring integrity and availability of information resources and safeguarding personal information and institutional assets have become essential responsibilities in academic settings. The risks continue to escalate, as do the associated costs. As an example, IDC predicts that the identity management software business alone will grow to $4.6 billion in 2007. Network security, information security, and identity security are the three major components of a secure higher education environment.

A good example of the security issue is the Telecommunications Network. It can be described as the good, the bad, and the ugly.

	The good – networks provide great service to students, faculty, and staff both on campus and off campus. Access to information and services of all types is greatly enhanced by the increased utilization of networks at higher education institutions.
	The bad – expenses keep escalating in order to accommodate user expectations and to avoid the hostile elements roaming the Internet.
	The ugly – viruses, worms, Spyware, and other forms of security breaches which can cripple the network or facilitate access to confidential data.

Why is this a leadership issue? Although network, information, and identity security are the responsibility of the IT organization, they represent a problem IT cannot solve alone. IT needs the help of all institutional leaders, to enforce policies and promote security training and awareness.

- Institutions must have enforceable policies to cover acceptable usage and security breaches.
- Institutions must have a workable information security incident response plan.
- Institutions must assess their information, data, and services to classify them as public or confidential and create access policies in accordance with these classifications.
- Institutions must have a Chief Information Security Officer, and all departments must recognize the seriousness of this position and the associated responsibilities.
- Institutions must discontinue or severely limit the use of social security numbers as part of their operational data.

Top Ten Issues

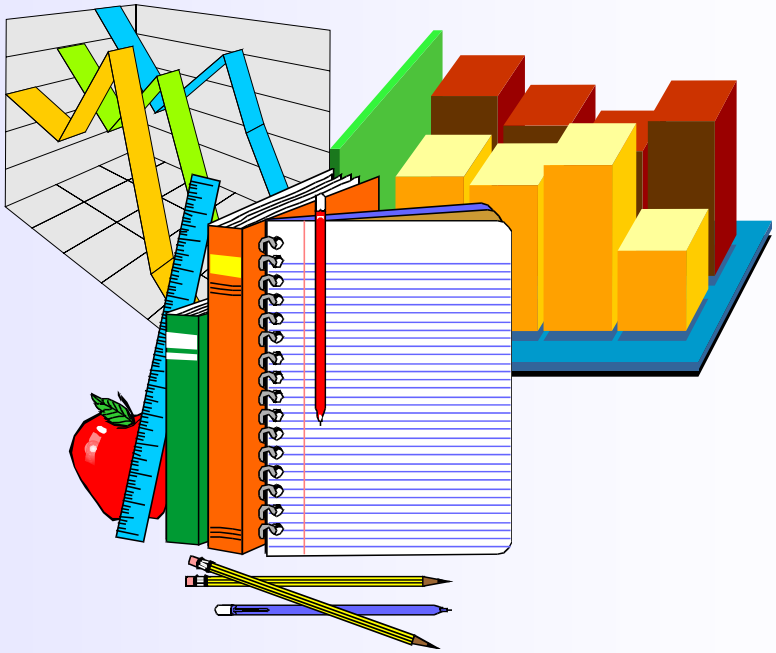
- Institutions must have a comprehensive information security awareness and training program to ensure that all constituents understand the importance of patches, firewalls, and anti-virus, anti-spyware, and anti-phishing tools.
- Leaders must understand the cost of being compliant and the consequences of being non-compliant with government regulations such as:
- The Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g; 34 CFR Part 99) – which is a Federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education.
- The Gramm-Leach-Bliley Act (GLBA) (15 U.S.C., Subchapter I, Sec. 6801-6809) – which is also known as the Financial Services Modernization Act of 1999, provides limited privacy protections against the sale or distribution of your private financial information. Additionally, the GLBA codifies protections against pretexting, the practice of obtaining personal information through false pretenses. Higher Education institutions are considered financial institutions since they help to acquire and distribute financial aid to students.
- The Health Insurance Portability and Accountability Act (HIPAA) – which applies to any institution that (1) operates any type of medical facility, such as a medical or dental clinic, even if the service provided is free, or (2) has a self-insured Healthcare Plan.
- The Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (USA PATRIOT Act) – which is a plethora of legislative changes that significantly increased the surveillance and investigative powers of law enforcement agencies in the United States.
- The Communications Assistance for Law Enforcement Act (CALEA), which is a relatively obscure federal statute. The Federal Communications Commission (FCC) decided to expand the coverage of this law to the Internet and to private networks like those used at colleges and universities. This law was originally enacted in 1994 so telephone companies designed and operated their networks to facilitate the installation of court-ordered wiretaps by law enforcement agencies. In the original law, Internet Service Providers (ISPs) and entities that operated private networks were exempt from the law. After 9/11 everything changed: the USA PATRIOT Act was passed, and the Department of Justice asked the FCC to extend CALEA to broadband Internet access services, including the Voice over Internet Protocol (VoIP), which is Internet-based phone service. Law enforcement agencies want the ability to install a wiretap instantaneously, including transmissions to the outside or intra-campus communications, and to monitor it remotely.

  The bottom line is that the FCC issued a regulation that requires “facilities-based Internet service providers” who operate their own equipment (which includes most colleges and universities) to be CALEA-compliant by April 2007. This could require the replacement or upgrade of every router and switch on every campus. As of March 2006, the FCC had not specified exactly what technical capabilities it wants, which makes it impossible to determine what CALEA-compliant really means, and vendors did not have the necessary specifications to design and produce the products.

Some large universities have estimated the cost to be CALEA-compliant at between $10 million and $15 million. Overall, the estimate for colleges and universities is $7 billion. The FCC has promised to issue another regulation called an implementation order to define the exact requirements. The question is when?

