INFORMATION TECHNOLOGY SERVICES

Introduction

The Information Technology Services (ITS) department values its role as partner to many at the College in using technology to further the mission of the Institution. In fiscal year 2010, the College moved forward on a number of priority projects, services operated reliably and customer service levels remained high. ITS reduced budgets in several areas as part of the College's financial contingency planning, including eliminating 2.5 staff positions. All ITS accounts finished the year under budget. The department found ways to advance strategic priorities and improve business operations at the College. For example, this year we implemented print release stations in the libraries and public labs and led a College-wide effort on data protection and security. Success breeds more ideas for further initiatives in the coming year.

ITS achievements in fiscal year 2010 include:

- Responded to the economic downturn by reducing staff (2.5 FTE); lowered spending on computer equipment and software, staff travel, and technology training ($85K); and coordinated a "pre-buy" to shift 50% of FY10 computer purchases into FY09 ($200K). All IT accounts finished FY10 under budget.

- Helped the College achieve compliance with the new Massachusetts law 201 CMR 17 on standards for the protection of data by the effective date of March 1, 2010. A task force comprised of the College's legal counsel and ITS, HR, and Controller staff conducted department head meetings, presentations to extended cabinet, and presentations to the management advisory group, and sent newsletters and e-mail notices. Further, encryption software was deployed on all College laptops that may contain protected information; and an external "penetration test" was conducted by a third-party security firm. Many business processes at the College have changed as a result.

- The ITS director and managers participated in the NEASC reaccreditation, with emphasis on standards 7 and 8. ITS staff provided computers, printers, internet access, and support to the visiting team on campus and at their downtown hotel.

- Completed a major EMC storage array replacement over semester break.

- Implemented self-service functionality for the Human Resources system. Many non-clerical employees were given access to e-mail and other online services.

- Implemented print release stations in the libraries and public computer labs to save printing costs. We estimate a 15% reduction in printing for the year in those locations.

- Transitioned to the *Drupal* open source web content management system. The current system will be discontinued in June 2011, saving the College $8,800/year.

- Deployed two dozen thin client workstations in public and shared-use areas. We plan on expanding use in FY11. These devices cost significantly less money than full desktop computers and require minimal support from ITS staff.

- Moved numerous paper forms online, such as in the Chaplains' office, Health Services and Athletics, eliminating paper waste, postage, and duplicate data entry.

- Implemented document scanning in Human Resources.

- Completed the Balanced Scorecard data entry module, with initial work on a divisional data warehouse in Administration and Finance.

- Implemented *Encore* , a web search and discovery tool, and *AirPac*, a mobile interface, for the library system with rollout planned for the start of school.

- Implemented the first phase of Public Affairs e-vents calendar.

- Implemented the *Mahara* ePortfolio system.

- Assisted with the use of a new *iDocs* system in Financial Aid.

- Upgraded Kronos time reporting, PeopleSoft Finance tools, ImageNow, Nutritive Analysis, Unica, and PS Student enhancements.

About Information Technology Services

The Information Technology Services department is a service organization, reporting to the President of the College. The department is charged with balancing resources and projects across four areas: technology support, applications development, network infrastructure and operations, and change control and training. ITS is committed *to supporting advanced technology in a distinct academic computing environment*.

Support of Mission

The Information Technology Services department values its place within the College of the Holy Cross. While technologists may view technology as an end unto itself, we try to appreciate that technology is a tool— one that can support the intellectual growth of all in the community. Technology can foster dialogue on campus or on a more global basis, yet we understand the pre-eminence of the face-to-face learning that happens at Holy Cross. Technology must not and will not diminish this core aspect of our mission. Our mission also calls on us to respect the views of others and to foster a community "marked by freedom, mutual respect, and civility." Today our students spend enormous amounts of time on online communities, such as Facebook. Interactions within these virtual communities can challenge goals of civility and respect. ITS is working with others at the College to raise awareness among our Community of the impact of online behavior.

Lastly, as a service organization, ITS follows the Jesuit ideal of service to others. The ITS operating budget represents a significant percentage of the College budget. It is important that this resource align with the mission of the College.

