2016-17
Annual Report

Information Technology Services

Carleton

KEY INITIATIVES

Preparing Students:
Helping to equip students with the skills and experiences they need in order to be successful throughout their academic careers and into their lives after Carleton. See pages 4 and 12.

Enhancing Teaching & Learning:
Providing consultation as well as technological infrastructure and tools to support faculty, students, and staff to advance scholarship and provide an exceptional liberal arts education. See pages 6, 8 and 12.

Financial Efficiency:
Being good stewards of the College's resources, seeking to balance costs and efficiencies with individual needs. See pages 6 and 10.

Embracing Collaboration:
Seeking out areas of collaboration within the department, across campus, and with other institutions in order to enhance services and maintain costs. See pages 4, 8 and 12.

People Effectiveness:
Increasing the capacity of every member of the Carleton community to function efficiently and effectively through technological tools and infrastructure. See pages 6, 8 and 10.

Process Effectiveness:
Facilitating campus workflows, technology automation and procedures to support smooth and effective processes. See pages 4 and 10.

Janet Scannell
Chief Technology Officer

This year, we celebrated the founding of Carleton as "the dream of Minnesota pioneers who understood that human knowledge is the real frontier."[1] I like to think they would be intrigued to see the ways in which technology has become an essential tool in how that human knowledge is created, analyzed and stored. As Carleton recognized in its 2012 Strategic Plan, "technology at Carleton is ubiquitous, expensive, and subject to continual rapid change." This report is an opportunity for Information Technology Services (ITS) to make visible its role in supporting Carleton's educational mission.

This has been a busy year at Carleton and in ITS. We started the year with a new email system, supported the design and implementation of the numerous construction projects, launched two-factor authentication to protect critical Carleton data, and implemented cloud solutions for file storage and alumni volunteer management. In addition, we launched a redesigned IdeaLab and mini-Maker Space, used Virtual Reality technology to visualize an historic Carleton airplane, and co-led the development of the new Carleton Undergraduate Bridge Experience (CUBE) to enhance the math skills of entering first year students. These and the many other stories in this report illuminate the breadth and depth of technology services at Carleton and the growing collaborations between ITS and our campus partners.

Collectively, these projects paint a picture of a changing role for IT services. Like banking and shopping before us, there is now more opportunity for community members to do "self-service" technology adoption. Carleton is using more cloud-based web services, in some cases to replace on-campus technologies and in some cases to expand the range of available services. These trends provide a way for Carleton to keep pace with the growth of technology, and they necessitate an evolution in the relationship between technology adopters and technology advisors. The need for collaboration is higher than ever.

With the rapid rate of change in the world, it is important for us to catch our breath, be transparent about our respective needs and challenges, reflect on which explorations were fruitful and which weren't, and continue seeking opportunities to engage with promising new technologies. All of us in ITS are available to provide partnership on that journey.

1. From the program of Carleton's Sesquicentennial Commencement

Janet Scannell

EVOLUTION OF TECHNOLOGY SUPPORT

Over the past four years, ITS has made several significant changes in order to provide better direct support to the community. Providing good support to roughly 3000 clients is our most important responsibility. We are constantly evaluating how needs are changing, where we are successful, and where we are falling short and need to adjust.

Carleton, like most Liberal Arts colleges, built its help desk on student staffing. In that model, the students are the first point of contact and are trained to resolve a wide set of issues. When needed, they put the client on hold to ask a supervisor for advice. Sometimes this results in transferring the question directly to the supervisor who may restart the interview process. A few years ago ITS implemented a call center system that routes faculty and staff extensions to professional staff members and an elite group of Senior Level student technicians, and we continue to configure and tweak this system to streamline our support operations. For example, this year, we learned of a bug that led to a limbo waiting state in some circumstances; it should be fixed by the start of Fall Term. In general, this more nuanced model has worked very well in having our most experienced staff working directly with users to triage their technology needs.

We also implemented a text message alert for quick notification of any large technology outages on campus, using an "opt-in" feature within Carleton's e2Campus. This provides rapid notification about outages by introducing a proactive communication option.

Carleton's web team has seen a great deal of change in its support model over the past few years, shifting from a "help me fix this broken thing" model to increased emphasis on "help me learn to help myself" scenarios. The introduction of a comprehensive Reason user documentation website in 2012 helped users find answers to most common website editing questions. This online tool was supplemented by weekly "Web Wednesday" drop-in help sessions, as a way to meet users where they are and offer on-the-spot consultations. To expand the audience, Web Services recently launched an effort called "House Calls" — two-hour visits to rotating academic buildings for face-to-face web help. During one recent House Call, Doug Bratland met with Tami Little from Geology to envision a replacement for job listings tacked to a Bulletin Board. He helped Tami to create and learn how to maintain a newsletter that's easily shared across multiple web platforms. There are several ways these visits surpass a phone or email exchange: it's easier to review design options, troubleshoot problems and — most importantly — develop collaborative relationships.

