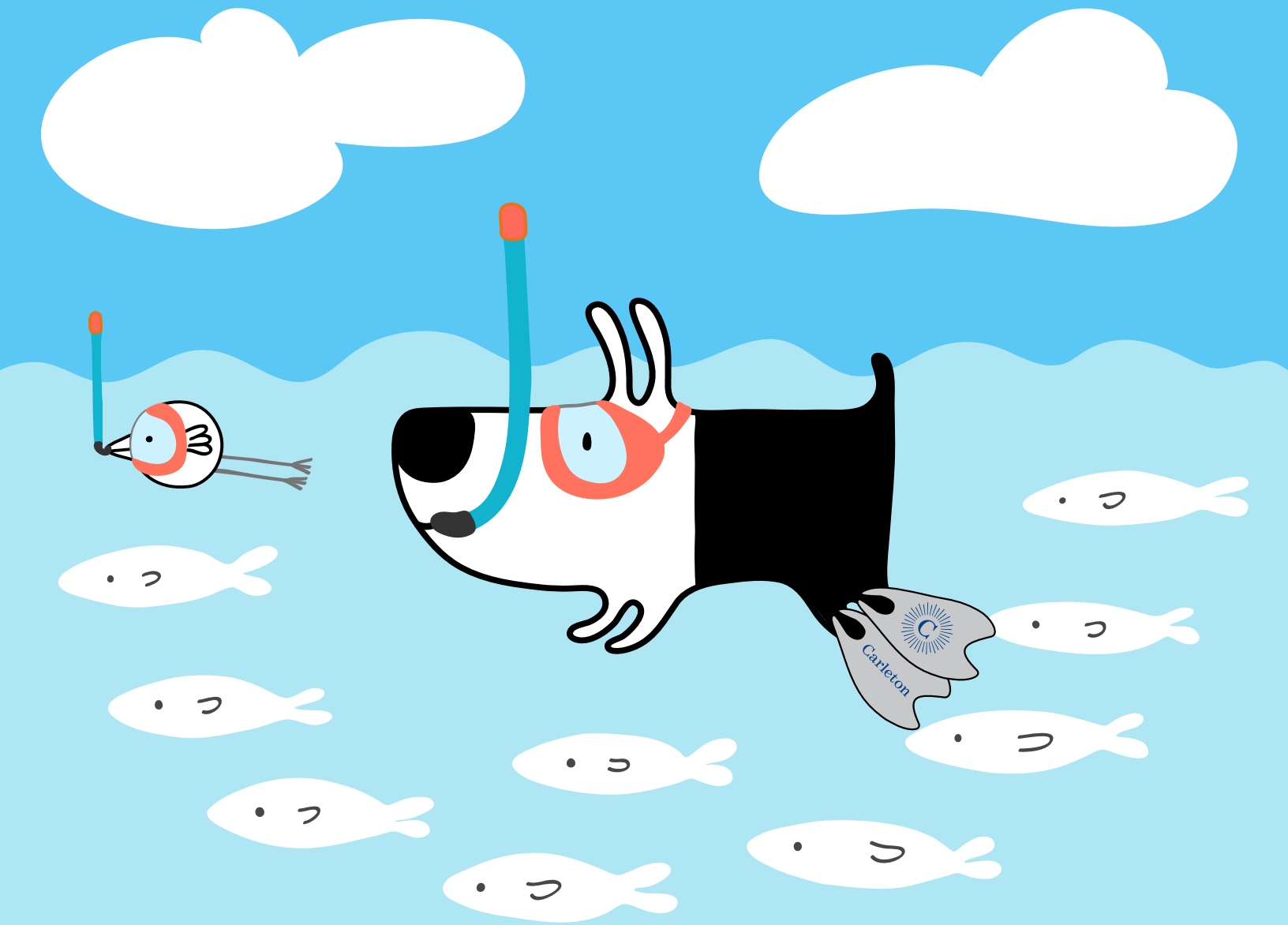
annual report 2021 - 2022



information technology services

from the cto

Welcome to the 2021-2022 ITS Annual Report!