Benchmarks

Data surveys on technology use in higher education provide valuable comparisons of Holy Cross to other institutions, such as our Peer List, AJCU and CLAC (Consortium of

Liberal Arts Colleges). Figure 1 below looks at budget and staffing ratios for the College's Peer List, taken from the 2008 Core Data Service (www.educause.edu). It shows Holy Cross at the 50th percentile in funding and below the 25th percentile for staffing. The reason for the low staffing position likely relates to the decentralized nature of IT support at Holy Cross. Audio-Visual Services and Educational/Academic Technology do not report to central IT as they do in all but one other Peer school.
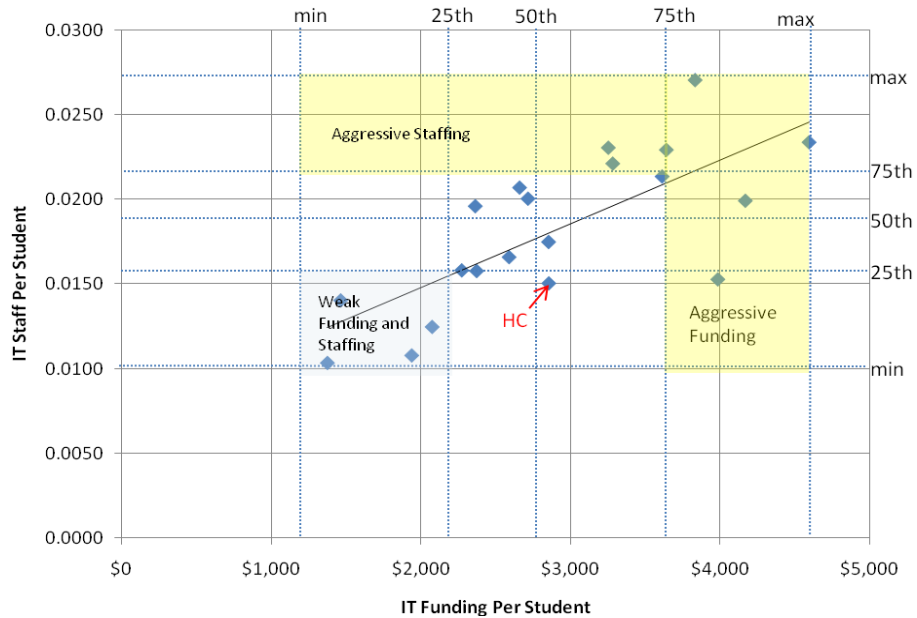
Figure 1. CDS 2008 Data Comparison for HC Peer List

Holy Cross allocates six percent of its total campus expense to IT (including capital funding).
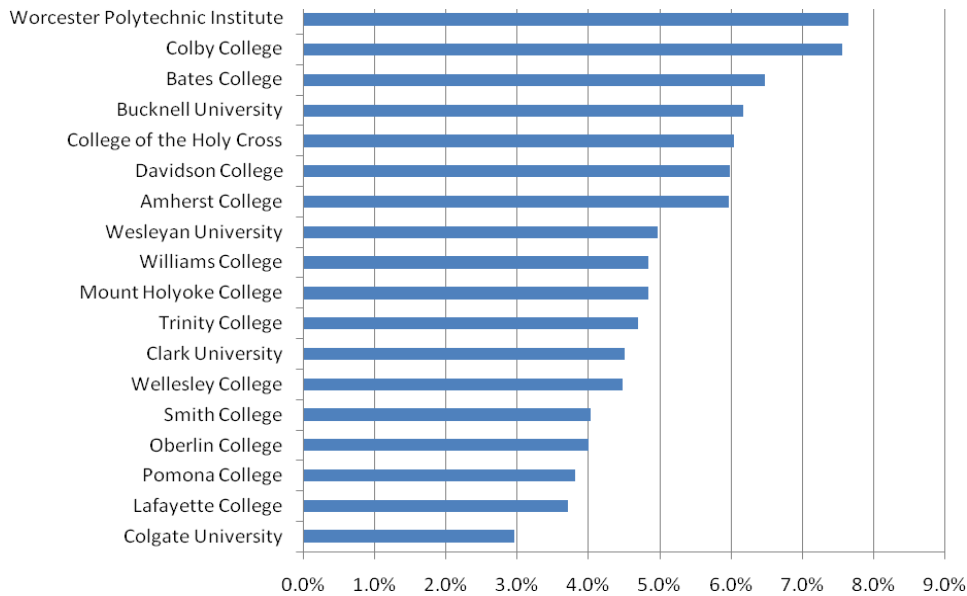
Figure 2. IT Funding as Percent of Institutional Budget

