

Annual Report, 2013-2014 Information Technology Services

Introduction

Information Technology Services (ITS) values its role as partner to many at the College in using technology to further the mission of the Institution. In fiscal year 2014, the College moved forward on a number of priority projects, services operated reliably, and customer service levels remained high.

We completed the full transition off Novell technologies to Google Apps and Microsoft Active Directory. Many departments are finding good use of the collaborative tools from Google, such as Google Drive for shared documents and Google Forms for data collection.

As the year progressed, data security became an increasing focus area for the IT department. In March, David Shettler, information security officer, gave the College's Cabinet its annual state of data security briefing. He emphasized the elevated data security threat activity particularly targeting higher education networks. In fact, within two weeks we nearly had a data loss through a new variation of a "ransomware" virus. While no data was stolen from the College, it highlighted the need to raise the bar even higher to ensure that no unnecessary protected data is stored on our networks. Protected data files needed for ongoing processing were moved to more isolated areas than shared network drives. We, like all organizations, have spent decades automating our systems and making it convenient for employees to access business data. With the growing threats from hackers across the globe, it has become necessary to pull back access and add layers of security (and inconvenience). Data owners across the College are working cooperatively with ITS on repositioning ourselves with respect to data storage and access. The Cabinet and Audit Committee of the Trustees are regularly apprised of progress.

The department, in addition to ongoing support activities, engaged in 38 technology projects, with 90% completing on time and 100% on budget. All ITS technology spending accounts finished the year under budget. The department advanced strategic priorities and improved business operations at the College. For example, this year we implemented wireless device projection in all classrooms. Success breeds more ideas for further initiatives in the coming year.

ITS achievements in fiscal year 2014 include:

- Expanded wireless projection capabilities for iPads and laptops in all classrooms.
- Expanded mobile functionality, such as an interactive campus map, and a mobile app for browsing the College Arboretum (<http://arboretum.holycross.edu/>).
- Finished moving of all faculty and staff to Microsoft Active Directory.
- Swapped out the campus storage array network (EMC) over semester break.
- Configured a new podcasting room in the Stein MRC for faculty use.
- Finished the parental access project for STAR.
- Performed upgrades to PeopleSoft systems, McAfee data protection, Drupal, core data switch, Seelos digital theatre system, Helios, Blackboard Connect, Mediat, Titanium, Nice, Arms, Trackpad, Encore and Millennium library services, and other systems.



- Implemented new systems for web filters, Graphic Arts management, Board document management, and expanded the use of the event management system (EMS) to the Registrar's and Transportation offices.

About Information Technology Services

Information Technology Services is a service organization, reporting to the Vice President for Administration and Finance. The department is charged with balancing resources and projects across five areas: technology support, applications development, network operations, audio-visual, 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 in providing essential services to the Community. 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 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 diminish this core aspect of our mission. The ITS operating budget represents a significant percentage of the College budget. It is important that this resource align with its mission.

Benchmarks

Data surveys on technology use in higher education provide valuable comparisons of Holy Cross to other institutions. Figure 1 below shows budget and staffing ratios for the College’s Peer List, taken from the 2013 Core Data Service (www.educause.edu). Holy Cross fell below the 50th percentile in funding and continues to be below the 25th percentile for staffing. The reasons for the low ratios could relate the relatively large student body size and the decentralized Educational Technology support staff (Ed Tech reports to the Library).