This past year was a continued period of rapid innovation for Carleton, including those of us in Information Technology Services. In this Annual Report we will share stories and statistics that highlight key activities over the past 12 months.

The adaptations that started in Spring Term of 2020 required the use of new technologies that could facilitate learning and working without everyone being in the same location. While that period brought very abrupt and dramatic changes, this year showed that the adaptations weren't slowing down. If anything, the number of variables in learning and working digitally has increased.

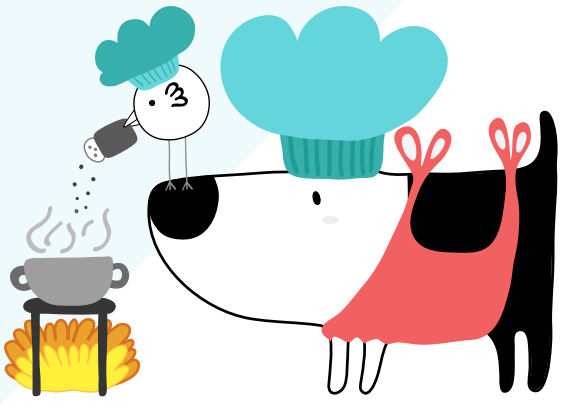
In last year's annual report I offered five lessons that could frame our approach to the role of technology in the post-pandemic world. Here is an update that highlights new lessons and opportunities in our rapidly changing world.

Acknowledge that technology is here to stay. The Carleton community has come to rely on videoconferencing as a normal part of what we do. Over the past two years, ITS has shifted nearly $100K from the server and telephone infrastructure budgets to pay for Zoom, Panopto, Hypothes.is and other new academic applications. If this shift becomes permanent, then an associated re-calibration of support will be needed.

Embrace technology as a means to an end. These new pandemic applications deliver multiple benefits, such as the ability to host remote speakers in real time, record meetings or lectures for later use, and annotate texts collaboratively. A big software, data, and process project like the Workday implementation is about creating efficiency in conducting the business of running a college, with a focus on a smoother experience for our students.

View technology knowledge as a continuum. Every member of the Carleton community has increased their skill level with technology over the past year. The types of tech questions being asked are different, and our role as partners has changed. For instance, rather than asking whether to use a technology, more community members are now coming to ITS already knowing how a technology can help them and are seeking specific support.

Identify opportunities for scaffolded learning. One of the benefits of the rapid reliance on technology was the transformation of options for support. ITS staff used more drop-in sessions and screen sharing. Across campus, co-workers and colleagues provide mutual support, and the opportunity to learn new ideas, by building on one another's current tech knowledge.



Agree that technology literacy is important. The past two years have shown us that technology has become a necessity. Our students need to be tech fluent and well-educated about how to leverage technology. In addition, they need to know how to engage technology ethically. We have an opportunity to move forward equitably so that **all** of our students are prepared for the future that is to come.

Over the past year, the **ITS Diversity Task Force led four significant efforts**:

- Task Force members became early adopters of campus IDE initiatives and leaders within the department.
- The department held a discussion of "Race After Technology: Abolitionist Tools for the New Jim Code" by Ruha Benjamin.
- We requested diversity statements from the two consulting firms that were finalists to support Carleton on our Workday implementation. We were particularly interested in the diversity of the consultants who were likely to be working with Carleton.
- We broadened our candidate pools by putting more emphasis on the skills we are seeking rather than specific credentialing that may not be available to all qualified candidates.

We also started considering the difference between *selecting* among "fully qualified" candidates rather than *seeking* the historic goal of a "best qualified" candidate. It's a complex issue and one we will be discussing over many months, if not years.