Spending

The two figures below show the allocation of operating ($6.5M) and capital resources ($1M) for FY10.
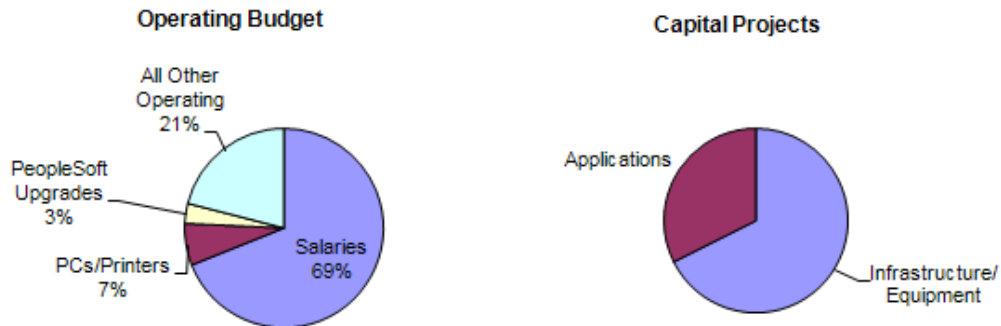

Figure 3. Budget Allocations FY10

All ITS spending accounts ended the year under budget.

Governance and Advisory Committees

The IT advisory committee structure is well-established, providing input to and receiving direction from the central IT Steering Committee, comprised of the President, all Vice-Presidents, and the Director of ITS (see Figure 4). The advisory committees, whose members are drawn from across the College, counsel on IT policy, architectural standards, PeopleSoft, administrative systems, emerging and educational technologies. The functioning of this governance structure was favorably reviewed by the NEASC visiting team this year.

Figure 4. IT Advisory Committees

Staff Resources

The ITS department employs 43.5 FTE in four major areas: Technology Support, Network and Operations Services, Applications Development, and Change Management

& Training. With the rapid pace of technology change and the complexity of technologies on campus, it is crucial to have highly skilled staff. Some ITS staff highlights include:

- The average length of professional experience of ITS staff is over 17 years.

- More than two-thirds of the staff hold degrees in technology or related disciplines.

- One third of the staff hold professional or technical industry certifications, such as in information security and advanced programming.

- ITS staff are frequent presenters at regional and national conferences, such as the AJCU and CLAC IT conferences, Linux World, and NERComp. ITS staff are often quoted in technology industry publications on topics of IT security, new technologies, and IT leadership.

- Several ITS staff hold board positions with professional organizations (Consortium of Liberal Arts Colleges Board of Directors, Consortium Trainers Committee Chair, Open Security Foundation Board of Directors). Others have held board positions in the past.

- ITS staff serve on the College's Community Standards Board, Emergency Response, and Postvention teams. Staff participate in other community activities, such as employee cookouts, midnight breakfasts, and Masses.

Staff turnover was minimal this year, with one staff member retiring and an additional staff position eliminated.

Support of College Strategic Plan

The Information Technology Services department is committed to helping all at the College realize their education, research, and operational goals. We underwent our own strategic planning assessment as part of the College's overall strategic planning and are moving forward on a number of identified areas (wireless, open source, collaborative technologies, others). Further, we continue to partner with other departments at the College that emerged as priorities from the College's Strategic Plan 2007-2011, even as we work to develop a new five year plan for 2012-2016. These include:

- A partnership with the Admissions and Public Affairs department on a new web presence.