#2 Data Warehouse, Business Intelligence, and Predictive Analytics

Data warehouses, business intelligence, and predictive analytics fall under the Business Analytics (BA) or Business Intelligence (BI) umbrella, and are collectively defined as data-driven decision-making tools to enhance operational and financial performance. Data alone cannot drive decisions; access and effective analysis are what make data-driven decision-making work. Furthermore, the quality of the data is of utmost importance. Invalid data causes invalid decisions.



Data must be analyzed in context. Analysis of departmental data could easily conflict with institutional data analysis; therefore, the resulting decisions might conflict with overall institutional goals. Proper access to institutional data ensures consistent information for all decision-makers. Additionally, by integrating data from a variety of sources, BI can facilitate easy user access to data wherever and whenever it is needed so leaders can concentrate their efforts on making better, more informed decisions.

As with any technology, definitions vary depending on the source; however, the following seem to be acceptable across most sources.

- Data Warehouse – a separate [from the organization's transaction-processing databases] architectural entity that integrates data from the various operational systems and from external sources, and is typically loaded from these systems at regular intervals. Data warehouses contain summarized, historical information that enables analysis of institutional

performance over time by providing decision-makers with a cross-functional, integrated, subject-oriented view of the institution.

  - ETL – Extraction, Transformation and Loading.
  - DBMS – Database Management System.

- Business Intelligence – a broad category of application programs and technologies for gathering, storing, analyzing, and providing access to data to help users make better business decisions.

  - Reporting
  - Query and Analysis
  - OLAP – Online Analytical Processing
  - Visualization (Dashboards, Scorecards, etc.)
  - Integration with general office applications (e.g., Microsoft Excel)

- Predictive Analytics – a group of application programs and technologies concerned with the prediction of future probabilities and trends, or used to determine the probable future outcome of an event or the likelihood of a current state where it is unknown.

  - Data and Text Mining
  - Forecasting and Econometrics
  - Operations Research
  - Quality Improvements
  - Statistics
  - Function-specific (e.g., Financial Management)

A substantial investment in IT is required to accommodate a transformation to data-driven decision-making; nevertheless, it also requires a significant commitment by institutional leaders because they must guide the change of how faculty and staff execute their responsibilities.

One of the biggest misconceptions is that IT owns the data. IT is merely the organization responsible for capturing, storing, securing, and providing subsequent access to the data. Institutional users own and must utilize/analyze the information that the data generates in order to make informed decisions. A Business analytics solution must be viewed as an institution-wide project – not an IT project.

Many benefits can be derived from an effective solution:

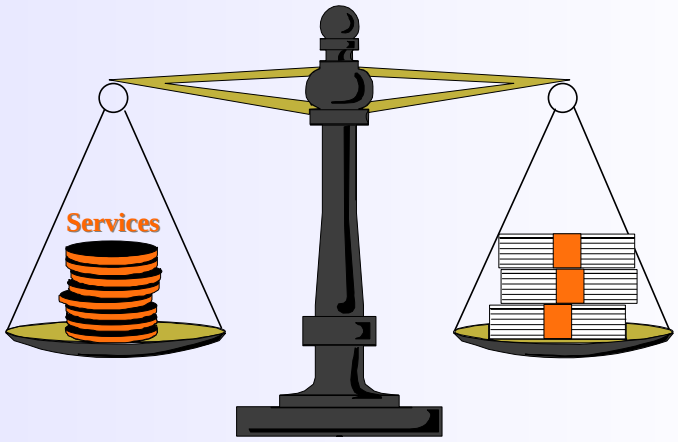
- Credibility and confidence in institutional data;
- Accelerated, effective decision-making;
- Innovation of business processes;
- Increased staff productivity; and
- Reduced overall costs.

The bottom line is that higher education is in the midst of a major transformation, and effective data analysis is essential for knowledgeable decisions to help institutions remain competitive.

#3 Administrative/ERP Systems

Administrative/ERP (Enterprise Resource Planning) systems are large integrated multi-functional applications which demand significant investments and strong commitment by all institutional leaders, both before and after implementation.

More than 60% of the respondents to the 2004 EDUCAUSE Core Data Services Survey said they have an ERP system or are in the process of installing one. Most of the others said they were either planning to acquire an ERP system or would be starting an evaluation process in the near future.



The mission-critical factors which support the need for an ERP system must be defined, along with the expected service and process improvements. The “make or buy” decision is slowly fading into obscurity. Due to the complexity and frequency of government or regulatory changes, and the quest for data-driven decision-making, very few institutions can afford the staff to develop their own in-house systems. It is imperative that all leaders take an active role in the selection process to ensure that the necessary functions and features are provided as an integral part of the application. Customization of specific components must be avoided; the institution must adapt its business processes to those designed into the application, and the institutional leaders must support and even champion these process changes.

An important point to remember is that very few higher education administrators like their current ERP systems – the grass always looks greener someplace else. However, a change from one to another is extremely expensive; it will consume several million dollars and a considerable amount of human resources, both IT and users.

Administrative/ERP systems are expensive, both initial cost and annual maintenance; however, customization of system components to accommodate specific institutional needs can escalate this cost to unreasonable bounds. The financial impact of not having an effective Administrative/ ERP system can be serious, but having an ineffective or inflexible one could be catastrophic.

#4 E-Learning

E-learning (a.k.a. distributed learning or online distance learning) has become a significant part of post-secondary education. Enrollment in e-learning courses has now exceeded the million students mark in the U.S.

E-learning requires a much different support structure than traditional classroom learning. Faculty, instructional designers, librarians, and media specialists must work together to develop high quality e-learning courses. In fact, the organizational structure and policies may be different from traditional structures and policies in order to provide the proper environment for a successful e-learning program.