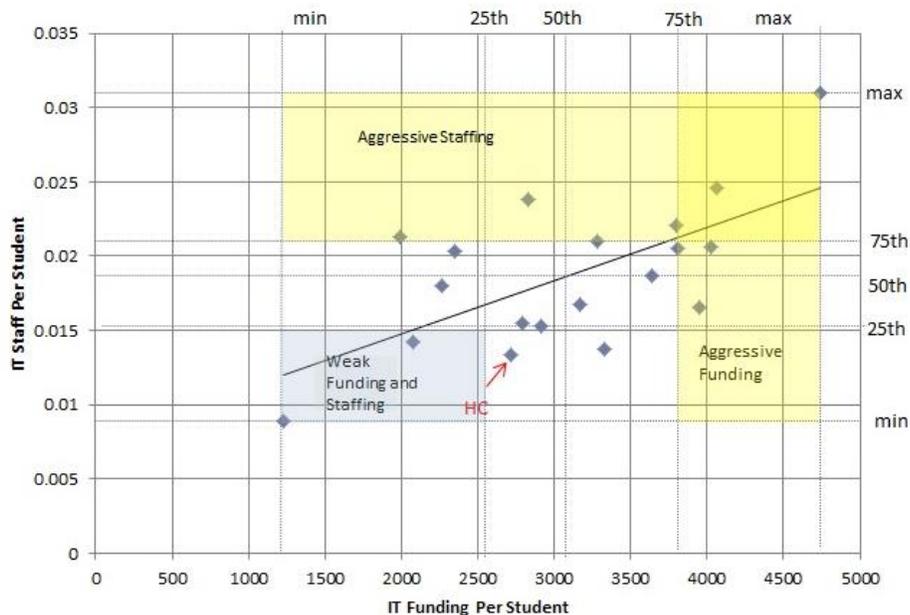


Figure 1. CDS 2013 Data Comparison for HC Peer List

Holy Cross allocates 5.4% of its total campus expense to IT (including capital funding).

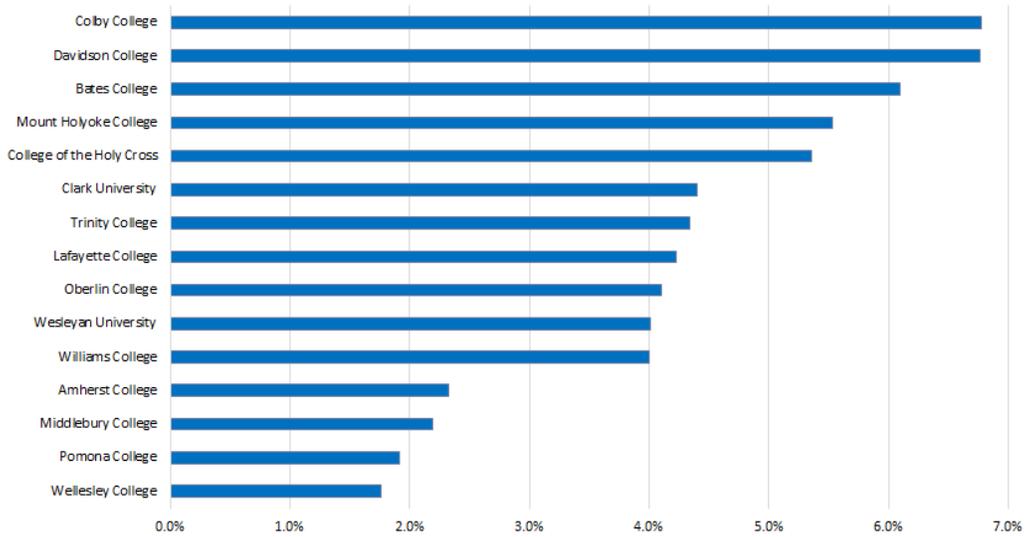


Figure 2. IT Funding as Percent of Institutional Budget

Spending

Figure 3 shows the allocation of operating (\$7M) and capital resources (\$1M) for FY14.

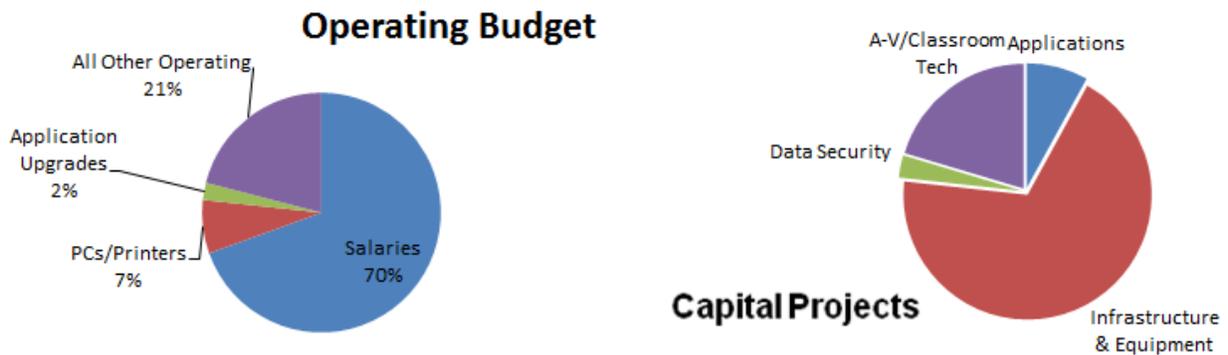


Figure 3. Budget Allocations FY14

All ITS spending accounts ended the year under budget. Adjustments to the PC/Printer and application upgrade budgets were made for FY14, moving approximately \$200K back into to the College's central reserve.