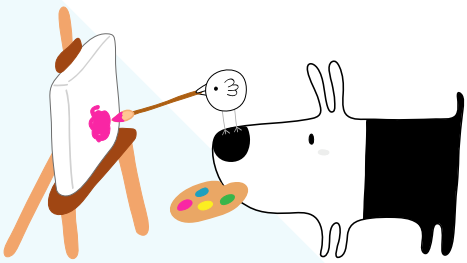
Another effort that started this year and will last for multiple years is the **SEAMS initiative**, a campus-wide project to create a more seamless administrative experience for Carleton faculty, staff, and students. The Workday implementation is the cornerstone project, which will consolidate many processes by replacing Colleague, The Hub, Benefits Connect, PageUp, Bswift, and several custom applications that were written in Reason. In addition, the SEAMS umbrella also includes the implementation of a new course catalog (Acalog), an industry-leading solution for financial aid (PowerFAIDS), and integration software (SnapLogic) that will replace a heroic amount of manual scripting. SnapLogic was selected with campus partners, and will be used to streamline the transfer of information between the growing collection of cloud applications that serve department-specific needs across campus.

The "working digitally" section of this Annual Report illuminates the migration of the college's web presence from **Reason to WordPress**. Web Services (ITS and College Communications), along with many members of the entire community, transferred or archived hundreds of websites. In addition, ITS staff rewrote or replaced dozens of custom applications, including ENROLL, the Campus Catalog, and Reunion Registration. Carleton has been well-served by Reason, starting with a vision for what the web could provide at a time when the commercial options were limited and/or expensive.

The running of a technology infrastructure can sometimes be invisible, as it should be. This Annual Report serves the purpose of making sure that the efforts of Carleton's ITS staff members are indeed visible. My thanks to them, and to you, for your partnership and accomplishments over the past year.

Janet Scannell

Learning digitally



Carleton is committed to creating individualized and equitable learning experiences for all students. Over the past year, ITS has increased the availability of mobile technologies, providing more options for students to be immersed in learning in more places.

Ubiquitous network & devices

To make ubiquitous access to the network possible, the Systems and Infrastructure staff have expanded and upgraded the existing network infrastructure. We added redundancy to our wireless controllers and will be increasing coverage in student housing spaces. This year we surpassed 1000 wireless access points. College leadership made permanent the Student Stipend Program which provides laptops to low-income students. The ITS Helpdesk expanded support for the growing number of laptops, including more repairs and loaners. Helpdesk student workers understand the issues their peers are experiencing, making it easier to provide support and to get students back to the work of learning.

Accessible content

The college now has ways to meet the challenges of providing online content that is truly accessible, no matter where students and faculty are and what device they use. Seemingly small measures are steps on the path to designing learning experiences using **Universal Design for Learning (UDL)** principles. Common steps we've supported during the past year include:

- Captioning videos for people with hearing or language differences, which also benefits learning in spaces where sound could be distracting.
- Creating headings in Word and Google Docs for people who use screen readers, which also provides an overview of the document content.
- Adding alternate text (alt text) to images for people with vision differences, which also makes web content accessible for those with poor internet connectivity.

Academic Technologists, the Learning and Teaching Center (LTC) and the Office of Accessibility Resources (OAR) offer support for UDL. Self service is available online from Web Services' *Creating Accessible Websites*, a collection of tutorials that highlight online accessibility features, including those in WordPress.

Lifelong learning

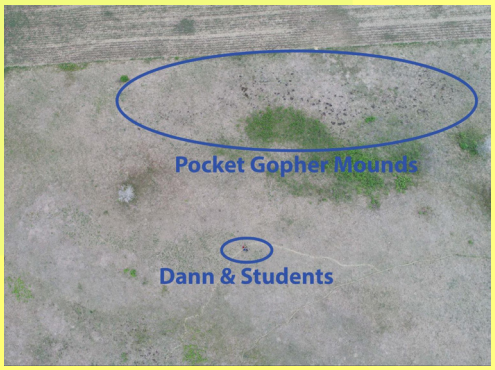
The strategies we have been using over the last two years to improve access to learning can also be used to improve how we work, and how we learn for our work. All of this takes us to the future — how will each of us benefit from these tools to continue growing our own technology literacy?

Students can create and share knowledge with their fellow students and, in some cases, the rest of the world, wherever they are, at any moment in time.

To support Carleton's aspirations for educational excellence, we all will be learning digitally in ways that are known and not yet known.