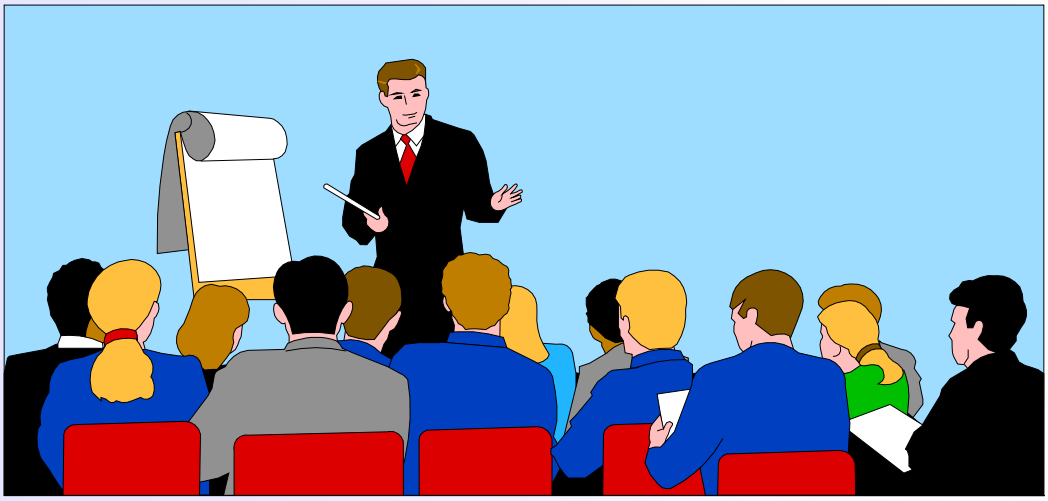
E-learning will continue to expand as innovations in technology occur. Digital assets will be managed centrally and provided to classrooms or remotely via the Web as a common occurrence. Flexible schedules, learn at your own pace, and full degree programs via the Web will continue to gain in popularity and could exceed classroom instruction within 10 years.

Although e-learning provides many new opportunities, it also presents an equal number of new challenges. For example, the institution must provide a reliable, scalable, effective infrastructure to facilitate e-learning. The unavailability or insufficiency of infrastructure resources cannot be tolerated. There must be a method to ensure that prospective e-learning students have the personal learning, time management, and technology skills required to be successful in a technology-mediated environment. Also, the students must be given access to appropriate services and support mechanisms. Processes must be designed to ensure quality and effectively assess outcomes in the e-learning experience.

#5 Faculty Professional Development and Support

Faculty professional development and support requirements are changing in concert with technological advances and innovations. As IT continues to spread throughout the academy, these requirements will become more profound.

Top Ten Issues



A few years ago, faculty professional development and support was centered on how to use course management systems such as WebCT and Blackboard. Now, faculty must learn how to incorporate powerful communication tools into the curriculum such as Blogs, Clickers, PDAs, etc. Also, faculty must learn how to combine multi-media formats such as streaming audio and video, digital images, and Internet searching algorithms with traditional resources to enrich the student learning experience.

Issues which must be considered in order to have a successful program include:

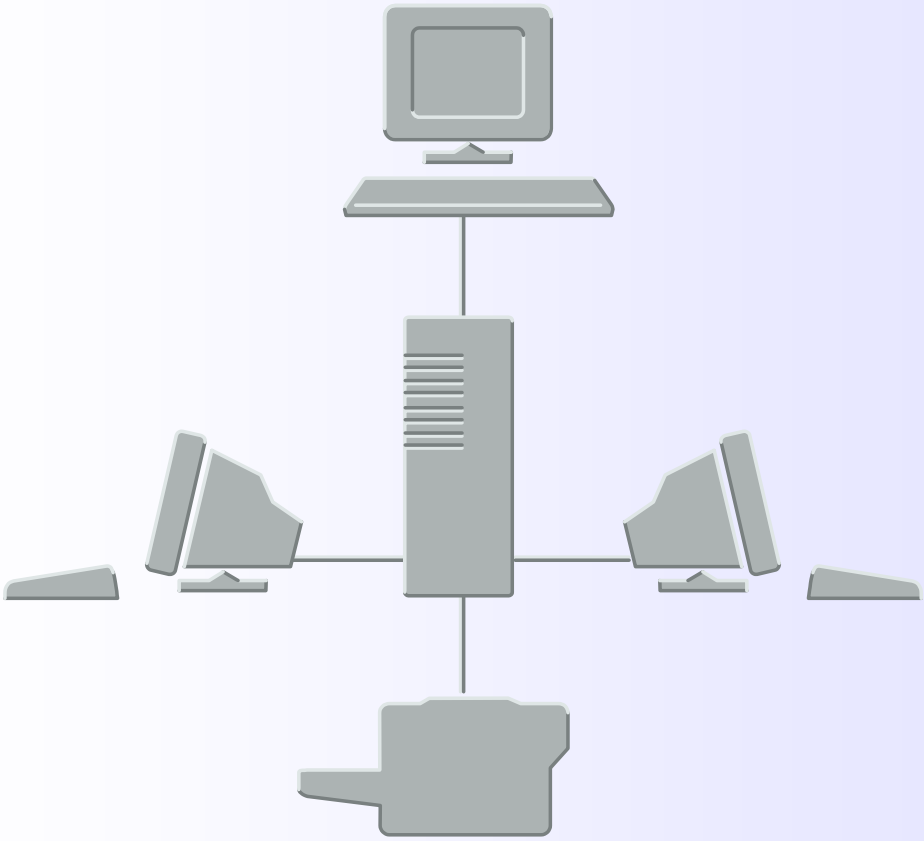
- Continual training opportunities for faculty as new technologies emerge;
- A comprehensive faculty support structure;
- Communication using a variety of methods (e.g., websites, newsletters, emails, etc.) to ensure that faculty learn about development opportunities;
- Consideration of both full-time and part-time faculty – development opportunities are important to both groups;
- Provision for an adequate budget to encompass development, delivery, and continuing support;
- Provision for appropriate facilities such as a Professional Development office with sufficient equipment and support personnel; and
- Provision for necessary infrastructure (e.g., sufficient bandwidth, proper connectivity, technology-enabled classrooms, and ample software licenses) to help faculty learn and practice.