Governance and Advisory Committees

The IT advisory committee structure is well-established, providing advice 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. Forty-one different people from various College departments sit on one or more committees.



Figure 4. IT Advisory Committees

Staff Resources

The ITS department employs 45.5 FTE in five major areas: Technology Support, Network and Operations, Applications Development, Audio-Visual, 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 20 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, or hold board positions with professional organizations.
- ITS staff frequently present at regional and national conferences and ITS staff are often quoted in industry publications on topics of IT security, new technologies, and IT leadership.
- ITS staff serve on the College's Community Standards, Emergency Response, Environmental Task Force, and Postvention teams. Staff participate in other community activities, such as employee cookouts, midnight breakfasts, and Masses.

Staff turnover was low this year. One employee retired from the College after 25 years. A former employee returned to ITS and a new Help Desk Specialist was hired.

Support of the College Strategic Plan

The Information Technology Services department is committed to helping all at the College realize their education, research, and operational goals. We continue to move forward strategically with IT initiatives, such as moving services to "the Cloud" and reducing paper processes through business workflow redesigns. We partner with other departments at the College on priorities from the Strategic Plan 2012-2020. The President added a strategic initiative for "Technology in the Classroom" and, working with the Dean of the College and the Educational Technology group, ITS is a key participant. This year we installed a podcasting

room, expanded wireless projection to all classrooms, offered seminars to faculty on a variety of topics, and began the investigation into a video management system, planned for this fall.

Technology Support

The *technology support* team is the department's primary interface with the Community. Customer service feedback shows a high level of overall satisfaction with support. The help desk generates 578 service tickets per month, on average. The figure below shows that three quarters of our faculty and staff and one third of our students used the Help Desk services in the past year.

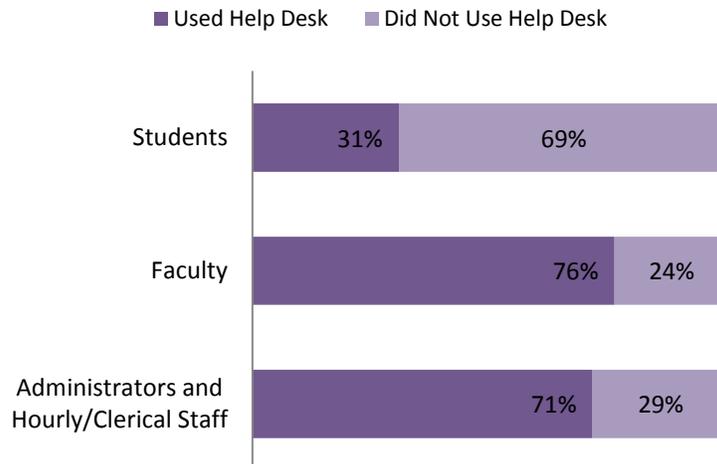


Figure 5. Help Desk Customers by Type

Computers are given to all faculty and office staff. Student ownership of computers is near 100%, with many students connecting multiple computers, gaming devices, phones, and other systems to the network. Smartphone and tablet usage has increased significantly for students. The Bookstore sells HP laptops to students. Twenty percent of the College-owned computers are laptops.

In FY14, ITS spent approximately \$16,000 on desktop software licenses, almost all for academic departments. Additionally, \$70,000 in annual support contracts for such things as statistical and graphics packages are supported each year.

Software Training

Technology training is offered to all constituents of the College, including orientation for each new employee on IT and data security policies at the College. Students can use the same online, self-paced training offered to staff and faculty. New online HR forms required a large percentage of the training hours this year. Google Apps and security topics continue to be popular.