Stephen Mohring's rigged OWL camera allowed students to join in a walkthrough of an art exhibit, even if they couldn't be there in person, or to have the artist join the class virtually in the gallery, moving from one piece to the next. Stephen designed the approach and worked with Michael Decker to test and improve its functionality.

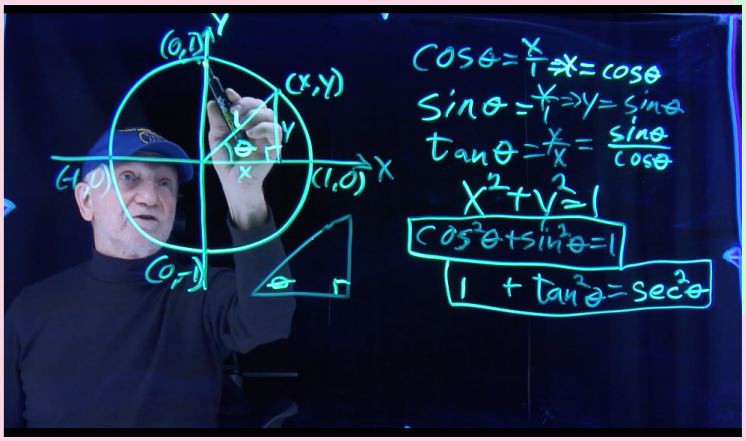
Mark McKone and his students wanted to view and analyze vegetation distribution, patterns of pocket gopher burrows, and deer routes through Carleton's arboretum. They worked with Dann Hurlbert who is licensed to fly the drone that was used to accomplish these goals.



CodeCheck makes it easy to create programming assignments that students can complete right in their browser. The assignments are automatically graded and seamlessly sync to the Moodle gradebook.

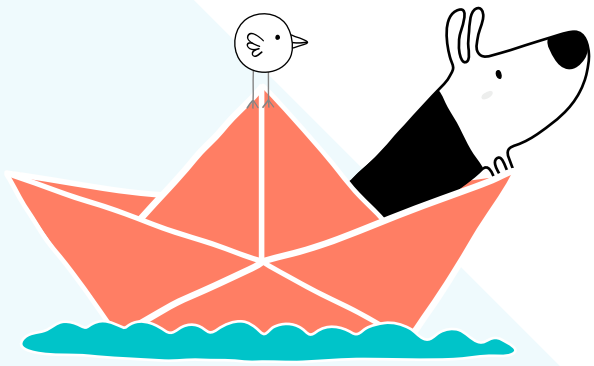
"An important aspect of learning how to program is to practice doing it. It's my belief that CodeCheck has been helping students get more coding practice, in a more engaging way, than how I was teaching previously."
Dave Musicant

Kelly Fisher '22 compared virtual and physical experiences of walking through the Grand Canyon for a class assignment on the feasibility of using a virtual environment as a substitute for the physical environment when that physical experience is not possible. Em Palencia, together with Sam Johnson-Lacoss '24, ensured a smooth adventure.



As Carleton faculty and staff have become more comfortable shifting from paper and pencil to video over the last couple of years, more people are embracing the opportunity to produce videos that make information available from anywhere at any time. Russ Petricka recently captured six basic math concepts using Carleton's lightboard and will make them available on the Math Skills Center website.

working digitally



For 20 years, Web Services developed the Reason content management system to meet a growing set of web-related needs. Over time, that system became very complex, fragile, and difficult to maintain while the available alternatives got better. Moving to WordPress, a migration that started in 2017, addresses these problems and allows us to leverage a world-wide community of collaborators.

An overarching goal of the transition was to make this move forward without leaving people or information behind. A challenging plan was developed, led by Web Services and involving the assistance of many people across campus. After five years, this move is now wrapping up successfully, with over 400 websites migrated, 700 sites archived, 370 custom applications updated, and hundreds of Carleton employees trained.

Major accomplishments during 2021-2022

Campus Calendar — Web Services leveraged the Google Calendar API to create a new WordPress calendar. Five years of past events and all future events were migrated into the new calendar application.