ADDITIONAL ACCOMPLISHMENTS IN THIS AREA:

- Created 20 Tip of the Week posts to support the campus through the move to Gmail. They used text and video to demonstrate topics such as: "Working with multiple Google accounts" and "Busy search with Google calendar." Visit go.carleton.edu/recs.

- Ushered in a valuable new way of working with our clients by collaborating with more than 40 campus staff members as "Super-Heroes" who guided their offices and departments through the email transition.

- Created phase one of a self-service "Catalog of IT Services." The catalog describes current services, why to use them and names the ITS contact. In FY18, ITS will add more topics and links to "how-to" articles in Carlpedia.

- Redesigned the Student and Faculty/Staff Gateways to provide quick and personal access to the most commonly used Carleton websites and tools. Features were driven by usage stats. Process included prototypes and usability testing.

KEY INITIATIVES:

Embracing Collaboration

Preparing Students

Process Effectiveness

19 Web House Calls and **30** Web Wednesdays

10,141 # of Helpdesk tickets closed in FY17

☺ **98.1** % of staff and faculty were satisfied or somewhat satisfied with the resources to support the move to Gmail

5 e2Campus alerts for outages

5

WHO
KNEW?

Few of us know how complicated it is to improve health care, rewrite the tax code, or to provide a great technology infrastructure; ITS can't help with the first two, but we can shed a little light on that last one! As part of the email migration, we offered users the chance to extend their username to get their full last name or to choose another name option such as "firstname@carleton.edu" or "myinitials@carleton.edu." It sounds easy, but is it?

Username changes are orchestrated by our Identity Management Specialist, Les LaCroix, who schedules one hour with the client, during which their account is unavailable. At "go" time, Les notifies the user and begins a domino-like process. First, he turns off all automatic syncing so information is not transmitted out of order, which can lead to duplication and other complications. Then, he updates the central database and manually syncs a few critical systems, like Google, which will later share this change with even more accounts.

Next, other ITS staff may be called upon to make manual changes. Matt Lauer (Web Services) updates Moodle and Reason. Sande Nissen (Systems/Infrastructure) manages unique printing configurations. For Colleague editors, Sara Oster (Enterprise Information) updates their account. Vicki Deering (ResLife) is notified for student accounts and makes Residence updates, and Alumni accounts involve yet other changes by different staff members. In the meantime, Les manually updates as many as ten unique systems like Dropbox, Web Help Desk, and mailing lists, to name a few. Finally, he re-enables the automatic syncing. Because of the myriad changes, no more than two accounts can be modified simultaneously.

So is all of this worth it? Jessica VanZuilen would say yes. She was one of the people who opted to change her username this year, adding "en" to her original "jvanzuil" account. The challenge of being account-less for an hour, she said, was worth it, as it has significantly improved communications with external colleagues and vendors who now make fewer mistakes with her name. ITS would say yes as well, knowing that Jessica and 24 others have benefitted.

ADDITIONAL ACCOMPLISHMENTS IN THIS AREA:

- Analyzed the WiFi environment to improve the user experience. While walking the length of campus, your wireless-enabled device will see and negotiate connections with 30+ access points. ITS and a consultant have been tuning our infrastructure to provide as seamless a connection as possible.

- Contracted to spend $750K to replace 80 Multi-Function Devices (MFDs). In 2011, the College budgeted for a 5 year replacement, but due to their excellent durability ITS was able to defer for a year. This maximized return on investment and supported environmental sustainability.

- Packaged software applications for lab and individual computers. Each update involves ordering from vendors, managing & distributing license keys and building & configuring for Carleton. The application bundle is applied to Macs upon log-off and to Windows over Breaks.

KEY INITIATIVES:

People Effectiveness

Financial Efficiency

Teaching and Learning

5,826,821
Pages printed by the Carleton community

8900
Number of Carleton devices on Eduroam using 740 WiFi access points

16
Miles of Cat5E data cabling in the Weitz Music addition

300
Unique software titles in use across campus

REIMAGINING WITH GOOGLE AND DROPBOX

Carleton began its move from self-hosted email and storage services to Dropbox and the Google suite of services both to find a way to reduce the overhead involved in maintaining our own servers and because of a strong desire to put more power into the hands of our community. The integrated nature of the Google apps, combined with the power of a modern email and cloud-based storage systems, enable the Carleton community to reimagine how we accomplish the various daily tasks we all have. One powerful example is the change the Registrar's Office has made to how it builds the Academic Catalog.