In order to provide appropriate levels of professional development, it is important to know how the different disciplines might be affected by these technological innovations. Likewise, the proper organizational structure for effective deployment of training and support must be ascertained. It is also important to understand what types of incentives are necessary to incorporate new technologies into teaching and learning. Rewards for participants, such as release time, stipends,

special development funds, and even special forms of recognition are important factors in sustaining appropriate levels of faculty involvement.

#6 Information Technology Infrastructure Management

The campus IT infrastructure is becoming increasingly complex, and managing it is a difficult task. Efficient information architecture is crucial to facilitate the organization of, storage for, access to, and maintenance of the institution's strategic data. Additionally, the need to deliver information to students, faculty, and staff "anywhere, anytime" adds another dimension to the complexity.



The demand is continuing to swell for more storage, higher bandwidth, more mobility/remote access, better security measures, etc. A life-cycle replacement plan is an essential part of infrastructure management, and this must have executive leadership support. Hardware redundancy and fail-over hardware/software environments are becoming an absolute must in order to meet the 24X7 requirements of the constituents. Test environments are also a critical element to ensure uninterrupted service during hardware and software upgrades, which occur more and more frequently due to attempted intrusions and technological innovations.

Security, flexibility, reliability, and scalability are essential in order to maximize the institutional investment. Emerging technologies are often viewed as competitive opportunities; therefore, the infrastructure must be quickly adaptable.

#7 Information Technology and Library Integration

Community college library design and services have undergone significant change since the advent of the Internet and the rapid transformation to electronic resources. Continuing to utilize the library as a place has been questioned due to digitization and virtualization of resources and services. The changing demands of students and faculty also play a role in the ultimate existence and design of the libraries, including the functions, responsibilities, and skills required for the library staffs.

Many believe that the Information Commons or Learning Commons model, a mixture of paper resources, electronic resources, electronic equipment and telecommunications infrastructure, learning labs, comfortable seating arrangements, and even an embedded café, is the answer to the challenge of maintaining the library as a place and meeting the constantly changing demands of the technology-centric constituents.

Research suggests that technology is not only the primary catalyst for these changes, but also the major impetus for changing the underlying culture of the community college library environment. The contention that the community college library as a place will become obsolete has some backers; nevertheless, the majority of community college library directors feel that the community college library may change radically, but it will continue to exist as a physical entity for quite some time.

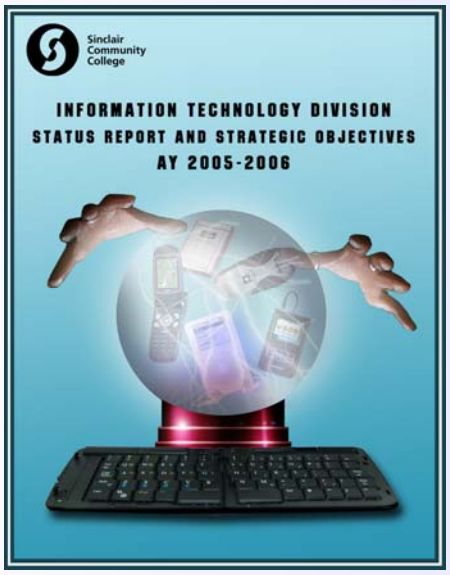
Technology has had, and will continue to have, a dramatic impact on community college libraries, but this is happening in varying degrees across the community college landscape. Whether the operational environment is based on the Information Commons or Learning Commons model or some other model, it will include a new set of technological tools, revised services, and recurring

changes in library staff titles and responsibilities. What's more, even though funding constraints will almost certainly continue to play a role in the technological evolution, changes will definitely find their way into community college libraries because the libraries must satisfy the expectations of the students and faculty in order to sustain their existence.

#8 Information Technology Strategic Planning and Governance

Information Technology Strategic Planning is a continuous cycle of planning, implementing, and reviewing to ensure that the intended results are achieved, and are consistent with the strategic objectives of the institution.

Information Technology Governance, like the IT Strategic Plan, must be a collaborative, cross-functional effort with executive sponsorship and support. IT Governance is basically establishing project priorities that are consistent with the strategic objectives of the institution.



The IT Strategic Planning process must include the collaborative involvement of all constituents and have the active support of the institutional leaders. Furthermore, Strategic Planning for IT must be driven from the overall institutional Strategic Plan and the Instructional Master Plan. IT must be used to increase productivity, to enhance student access and student learning, to help reduce costs, and to achieve competitive advantage. Additionally, IT Strategic Planning is no longer a 3-5 year proposition; it is now an annual function, due primarily to the constant changes in technology.