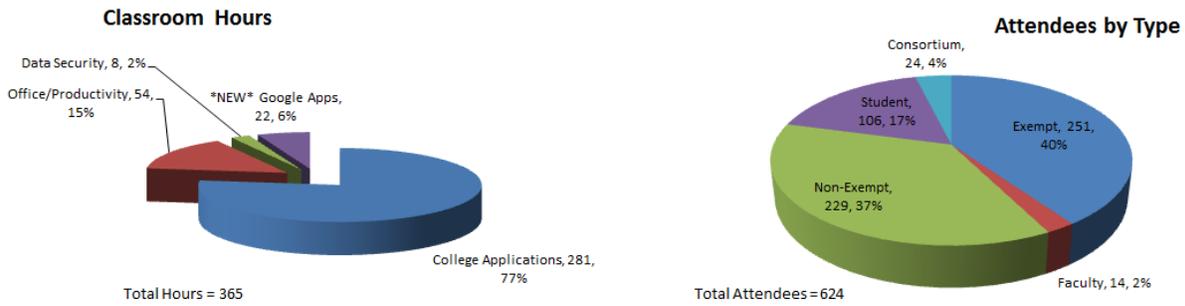


Figure 6. Software Training

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 other locations are wired to the network. Wireless is available across the campus. In FY14, we completed a multi-year move from Novell networking software to Microsoft Active Directory. We are seeing improved service levels and system uptimes since the change.

Information Security

While the College has been aggressive about network security for many years, particularly since MA law 201 CMR 17 passed in 2010, the number and complexity of threats is greatly expanding. Our obligations for protecting personal information such as social security, bank account, and credit card numbers is greater and the attacks are growing. Figure 7 below shows a 50% increase in the rate of new strains of malware last year. Intrusion prevention systems, antivirus software, firewalls, and SPAM blockers help prevent the spread of malware on the campus and keep the network performing well. Mandatory employee training on IT security is in place. Under the direction of our Information Security Officer (ISO), we implemented a number of new data protection systems for data encryption and archiving, data log analysis, system patch management, and compliance tracking. The ISO does extensive outreach to user departments and delivers a briefing to the College Cabinet once a year.

One hundred percent security is not attainable, however, given the dynamic nature of technology. As mentioned earlier, the College was victim to an attack that nearly compromised protected data of our Community. And so, while we have spent years automating our business systems and processes with convenient access for employees to the data they require in their jobs, we are now pulling back access and introducing additional layers of protection. Further, we are “sweeping” network drives and local hard drives for files containing protected information and either deleting them or moving them behind additional protections. Lastly, we are hiring an additional staff person in ITS dedicated to information security administration. This is a moving target, but we will do our best to ensure proper protections and business practices are in place.

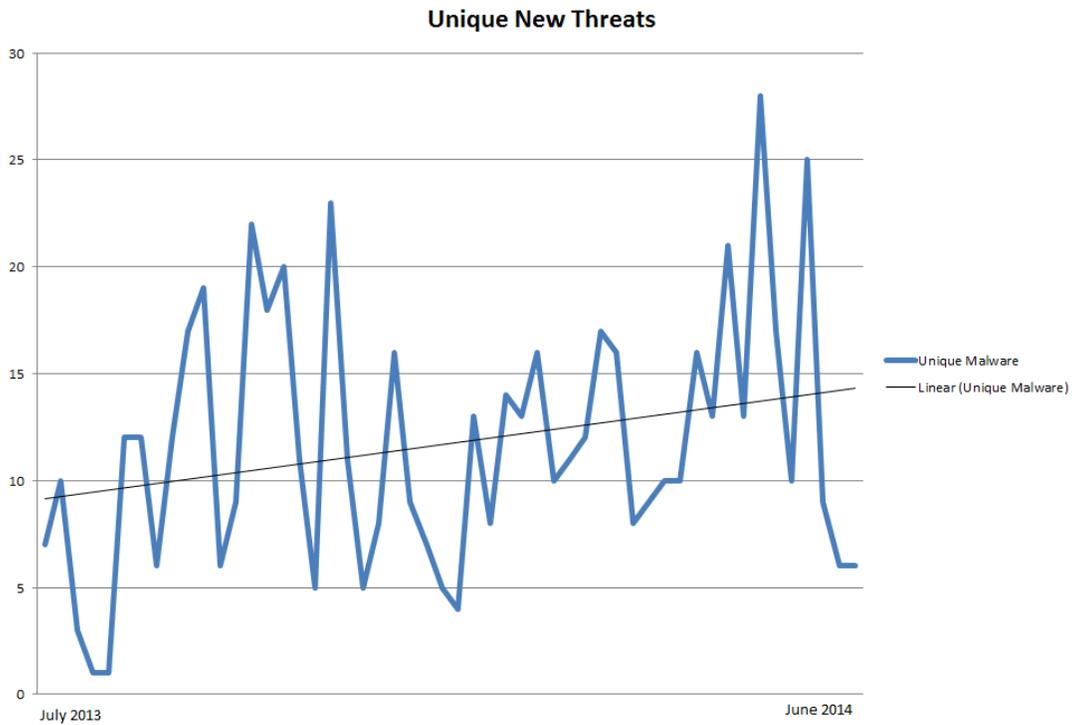


Figure 7. Data Security - New Threats

Applications Development

The College strives for excellence in technology in support of teaching, learning, and administration. The Application Development staff develops and integrates a wide range of complex and distributed applications to give timely, secured data access to students, faculty, staff, alumni, prospective students, and other College constituents.