The Catalog undergoes numerous changes every year, ranging from minor wording tweaks to changed departmental major requirements. Each academic department is responsible for determining what changes their information needs, and the Registrar's Office is responsible for approving all those changes. In past years, this involved each department sending a marked-up printout of their current catalog text to Ann May in the Registrar's Office for review and approval; since the changes were literally scribbled into the margins, this was a challenging and time-consuming task.

Last spring, Ann called the Helpdesk and told Kendra Strode that she knew there had to be a better way to do the Catalog refresh. Ann and Kendra worked together to create a process using shared Google Docs to distribute the current catalog text to each academic department; the department admin was then able to edit the text in place, making any changes immediately obvious. This sped up the approval process, as well as sparing Ann hours of work interpreting and typing hand-written changes. Ann is very pleased, because the time and effort of refreshing the catalog has been greatly reduced, and there are many fewer opportunities to introduce errors into the text.

This same type of rethinking has gone on all around campus. The division of External Relations has re-organized their files using a role- and project-based methodology rather than departmental reporting structures, reducing redundancy and making it easier for people in different departments to collaborate. The Treasurer's division has capitalized on the ease of sharing files to keep everyone more abreast of project developments and progress. Faculty have more options for collaboration both within Carleton and with colleagues at other institutions.

Over time the increased flexibility of cloud-based systems will continue to allow large and small shifts across all aspects of the work of the College.

ADDITIONAL ACCOMPLISHMENTS IN THIS AREA:

- Defined a standard, provisioned structure for electronic committee files, using Google Drive, in consultation with the Faculty Affairs Committee (FAC) and the President's Office.

- Provided improved and easier-to-use calendaring tools, which has led to increased calendar usage, as notifications for important meetings across campus and student advising appointment slots.

- Enabled Carleton faculty and staff to more easily share files and folders with off-campus collaborators using Dropbox and Google Drive.

- Defined a "file management steward" role to cultivate departmental knowledge about the implications of self-sharing of files with on and off-campus collaborators. Worked with 42 stewards to define information management plans to facilitate greater efficiency in storing and finding shared information.

KEY INITIATIVES:

People Effectiveness

Embracing Collaboration

Teaching and Learning

150
Hours of consulting with department File Management Stewards

250
Training participants

1224
Third-party Google extensions installed

15.5
Terabytes in Dropbox and

16.5 TB
in Google Drive

ENHANCING EFFICIENCY

Matching a departmental workflow with just the right applications and infrastructure sets everyone up for success. Using these tools, departments can gain maximum efficiency, break down barriers, allow for better collaboration, and make workflows more understandable and transparent to all who are involved. One prime example from this past year occurred when Student Financial Services (SFS) overhauled their system for receiving and processing multiple kinds of sensitive files. Together with ITS, they thought through their entire process from beginning to end, mapping out their series of reproducible tasks, approvals, information processing, and further actions or notifications triggered by previous actions.

This collaboration between Mike Kotchevar, Kris Parker, and Russ Bauer resulted in the adoption of ShareBase, another tool from the creators of the OnBase system already employed by many departments on campus. Student Financial Services now has a series of interactive steps built into ShareBase that allow Carleton to collect and process sensitive documents securely, automating many of the actions along the way, integrating easily with central systems of record on campus, and leaving a full audit trail. And for students and parents the process is much easier as well, offering electronic signatures and easier file submission.

Having tools in place to leverage workflow electronically and automate many of the necessary steps is a critical part of the Student Financial Services operations. ITS works hard to match practical, maintainable tools to existing needs around campus, facilitating efficient work within and between departments and good stewardship of campus resources.

ADDITIONAL ACCOMPLISHMENTS IN THIS AREA:

- Developed a Volunteer Portal to facilitate Alumni fundraising. It is receiving rave reviews; 44% of alumni gave during important giving times, citing a specific classmate contact as their motivation.

- Streamlined printing and copying processes to be managed by a single system, PaperCut. This consolidation centralizes the management of fund allocations and removes the need for CBORD terminals for photocopying.

- Developed a way to electronically share grade reports with faculty, saving 80 hrs/yr in IRA and the Dean of the College office.

- Created OnBase workflows spanning academic and administrative departments to provide notifications when advisees go on a leave of absence or for the purpose of processing external proposals for grant funding, yielding reduced paper usage and enhanced collaboration and transparency for all workflow participants.