- A "Balanced Scorecard" online data management system and a first phase of a divisional data warehouse in Administration and Finance.

- Involvement in the technical infrastructure of the new integrated science complex, such as wireless, high-speed data jacks, expanded computer labs, and new computer equipment.

The ITS Director is part of the Strategic Planning Steering Committee and also the 3-person Advisory Group assisting the Senior Vice President in the development of the new 5-year plan. Technology will likely be a component of most new initiatives that emerge.

Technology Support

The *technology support* team is the department's primary interface with the Community. Feedback about customer service shows a high level of overall satisfaction with desktop and user support. The help desk generates 772 service tickets per month, on average. The figure below shows that most of our faculty and staff and nearly half of our students used the Help Desk services in the past year.
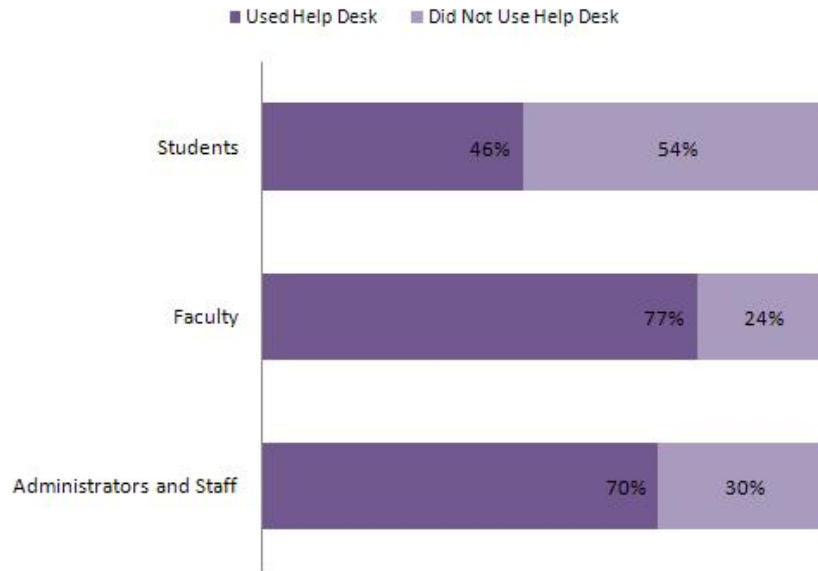
■ Used Help Desk   ■ Did Not Use Help Desk

	Used Help Desk	Did Not Use Help Desk
Students	46%	54%
Faculty	77%	24%
Administrators and Staff	70%	30%

Figure 5. Help Desk Customers by Type

Computers are given to all faculty and office staff. Student ownership of PCs is near 100%, with many students connecting multiple computers, gaming devices, phones, and other systems to the network. Eighteen percent of the College-owned computers are laptops. The Bookstore sells only Dell/Windows laptops to students. We also support Blackberry handheld devices. The figures below show the relative breakdown of College-owned workstations and student devices on the network, by type.
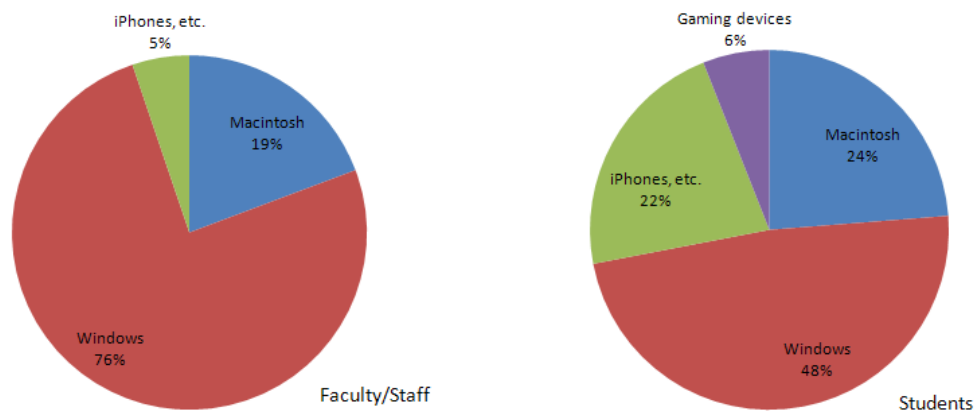
Faculty/Staff: iPhones, etc. 5%; Macintosh 19%; Windows 76%