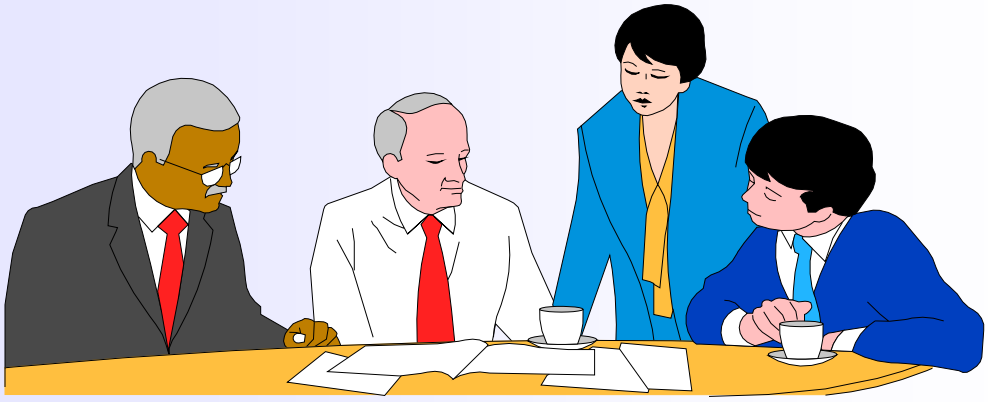
IT Strategic Planning is essential to ensure that technology is being implemented to support the goals of the institution. IT must be recognized as a vital strategic asset, not as a necessary evil – a money drain. IT Strategic Planning must concentrate on the current and future requirements of the students, faculty, staff, and community. The plan must include innovative concepts that promote the growth and well-being of the institution and the success of the students. Additionally, the IT Strategic Plan must be supported with adequate funding, both initial and on-going, in order to accomplish the stated objectives.

Top Ten Issues

IT Governance is only as good as the team making the decisions and setting the project priorities. Each person selected to participate must have a “big picture” view of the institutional objectives and associated priorities.

#9 Organizational Strategy

Academic tradition is nice, but decentralization is a dying art – it is too expensive and way too slow. Centralization has become the standard in industry, and it must become the standard in higher education also. All leaders have a fiduciary responsibility to strive for high quality performance at an optimum level of cost.



A shortage of IT skilled workers is predicted in the near future. Will higher education be able to compete with other industries? According to a 2004 article by Tony Zeiss, the President of Central Piedmont Community College in Charlotte, NC, in the League Leadership Abstracts, America is on the brink of a major labor shortage, possibly the largest ever. The author cites the U.S. Bureau of Labor Statistics, which estimates that by 2011, there will be 168 million jobs in the U.S., but only 158 million workers to fill them. Zeiss contends that community colleges are both susceptible to this labor shortage and poised to provide the skilled workers needed to fill the open positions. However, Zeiss argues, “If you can’t afford or attract qualified nursing instructors, your college can’t teach nursing”. Technology positions, administrative and academic, will be part of this diminishing supply of skilled workers. Leaders need to understand this, and be prepared to attract, develop, and retain top performers.

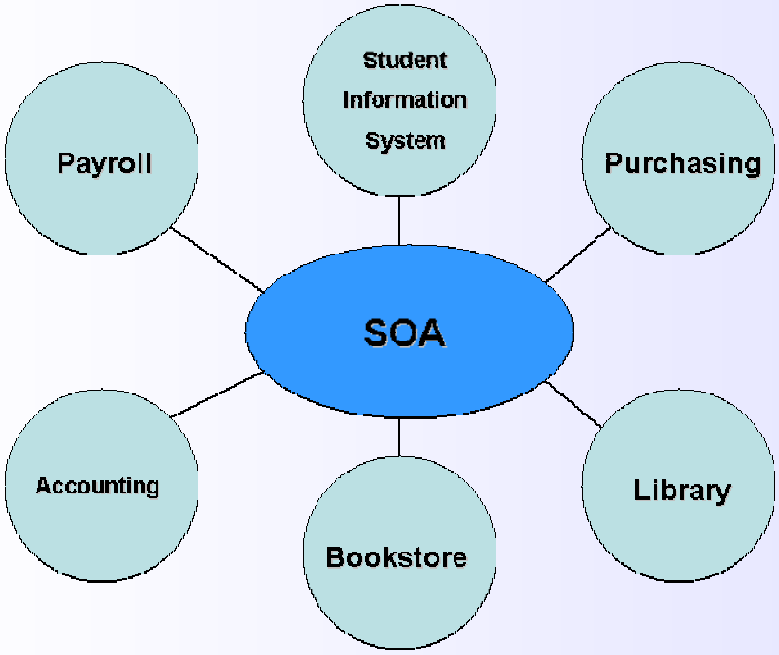
What position at your institution does not require information technology skills? What job in industry does not require information technology skills? Like it or not, computerization of everything is the future. The future of business (and government, healthcare, education…in fact, our lives) is all about the connections modern information technology makes possible.

#10 Service Oriented Architecture

Service oriented architecture (SOA) facilitates the integration of software components utilizing a standard set of protocols. They are modular, self-descriptive, self-contained applications that

interoperate over the Internet/Intranet in order to publish, locate, and initiate specified functions, which can range from small single-service functions to sophisticated business procedures. These web applications, which are also called Web Services, are rising to prominence because they can provide long-awaited opportunities for applications running on different platforms, programmed in a variety of languages, and custom-built or vendor-acquired to interoperate and satisfy organizational processing requirements. SOA is predicated on a series of standards:

- eXtensible Markup Language (XML) – describes the information to be processed;
- Simple Object Access Protocol (SOAP) – the communications protocol that defines the rules for interoperability;
- Universal Description Discovery and Integration (UDDI) – a directory of available Web Services; and
- Web Services Description Language (WSDL) – describes the capabilities and interoperability functions required for a Web Service to work effectively.



Web Services promote the use of "best of breed" software applications. They eliminate the necessity of moving data and electronic processes into a common operational environment in order to realize integration. Web Services will play a dominant role in future Web-based system architectures, minimizing the complexities and extreme costs normally associated with application integration.