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	Oracle/PeopleSoft
Alumni	Ellucian Advance C/S
Course Management System	Moodle (open source)
Events and Room Scheduling	Dean Evans EMS, Certain Events
Email, Calendar, Collaboration	Google Google Apps for Education (Cloud)
Library	Innovative Interfaces Inc. Millennium
Document Management	Perceptive Software ImageNow
Time tracking & reporting	KRONOS Workforce/Timekeeper Central
ID Card System	Heartland; DataCard
Physical Plant facilities management	FAMIS
Help Desk	Samanage.com Samanage (Cloud)

Web Content Management System	Drupal (open source)
Management Reporting	JasperSoft (open source), Cognos Decision Stream
Bookstore e-commerce	Sequoia Systems (externally hosted)
Bookstore system	Missouri Book Systems (externally hosted)
Dining Management	Aurora Information Systems FoodPro
Graphic Arts management	PrintSmith
Web statistics	Unica NetInsight

Table 1. Selected Applications Inventory

Change Management

The College’s information technology environment is large, complex, and interconnected. The pace of software releases and the onslaught of external security threats make it critical to be diligent in security and change management. A change control program, with a single manager responsible for oversight, is well-established. 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.

16 projects continued into FY14 from FY13
25 new projects started in FY14
30 projects completed in FY14 (4 canceled)
8 projects will continue into FY15
38 new projects are planned to begin in FY15
90% of projects completed in FY14 were on time
100% of projects completed in FY14 were on budget

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, computers and audio-visual equipment in the classrooms, numerous technology labs, 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. Smartphones, iPads, Cloud services, and technology-savvy students present opportunities for new thinking about educational technology. As already mentioned, technology in the classroom is one of the President's additional strategic plan focus areas. iPad pilot projects were run in the past two years, equipping two dozen faculty with iPads for use in the classroom. Six participants taught spring courses

where all the students were given an iPad and appropriate apps. Numerous workshops were offered collaboratively by Ed Tech and ITS.

Oversight for educational technology comes from several sources. The Educational Technology director and her staff, who report to the Library, collaborate with Technology Support staff in ITS. The Educational Technology Advisory Group (ETAG), with membership from the Dean's office, the Center for Teaching, the faculty, Library, Ed-Tech, and ITS, meets regularly.

Trend Watch

An important role of ITS 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 our readiness to adopt or make required business process changes. A "Future Technologies" IT advisory committee advises in this area. Below are highlighted just a few of the items on our watch list.

"The Cloud": Outsourcing, Externally Hosting, and Software as a Service (SAAS). Sourcing strategies are a major area of attention these days, not only in IT. While "the Cloud" can mean a variety of things, generally it indicates that services are provided over the internet rather than from software installed on an organization's premises. Arrangements can vary from a dedicated hosted site, to a shared hosted site, to a broadly distributed service hosted across multiple, redundant sites (e.g. Google). Table 3 lists our current inventory of Cloud services, as broadly defined above.

Service	FY Implemented	Service	FY Implemented
Google Apps for Education	11 & 13	Samanage Help Desk Ticketing	13
Heartland OneCard Payment	11	Blackboard Connect	08
InterviewExchange recruitment	07	Bookstore e-Commerce	05
Athletics ticketing and recruitment	13	eBoard Books	13
Google search for HC web sites	13	Certain event registration	09
Artstore	12	University Health Plans (insurance waivers)	14

Table 3. Cloud Services

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 use, as are other mobile devices such as iPhones and iPads. A survey of incoming first year students shows 96% ownership of smartphones (82% iPhones). The prevalence of these devices among students, faculty, and staff is causing us to rethink communication strategies. In FY14, we again offered an iPad pilot project explored the use of iPads in the classroom. Many of our business systems are mobile-enabled. Our campus map is now mobile friendly. In FY15 students will be able to monitor laundry machines and place orders to dining locations using their mobile devices.