Students: Gaming devices 6%; Macintosh 24%; iPhones, etc. 22%; Windows 48%

Figure 6. College and Student Computers

In FY10, $20,666 was spent on desktop software licenses, both single user and site licenses, with 85% allocated to academic departments. Additionally, $39,000 in annual support contracts for such things as statistical packages, graphics, and utilities are supported each year.

Software Training
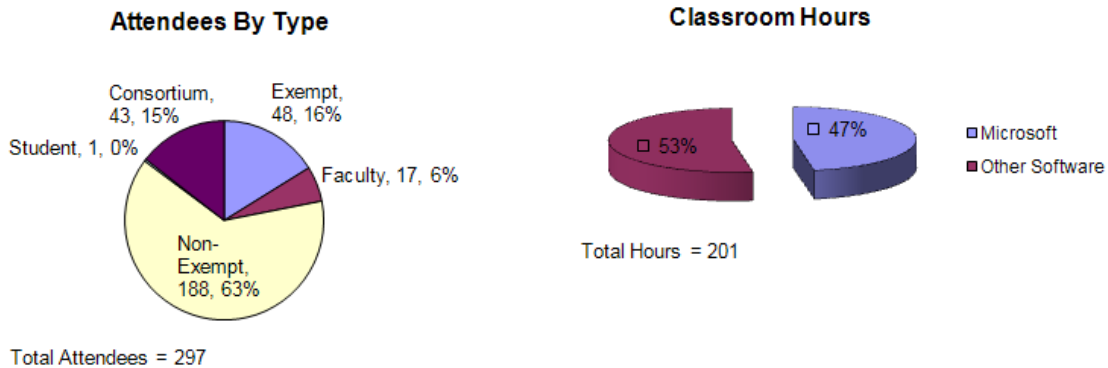Technology training is offered to all constituents of the College

Figure 7. Software Training

Students can use the same online, self-paced training offered to staff and faculty. During the strategic planning discussions, students in focus groups expressed their need to learn skills in spreadsheet, database, and other desktop software programs for employment and graduate work.

Network Operations

The College of the Holy Cross has made significant investments in a high-performance, highly secure network infrastructure. All offices, classrooms, labs, residence hall rooms, and many other locations are wired to the network. Wireless is available in all residence halls, libraries, public spaces, and most academic and administrative areas. Full coverage is expected by the end of the year.

Holy Cross has for years paid significant attention to network security. Intrusion prevention systems, antivirus software, firewalls, and SPAM blockers enabled us to prevent the spread of malware on the campus and help keep the network performing well. We currently block 91% of inbound e-mail because it is SPAM, though spammers still manage to get some junk mail through the filters. This year, a security audit was conducted and significant changes were made to business practices across the College to protect sensitive information in both electronic and paper forms.

Applications Development

The College strives for excellence in technology in support of teaching, learning, and administration. The Application Development staff provides a distinct service by developing and integrating a wide range of complex, disparate, and distributed applications in order to give timely, secured data access to students, faculty, staff, alumni, prospective students, and other constituents of the College.

The Administrative Systems Advisory Group (ASAG) provides governance support, along with the IT Steering Committee, on new applications or major upgrades. All such projects must go through ASAG review and signoff.

Table 1 lists part of the College's IT applications inventory (see the ITS web site for the full list).