KEY INITIATIVES:

Process Effectiveness

People Effectiveness

Financial Efficiency
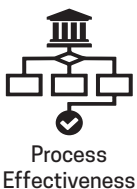
3500
St. Olaf devices connected automatically to Carleton Eduroam

350,000
Pages scanned by Student Financial Services during migration to OnBase

56,000,000
Revised pieces of information in the data warehouse for high level reporting

ENHANCING TEACHING AND LEARNING

Groups within ITS often work together to achieve the curricular and research goals of Carleton faculty. One such project took place this past Winter term when Academic Technology (AT) teamed up with the Systems and Infrastructure Group (SIG) and the Web Services Group (WSG) to repair and further develop the software that underpins a long-running, classroom-based research project conducted by Political Science professor Tun Myint.

Tun's project relies on software to run a multiplayer game to help students better understand the economic theory known as "the tragedy of the commons." In this game, students work in randomized groups to manage a shared renewable resource. Outside the formal classroom, students have also used the game as a basis for their comps, and Tun, too, has relied on the game in some of his research. However, the software stopped working and Tun was unable to use the game in class or for research.

Working together, Bryan Reed from SIG, Tom Brice from WSG and Andrew Wilson from AT determined that both the server running the project and the aging software frame-work on which the project was built were presenting problems. After updating the server, ITS staff completely reworked the software code base, bringing it up to date with current web technology standards. Now Tun and his students are again able to conduct their scholarship.

One of our primary goals is to have groups like AT, WSG, and SIG partner with faculty to facilitate teaching and learning. Capitalizing on experiences like the one with Tun not only directly supports the work of faculty, but also provides an opportunity for us to present and publish. This in turn encourages future collaboration with Carleton faculty and contributes to the higher education technology profession at large.

ADDITIONAL ACCOMPLISHMENTS IN THIS AREA:

• Collaborated with LACOL peers (The Liberal Arts Consortium for Online Learning) to develop and test online materials designed to enhance student quantitative skills.

• Spent 224 hours with faculty, staff, and students painting, walking, playing, and teaching within Virtual and Augmented worlds.

• Wrote 38,314 lines of code to redevelop Language Lesson, moving it away from Adobe Flash to a modern web-based system. Language Lesson is designed to facilitate oral language practice for our students.

• Mentored four student coaches for CUBE, Carleton Undergraduate Bridge Experience. These coaches logged more than 500 hours supporting incoming Carls during a summer online course for quantitative reasoning.

KEY INITIATIVES:

Preparing Students

Embracing Collaboration

Teaching and Learning

37 Teaching with Technology events

70 Instructional videos with captioning

3.3 Kilometers of plastic filament used for 3D printing

48,413 Moodle Activities created

FOUNDATIONS OF THE FUTURE

As we plan for the next 150 years of Carleton—or even the next 10—we know that technology will be part of the story. It will continue to be "ubiquitous, expensive and subject to continual rapid change" as well as exciting, imperfect and evolutionary.

We can't predict specific innovations in advance, but we can guarantee that the process will involve many experiments. Some technologies will become essential very quickly (cell phones), some will fade (Google Glass) and some will have an impact and then be replaced (AOL).

ITS will continue to support our campus colleagues in using technologies that further their work and our mutual goal of providing an excellent education to our students.

HERE ARE SOME OF THE PROJECTS UNDERWAY IN 2017-18:

- Finish the move from local storage to cloud storage. This includes COLLAB, COURSES, PROJECTS, COMMITTEES, Webpub and Course mailing lists.

- Begin the move from the Reason Web environment to a WordPress-based environment, with modular data interfaces to campus information systems.

- Pilot the LACOL Q-bit approach to improving student quantitative skills.

- Modernize current password policies to better protect Carleton data.

- Explore, with St. Olaf, the options for next generation Helpdesk software.

- Conduct the bi-annual MISO satisfaction survey.

- Begin a review of the future of Carleton's Enterprise Software Systems.

GETTING SUPPORT

To check whether an ITS service is down (or was within last 24 hrs):
https://apps.carleton.edu/campus/its/

For help with a work-stopping issue:
Call: x5999

For help with an urgent classroom issue:
Call: x7070

For help with a non-urgent issue:
Visit: http://go.carleton.edu/servicecatalog
Email: helpdesk@carleton.edu
Call: x5999

To sign up for e2Campus technology alerts:
- https://apps.carleton.edu/emergency/service/
- Select "change modification settings"
- Select "groups"
- Click to subscribe to "ITS Emergency Notifications"

To discuss an idea or get connected to specific expertise:
Contact any of the ITS managers or
Janet Scannell, CTO, at: jscannell@carleton.edu

ITS INFORMATION TECHNOLOGY SERVICES

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