Leaders need to understand how SOA can provide optimum return on existing investments, and at the same time, provide enhanced scalability. They also need to know what the potential impact might be on IT Strategic Planning. Service oriented architecture might be the answer to inflated Administrative/ERP system costs. If "best of breed" truly becomes a reality, dependence on a single vendor and/or a single application could be mitigated.

Appendix A

Glossary

Glossary

Access: The technology choices available by which users can connect to the public data network at the level they demand or need (dial-up, cable, DSL, ISDN, wireless, etc.)

Anti-virus Software: Programs to detect and remove computer viruses. The simplest kind scans executable files and boot blocks for a list of known viruses. Others are constantly active, attempting to detect the actions of general classes of viruses. Anti-virus software must be regularly updated to be effective against the latest viruses as they are released and discovered.

Authentication: The process of verifying that an electronic identifier is correctly mapped to the person using it. Authentication may take a variety of forms and typically relies on one or more of the following:

- Something you know, such as a password;
- Something you have, such as a smartcard with a public-key certificate;
- Some personal attribute, evidenced by a retinal scan, fingerprint, or photo.

B2B (business-to-business): The exchange of products, services, or information between two or more businesses using networked technologies.

B2C (business-to-consumer): The exchange of products, services, or information between businesses and consumers over the Internet.

Bandwidth: The amount of data that can be transmitted in a given amount of time over a particular connection.

Blog: Web-based content consisting primarily of periodic articles or essays listed with the latest entry and visitor comments at the top. Blogs topics can range from personal diaries to political issues, media programs and industry analysis. Blogs are also known as “weblogs” or “web logs.”

bps: Measurement of transmission speed - bits per second.

Broadband: High speed data transmission over which a single medium can carry several channels at once. DSL and cable modem service are broadband services.

Business Intelligence (BI): A broad category of applications and technologies for gathering, storing, analyzing, and providing access to data to help enterprise users make better business decisions. BI applications include the activities of decision support systems, query and reporting, online analytical processing (OLAP), statistical analysis, forecasting, and data mining.

Byte: A byte is a series of 8 bits - also called a character. Computer storage space is measured in bytes. A kilobyte (1 KB) represents 1024 bytes. A megabyte (1 MB) represents 1024 KB. A gigabyte (1 GB) represents 1024 MB. A terabyte (1 TB) represents 1024 GB.

Cable modem: A device that enables a personal computer to be connected to a local cable TV line and receive and send data.

Glossary

Chat Room: An online forum where people can broadcast messages to people connected to the same forum in real-time. Sometimes, these forums support audio and video communications allowing people to chat in audio and watch each other.

CIO: Chief Information Officer

CISO: Chief Information Security Officer

Colleague Application/Database: The application (developed by Datatel, Inc.) used by the College for Enterprise Resource Planning (ERP). It is a collection of software programs that tie all of the various diverse functions (student services, business operations, finance, HR, etc.) into a cohesive database.

Course Management System (CMS): See Learning Management System.

Customer Relationship Management (CRM) software: CRM entails all aspects of interaction a company has with its customer, whether it be sales or service related using tools such as help-desk software, e-mail organizers and Web development apps to personalize online experience.

Data Base Management System (DBMS): A complex set of programs that control the organization, storage and retrieval of data for many users; extensively used in business environments. Data is organized in fields, records and files. A database management system must also control the security of the database.

Data Cleansing: The act of detecting and removing and/or correcting a database's dirty data (i.e., data that is incorrect, out-of-date, redundant, incomplete, or formatted incorrectly).

Data Warehouse: A database designed specifically to support decision-making (Business Intelligence). It is a data repository which may be populated from multiple sources, including multiple transaction-oriented databases.

Dial-up access (modem): Refers to connecting to the Internet via a modem and standard telephone line. Maximum speed is 56 Kbps.

Digital Subscriber Line (DSL): A technology which enables the ordinary copper component of telephone lines to carry data at rates much higher than ISDN. Maximum speed is 8 Mbps.

Distributed computing: An industry-standard software technology for setting up and managing computing and data exchange in a system of networked computers.

Domain name: The unique name that identifies an Internet site and its address.

Electronic Advising: A Colleague module designed to allow students to design and review a program completion plan which can be shared with and receive approval from an academic advisor.

Glossary

Electronic Business (e-Business): The transformation of key business processes through the use of Internet technologies.

Electronic Commerce (e-Commerce): Commercial and noncommercial transactions facilitated through the use of networked technologies, such as over the Worldwide Web.

Electronic Data Interchange (EDI): The transfer of data between companies using computer networks, such as the Internet.

Electronic Mail Services/System (E-mail): Any messaging system that depends on computing facilities to create, send, forward, reply to, transmit, store, hold, copy, download, display, view, read, or print computer records for purposes of asynchronous communication across computer network systems between or among individuals or groups, that is either explicitly denoted as a system for electronic mail; or is implicitly used for such purposes, including services such as electronic bulletin boards, listserves, and newsgroups.

Electronic Mailbox: A file (or folder) designated to a particular user on a particular computer in which received electronic mail messages are stored ready for the user to read them. Using the example firstname.lastname@sinclair.edu, “firstname.lastname” is the name of the user’s mailbox file on the mail server.

Email Address: The string used to specify the source or destination of an electronic mail message. A typical college e-mail address format is firstname.lastname@sinclair.edu.

Email Distribution List: A distribution list is a group of recipients, all gathered under one name, or address. A distribution list allows you to send a message to all of the recipients by entering just that one address. There are two common kinds of distribution lists: Personal Distribution Lists (stored on an individual’s PC) and Public Distribution Lists (server-based). See their individual definitions.