Purpose	Vendor and Product
ERP systems for Student, Finance, HR	PeopleSoft
Alumni	Sungard BSR Advance C/S
Course Management System	Moodle (open source)
Events and Room Scheduling	CollegeNET Resource 25, Certain Events
Email	Novell GroupWise
Library	Innovative Interfaces Inc. Millennium
Electronic Reserves	Docutek Information Systems, Inc. eRes
Time tracking & reporting	KRONOS Workforce/Timekeeper Central
ID Card System	Blackboard; DataCard
Card Access	WinDSX
Physical Plant facilities management system	FAMIS
Help Desk	Computer Associates Unicenter Service Desk
Web Content Management System	Drupal (open source)
Management Reporting	Brio Cognos Decision Stream
Bookstore e-commerce	Sequoia Systems (external)
Bookstore system	Missouri Book Systems
Dining Management	Aurora Information Systems FoodPro
Document Management	Perceptive Software ImageNow
Web statistics	Unica NetInsight
Web search	Google

Table 1. Selected Applications Inventory

Change Management

The College's information technology environment is large, complex, and interconnected. The pace of software releases and onslaught of external security threats make it critical to be diligent in security and change management. A change control program has been in place for a decade, with a single manager responsible for oversight. Any changes to a production system go through formal change control review and signoff. Attention is given to user impact, interactions with other systems, operational documentation, and help desk support. Additionally, security reviews are conducted on all major upgrades and installations. Risks and exposures are identified in an initial review, held early in the development process. Security review signoff occurs when all steps to mitigate risks are taken and the remaining exposures are accepted by the data owners. (It is not possible to eliminate all risk.)

Table 2 lists a breakdown of projects for this year.

12 projects continued into FY10 from FY09
42 projects started in FY10
31 projects completed (81% on time)
13 projects will continue into FY11
27 new projects will begin in FY11

Table 2. Projects Summary

Educational Technology

Given our mission, special attention should be paid to the department's support of educational technology. Use of various technology tools, such as our course management system; Internet-connected computers and audio-visual equipment in the classrooms; numerous technology labs; Microsoft Office; and specialized software help our faculty and students reach their educational goals more quickly or more effectively. Use is pervasive, but not generally on the cutting edge. Wireless, Web 2.0, Web-enabled phones, and technology-savvy students present opportunities for new thinking about educational technology.

IT support is less centralized at Holy Cross than at institutions like us. Among our Peer List schools, Holy Cross is only one of two schools where Academic/Instructional Technology does not report to IT (Williams College is the other) and where Audio-Visual reports elsewhere (Oberlin College is the other). It is important that ITS coordinate with these colleagues to offer what support we can for educational technology.

Oversight for educational technology comes from several sources. A team of educational technology staff, reporting to the Library, collaborate with the Technology Support Director in ITS. The Educational Technology Advisory Group (ETAG), with membership from the Dean's office, the faculty, Library, Audio-Visual and ITS, meets regularly throughout the year. The Educational Technology Support Group (ETSG), consisting of those staff across the College providing direct support to our faculty in their use of technology in the classroom, meets regularly.

Trend Watch

An important role filled by the ITS department is to inform and advise the College on emerging technologies and trends in the industry. Technologies must be evaluated for maturity, relevance to Holy Cross, and readiness of the Institution to adopt the new technology or make required business process changes. A "Future Technologies" IT advisory committee convened in late FY09 to advise in this area. Below are highlighted just a few of the items on our watch list.

Open Source applications. A wide range of IT applications fall under the umbrella term "open source," which is meant to designate software licensed for free. Many different models exist for acquiring, installing, and supporting open source products. Commercial vendors may still be involved to add support at a cost. Because of the variety, organizations should be careful when evaluating open source applications. The ITS

department has been using open source software in infrastructure areas for some time (e.g. Apache web servers, Linux operating systems, and security tools). Customer-facing applications in the open source community are gaining widespread use, especially within higher education. The table below shows some of the moves to open source and the associated savings.

Open Source Product	Replaced Product	Cost Savings	Year
OpenNMS network monitoring	CA Unicenter	$50,000	FY08
Moodle course management	Blackboard	$65,000	FY09
Drupal web content	MediaSurface	$8,800	FY10
Mahara ePortfolio	N/A	Est $10K avoided	FY10
JasperSoft data reporting	N/A	Est $150K avoided	FY10

Data Protection. While the College has been aggressive about network security for more than a decade, new Massachusetts legislation greatly raised the bar. As of April 1, 2010, the College needed to comply with a strict set of standards for protecting personal information such as social security, bank account, and credit card numbers. An Information Security Task Force was formed in FY09 and developed written information security policies. The task force met with all departments whose staff have access to this protected and sensitive data; and many changes to business operations were implemented, related to both electronic and paper-based information. Data encryption software was installed on all College laptops that are used to access sensitive data.