Application	Mobile-enabled?	Application	Mobile-enabled?
Moodle – Course Management	Web/Mobile	Gmail	Web/Mobile
EMS Conf Svcs	Web/Mobile	Campus Events Calendar	Web/Mobile
STAR/HR/Finance	Web Only	AdvanceWeb	Web/Mobile
College Website	Web Only	Campus OneCard	Web Only
III Library Application	Web/Mobile	Online Student Health	Web Only
Student Combinations	Web/Mobile	Student Employment Guide	Web Only
Campus Directory	Web Only	Cross Listings	Web Only
eRes	Web Only	Kronos	Web Only
SAMange Help Desk	Web/Mobile	eZuce voicemail	Web Only
Alumni Web (iModules)	Web Only	SaderLink	Web/Mobile
Crusader Connections	Web/Mobile	Mailbox and Room Combination	Web/Mobile
Campus Arboretum	Web/Mobile	Campus Google Map	Web/Mobile

Table 4. Web and Mobile College Applications

Business Process Redesign and “Paperless” initiatives: The College has significantly reduced its paper printing in recent years. Networked printing dropped another 7% from last year and is down 57% in 5 years. Some of that reduction is due to the numerous online projects in the past couple of years, including online bills, online pay stubs, first-year forms, student insurance waivers, housing preference forms, a near paperless Admissions process, and a new set of online program application forms that include workflow. We hope to undertake one major project each year to further reduce our paper usage on campus.

Technology in the Classroom: As mentioned, the President acknowledged an important trend in higher education when he added “Technology in the Classroom” as a strategic priority to the College Strategic Plan soon after arriving at Holy Cross. Many top tier institutions, including liberal arts colleges, are exploring new methods for teaching and learning with technology. One example is the “flipped classroom,” where course content is delivered through technical means such as course/video management systems, podcasts, or electronic documents, outside of the class meeting times so that students and faculty can spend valuable class time engaging together with the course content. In a sense, the lectures are outside of class and the “homework” is brought inside (hence a “flipped classroom”). In the coming year, we are implementing a video management system to make it easy for faculty to create videos to supplement lectures. Uses include explanations of particularly complex topics, additional exercises and examples, and perhaps full lectures. Also, in collaboration with the academic departments involved in CreateLab, we will re-architect the 7x24 computer lab to support team collaboration and innovation using technology.

In his message to the Community, Fr. Boroughs explained that “we have begun to explore what it means to employ technology to enrich our signature liberal arts experience. Our focus is on projects that allow faculty members and students to augment and improve their current courses in order to teach and to learn in ways that would have been impossible without advanced

technological support but are still delivered in a format that relies on face-to-face interaction.” ITS looks forward to working with others at the College on this important set of initiatives.

Department Goals for FY15

The number of active IT projects continues to be very high, with 46 planned for FY15. Each College division continually looks for ways to improve its operations through technology. We will need to prioritize these projects and sequence accordingly, with particular emphasis on ensuring that our College faculty and employees can absorb the changes and adapt their work processes. We've seen significant change in the IT systems at the College and the pace for new IT processes is aggressive. We need to discern the proper speed at which new technologies should be adopted so that our College operates with currency and according to best practices, without unnecessary risk from too rapid change, such as system instability and staff stress.

Goals for ITS in FY15 include:

- Roll out the online training video service, LyndaCampus, to the Community.
- Implement the new video capture system, Panopto, with emphasis on faculty use.
- Assist College Marketing and Communications with the new web site redesign.
- Continue to enhance IT security systems and operationalize protected data file sweeps and remediation. Onboard the new information security administrator.
- Implement new mobile systems for laundry tracking and dining location orders.
- Renovate the O’Kane 7x24 computer lab with mobile furniture, collaborative spaces, projection, and laptop hookups.
- Finish implementation of new guest wireless network, implement 802.11ac wireless, and finish the video camera expansion project.
- Implement a new Athletics ticketing system.
- Expand use of the collaboration features of Google Apps.
- Perform upgrades to Famis, PeopleSoft HR, ImageNow and other systems.
- Upgrade A-V systems in Biology, Kimball, and Hart Center.

Conclusion

Fiscal year 2014 was very successful for the Information Technology Services department. All spending areas finished under budget, 90% of projects completed on time, and relationships with our partners across the College were strengthened as we ensure effective use of IT resources. We are partnering on a new level with the Dean’s office and Educational Technology in support of technology in the classroom initiatives. 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 FY15 and beyond, ITS both positions itself to respond to new opportunities and ensures a stable foundation of services and support.