Email Record/Email Message: Any or several electronic computer records or messages created, sent, forwarded, replied to, transmitted, stored, held, copied, downloaded, displayed, viewed, read, or printed by one or several email systems or services. This definition of email records applies equally to the contents of such records and to transactional information associated with such records, such as headers, summaries, addresses, and addressees.

Email Users: Individuals who create, send, forward, reply to, transmit, store, hold, copy, download, display, view, read, or print email (with the aid of College email services). A (College) Email User is an individual who makes use of (College) email services. Receipt of email prior to actual viewing is excluded from this definition of “use” to the extent that the recipient does not have advance knowledge of the contents of the email record.

Encrypted/Encryption: Procedures using algorithms to encode or convert plain text into cipher-text to prevent any but the intended recipient from reading that data. There are many types of data encryption; they are the basis of network security.

Glossary

Enterprise Resource Plan (ERP): A system that supports the planning and management of all the resources in an enterprise - a multi-module software system that supports enterprise resource planning. An ERP system typically includes a relational database and applications for managing purchasing, inventory, personnel, customer service, shipping, financial planning, and other important aspects of the business.

Frame Relay: Used for connecting local and wide area networks - can support data transfer at T-1 and T-3 speeds.

Gigabits per second (Gbps): A measurement of the rate of speed at which data is transferred (e.g., 1 Gbps equals 1 billion bits per second).

Graphical User Interface (GUI): A computer terminal interface, such as Windows, that is based on graphics instead of text.

Information Delivery Portal (IDP): Web-based interface that enables users to view and organize analytical content such as reports prepared by using SAS statistical software.

Information Map: A grouping of data warehouse elements that have been joined and linked in a conceptually related manner that is meaningful to end users.

Information Technology (IT): The broad subject concerned with all forms of technology used to manage and process information electronically.

Infrastructure: The communication networks that connect users to a networked environment such as the Internet.

Instant Messaging (IM): A software tool that allows real-time electronic messaging or chatting. Instant messaging services use “presence awareness” indicating whether people on one’s list of contacts are currently online and available to chat. Examples of IM services are AOL Instant Messenger, Yahoo! Messenger and MSN Messenger.

Integrated Services Digital Network (ISDN): A service that allows for higher data transmission speeds over telephone lines and is capable of handling at least two services over one line simultaneously (i.e., voice and fax or voice and data). Maximum speed is 128 Kbps.

Internet Service Provider (ISP): A company or organization that provides users with connectivity to the Internet.

Kilobits per second (Kbps): The rate of speed at which data is transferred (e.g., 1 Kbps equals 1,000 bits per second).

Learning Management System (LMS): A software application or Web-based technology used to plan, implement, and assess a specific learning process. Typically, a learning management system provides an instructor with a way to create and deliver content, monitor student participation, and assess student performance. A learning management system may also provide students with the ability to use interactive features such as threaded discussions, video

conferencing, and discussion forums. The Advanced Distributed Learning group, sponsored by the United States Department of Defense, has created a set of specifications called Shareable Content Object Reference Model (SCORM) to encourage the standardization of learning management systems.

Letter or Mail Bomb: An email message containing malicious code intended to do nefarious things to the recipient's computer or network. Also, to send, or urge others to send, massive amounts of electronic mail to a single system or person, with intent to crash or spam the recipient's system. Letter or Mail bombing is a serious offense and is not tolerated.

Lightweight Directory Access Protocol (LDAP): An online directory service protocol defined by the Internet Engineering Task Force (IETF) which is a simplification of Directory Access Protocol (DAP). An LDAP directory entry is a collection of attributes with a unique identifier, called a distinguished name (DN). The directory system is in a hierarchical structure.

List Owner: Individual(s) who establish the scope and distribution of and perform the maintenance of email distribution lists.

Listserv: An electronic mailing list software application that was originally developed in the 1980's and also known as "discussion lists." A listserv subscriber uses the listserv to send messages to all the other subscribers, who may answer in a similar fashion.

Local Area Network (LAN): A network of interconnected workstations that share the resources of a single processor or server within a relatively small geographic area, such as an office.

Malicious Code: Code is a common term used to describe a set of instructions to a computer, also called program or software. Malicious code in general can be defined as "software which interferes with the normal operation of a computer system." Another general definition might be "software which executes without the express consent of the user." Common types of malicious code include viruses, Trojans, and worms.

Megabits per second (Mbps): A measurement of the rate of speed at which data is transferred (e.g., 1 Mbps equals 1 million bits per second).

Megabyte (MB): A measurement of capacity (e.g., 1 MB equals 1 million bytes).

Microsoft Outlook: The Microsoft "groupware" information management and communication software used by the college for email communication, group planning and scheduling, and contact/task management.

Mobile e-Commerce (m-Commerce): Commercial and noncommercial transactions facilitated through the use of wireless networked devices.

Online Analytical Processing (OLAP): A method of database indexing that enhances quick access to data, especially in queries calling for large quantities of data or viewing the data from many different aspects.

Glossary

Online Forum: A web application where people post messages on specific topics. Forums are also known as web forums, message boards, discussion boards and discussion groups. They were predated by newsgroups and bulletin boards in the 1980's and 1990's.

Peer-to-Peer (P2P) File-Sharing: Directly sharing content like audio, video, data, software or anything in digital format between any two computers connected to the network without the need for a central server. Examples of P2P networks are Kazaa, OpenNap, Grokster, Gnutella, eDonkey and Freenet.

Personal Distribution Lists: These lists are created by individuals for their own use. Personal distribution list files are stored in the individual's Personal Address Book. Personal Address Books usually reside on the individual's hard drive (or a drive of their choice). These lists are called "Personal" as they should be created for personal (one person) use. Sinclair users are permitted to create and share the lists to facilitate group communication.