Mobility. The College's workforce increasingly needs to stay connected to the IT systems, whether in the office, in the classrooms and labs, at home, or on the road. With widespread wireless access available on campus and off, laptop computers are more in demand, as are "smart phones" such as Blackberrys and iPhones, and other popular devices such as iPads and Kindles. The prevalence of these devices among students, faculty, and staff is causing us to rethink communication strategies.

Going "green". While we already take many steps to ensure we purchase energy efficient computers and related equipment, technology is a major area of focus when thinking about environmental impact. Means to reduce wasteful paper printing, such as moving business processes online and installing print release stations in public labs and libraries, were implemented this year. Reducing waste is both the right thing to do and a potential source of cost savings for the Institution.

Integrated VoiceMail/Unified Messaging. The growing convergence of voice, data, and video technologies continues. A trend in IT is *integrated* or *unified messaging*, where a variety of message formats (phone, email, fax, etc.) are received on a variety of devices through a single system. For example, voicemails can be listened to from an email

system. We have been notified by our voicemail vendor that our current system will end support in 2011. Planning for our next voicemail system has begun.

Outsourcing, Externally Hosting, and Software as a Service (SAAS). Sourcing strategies are a major area of attention these days, and not only in IT. The College has already realized economies of pricing and support by hosting some services off-site, such as our online Bookstore. We moved the entire Bookstore systems to the vendor site this year. We are also watchful of a trend in higher education of moving e-mail to a third-party, such as Google, which offers free e-mail to educational institutions. The current plan is to move student e-mail to Google *Gmail* for the fall 2011 semester. More planning is needed before a final decision is made.

Thin clients. Harking back to the days of "dumb terminals," an industry trend in today's economic climate is to make use of diskless "thin client" workstations. These devices have no local hard drive but connect back to a central server for processing power. In FY10 we deployed two dozen devices across the campus and are planning for further adoption. The potential savings over full PC's is significant.

Department Goals for FY11

In recent years, we have put a lot of effort in managing the number of IT projects so that we can focus on College and department priorities and raise the completion rate on projects. FY11 looks to be a very busy year, with 40 major IT projects slated. It will be a challenge to match FY10's 81% completion rate, which was the highest ever.

Goals for ITS in FY11 include:

- Implement new components of the redesigned College web site, including a digital newsroom and "blog aggregator."
- Finish the implementation of the medical records system.
- Deploy a replacement campus card system.
- Implement MDID open source digital imaging.
- Add parent access to PeopleSoft Student.
- Deploy Windows 7.
- Upgrade: PeopleSoft Tools (all 3 systems), NetWare, Oracle, and the IPS.
- Pilot test the Asterisk open source voicemail and phone system.
- Transition from Brio for web reporting to open source Jaspersoft.
- Finish Admin & Finance data warehouse and begin on second division.
- Increase significantly the number of thin client workstations.
- Implement move of student e-mail to Google's gmail.
- Pilot test an alternative to the current cable t.v. service.
- Finish investment office data projects.

- Implement *ImageNow* document management in Financial Aid, Bookstore, and Dining Services.

- Assist with deployment of data dashboards in Development Office.

Conclusion

Fiscal year 2010 was very successful for the Information Technology Services department. Staff turnover was minimal, all spending areas finished under budget, 81% of the active projects completed during the year (a record), and relationships with our partners across the College were strengthened to help ensure effective use of IT resources. Our goal is to lead the College in the use of technology in support of our mission. Clearly, information technology is having an impact on every dimension of college life and we continue to do our best to add value to the education and research processes of our faculty and students. While it is not possible to predict exactly where technology will advance in the coming years, it is important that, as we move forward into FY11 and beyond, ITS both positions itself to respond to new opportunities and ensures a stable foundation of services and support.