Point Of Sale (POS): The time and place in which a transaction is made. Point of sale computer systems include cash registers, optical scanners, magnetic card readers, and special terminals. Reading product tags, updating inventory, and checking credit are some of the operations performed at the point of sale.

Portlet: A portlet is a Web-based component that will process requests and generate dynamic content. The end-user would essentially see a portlet as being a specialized content area within a Web page that occupies a small window in the portal page.

Privacy policy: A statement by an organization describing the ways in which it collects, stores, and uses personal information gathered from citizens and consumers.

Project DAWN: Data Analysis Warehousing and iNtelligenge (DAWN) initiative that is deploying business intelligence services to the Sinclair decision makers

Public Distribution Lists: These are created by IT staff for use by all Sinclair users. The distribution list files are stored on the Exchange Mail server. These lists are called "Public" as they are designed to be available to all users. Use of these lists is for academic and administrative purposes only as misuse wastes system resources and can affect the entire College network.

Return on Investment (ROI): A quantitative analysis of investment in budgets and the resulting return on the investment.

Role-based Access: After official authentication, access to Information Technology resources is granted based on the individual's role at the institution. As an example, a faculty member would have access to a totally different set of resources than a student, and a Dean might have access to a greater set of resources than an individual faculty member.

Secure Sockets Layer (SSL): A protocol developed by Netscape for transmitting private documents via the Internet. SSL works by using a private key to encrypt data that's transferred over the SSL connection. Both Netscape Navigator and Internet Explorer support SSL, and many Web sites use the protocol to obtain confidential user information, such as credit card numbers.

Glossary

Server: A computer that provides some service for other computers connected to it via a network. A mail server has a drive that hosts user electronic mailboxes and receives, stores, and sends email messages via the network.

Single Sign On (SSO): A software program that accepts a single authentication transaction and brokers this transaction to provide authenticated access to multiple web or computer based services.

Social Networks: Websites promoting a "circle of friends" or "virtual communities" where participants are connected based on various social familiarities such as familial bonds, hobbies or dating interests. Examples include eHarmony, Facebook, Friendster, Linkedin, Match.com, MySpace, Plaxo and Yahoo!Groups.

Spam or Spamming: Electronic junk mail or junk newsgroup postings. Spam is generally email advertising for some product sent to a mailing list or newsgroup. Spamming is sending or transmitting these junk messages. Receipt of Spam is virtually impossible to control; Spamming to or from college email systems is strictly prohibited.

SQL Server: A relational Database Management System (DBMS) supplied by Microsoft.

Staff Person Month: A metric of cost that equates to the average of all non-management or system maintenance staff within Systems Development & Maintenance multiplied by a 1.30 weight to account for fringe benefits and divided by the total number of staff month available to perform work.

Structured Query Language (SQL - *pronounced SQL or Sequel*): A language used to create, maintain, and query relational databases. It is an ISO and ANSI standard. SQL uses regular English words for many of its commands, which makes it easy to use. It is often embedded within other programming languages.

T-1: Point-to-point dedicated phone line connection. Maximum speed is 1.544 Mbps.

T-3: Point-to-point dedicated phone line connection. Maximum speed is 44.7 Mbps.

Telecommunications: Refers to all types of data transmission, from voice to video.

Terabits per second (Tbps): A measurement of the rate of speed at which data is transferred (e.g., 1 Tbps equals 1 trillion bits per second).

Terabyte (TB): A measurement of capacity (e.g., 1 TB equals 1 trillion bytes).

Unidata: The database management system used for Colleague.

Usage: The extent to which business, government and household users utilize the Internet access and infrastructure available to them.

Glossary

User Interface (UI): The means by which a user interacts with a computer. The interface includes input devices such as a keyboard, mouse, stylus, or microphone; the computer screen and what appears on it; the way commands are given, etc. With a command-line interface, only text appears on the screen, and the user must type in commands; with a graphical user interface, windows, mice, menus, and icons are used to communicate with the computer.

User Login/Logon ID: The string that, in conjunction with the password, identifies a user to the network. A typical college user ID consists of the user's first and last name separated by a period. As in "firstname.lastname".

Virtual Private Network (VPN): A private data network using the public telecommunication infrastructure with security procedures that maintain privacy.

Virus: A program or piece of code that generally executes without the user's knowledge and runs against their wishes. Most viruses are malicious in nature and can also replicate themselves. All computer viruses are man-made and vary in degree of danger. Even a simple virus that replicates itself without actually harming system files is dangerous because it quickly uses available memory and other resources. A more dangerous type of virus is one capable of transmitting across networks and mutating to bypass security systems.

Web Content Management System (WCMS): A system or set of tools used to manage the content of a Website. Typically, a WCMS consists of two elements: the content management application and the content delivery application. The content management application allows the content manager or author, who may not know Hypertext Markup Language (HTML), to manage the creation, modification, and removal of content from a Website (via an intermediate database) without needing the expertise of a Web Developer. The delivery element uses and compiles that information along with predefined templates to generate web pages. The features of a WCMS system vary, but most include a data repository, format management, revision control, indexing, search, and retrieval.

Wide Area Network (WAN): A geographically dispersed telecommunication network.

Wiki: A web application that allows one user to add content and any other user to edit the content. The popular software used to implement this type of web collaboration is known as "Wiki." A well-known implementation is Wikipedia, an online encyclopedia.

Wireless access: A communications system in which radio-frequency or infrared waves carry a signal through the air, rather than along a wire.

World Wide Web (WWW): The system of Internet servers and users that support documents formatted in the HTML language.