Student Organizations — Student organization sites now live in Presence, a web-based application which gives Student Activities a window into organization activity and membership.

Alumni websites — Alumni Relations has a revamped network site to make it cleaner and easier for Alums to navigate. Web Services also worked with External Relations to create a new Alumni Directory, Update form, and Regional Carls site.

New Student Checklist — Web Services worked with Admissions to move the New Student Checklist from a custom-built Reason application to Slate, which already had a checklist tool for this purpose.

Concluding the Migration in Fall Term

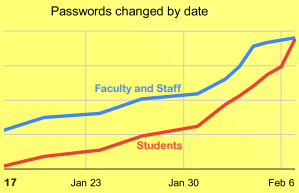
There are a number of sub-projects that are underway and on track to be completed during Fall Term. This includes a new campus map which will be moving to a product (Concept3D) that offers some exciting new features such as a fully-accessible path between two selected buildings. The homegrown digital signage system will be moving to 3rd party software (Carousel), which will make the system easier to use and maintain. The next phase of the New Student Checklist will launch with data integrations that automate parts of the checklist and make it easier for students to work with.

After these remaining custom applications are transitioned to their new functionality, Reason will be put into a state of "soft shutdown" where it's unavailable to the public, but still available to the technical staff for 12 months in the event that something was missed.

This has been a complex and rewarding five-year process of digital transformation. These modern web technologies will enhance our abilities to communicate effectively and share information with all of our diverse communities.

Carleton Username/Password

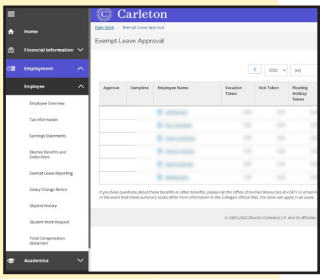
All hands on deck! Faculty, staff, students, and others all changed their password during two months this winter. The whole community came together to accomplish this task.



"Passwords are the first line of defense against a variety of cyber threats, including ransomware. This password reset addressed a large number of old and weak passwords in the Carleton domain."

Kendall George

Mobility and flexible working are here to stay, so faculty and staff computer replacements started being prioritized as laptops. Additionally, the stipend program for student laptops became a permanent partnership between the Dean of Students Office, Student Financial Aid, and ITS to provide equitable access to technology.



In response to sections of The Hub losing vendor support, Human Resources, the Business Office, and the Registrar's Office are working with ITS to migrate those features to a new solution ("New Hub"). This interim functionality will be in place until Workday is fully "live" in about two years.

After removing the printing chargebacks for faculty and staff printing, ITS and Facilities launched a **"Print Smart Print Less"** initiative to encourage an environmental incentive for mindful printing. Nine departments volunteered to participate in a series of activities to monitor and reduce printing. These departments also discussed their big paper-based processes, some of which were able to be automated (e.g., digital signing of invoices).

In advance of Google charging for their digital storage services (starting in January 2023), ITS launched a similar pilot project for files, **"Store Smart Store Less."** We have been gathering a better understanding of where files are stored, who owns files, and how they are being shared after collaborators leave Carleton. In the coming year, we will have tools and information to help manage digital files more effectively, employing a long-term storage service where appropriate.

Gravity Forms has become an important part of the transformational change toward self-service with WordPress. Instead of requesting developer time for most form changes, departments can now make the revisions they need without any wait!

"It's so nice making a form that can look short for simple responses but can grow as needed. The Advanced Fields for name and address are easy to use and make the forms look great."

Amy Gragg

"Gravity Forms has been easy to incorporate into my existing web form needs, and I love a lot of the functionality that I wasn't getting from Reason or Google forms."

Estelle Bayer

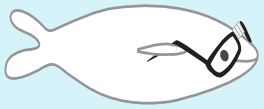
its by the numbers

100% *of IT staff and other users with access to high-risk data completed annual cybersecurity training*

106,206 *meetings in Zoom*

Approximately ***16,000*** *meetings in Google Meet*

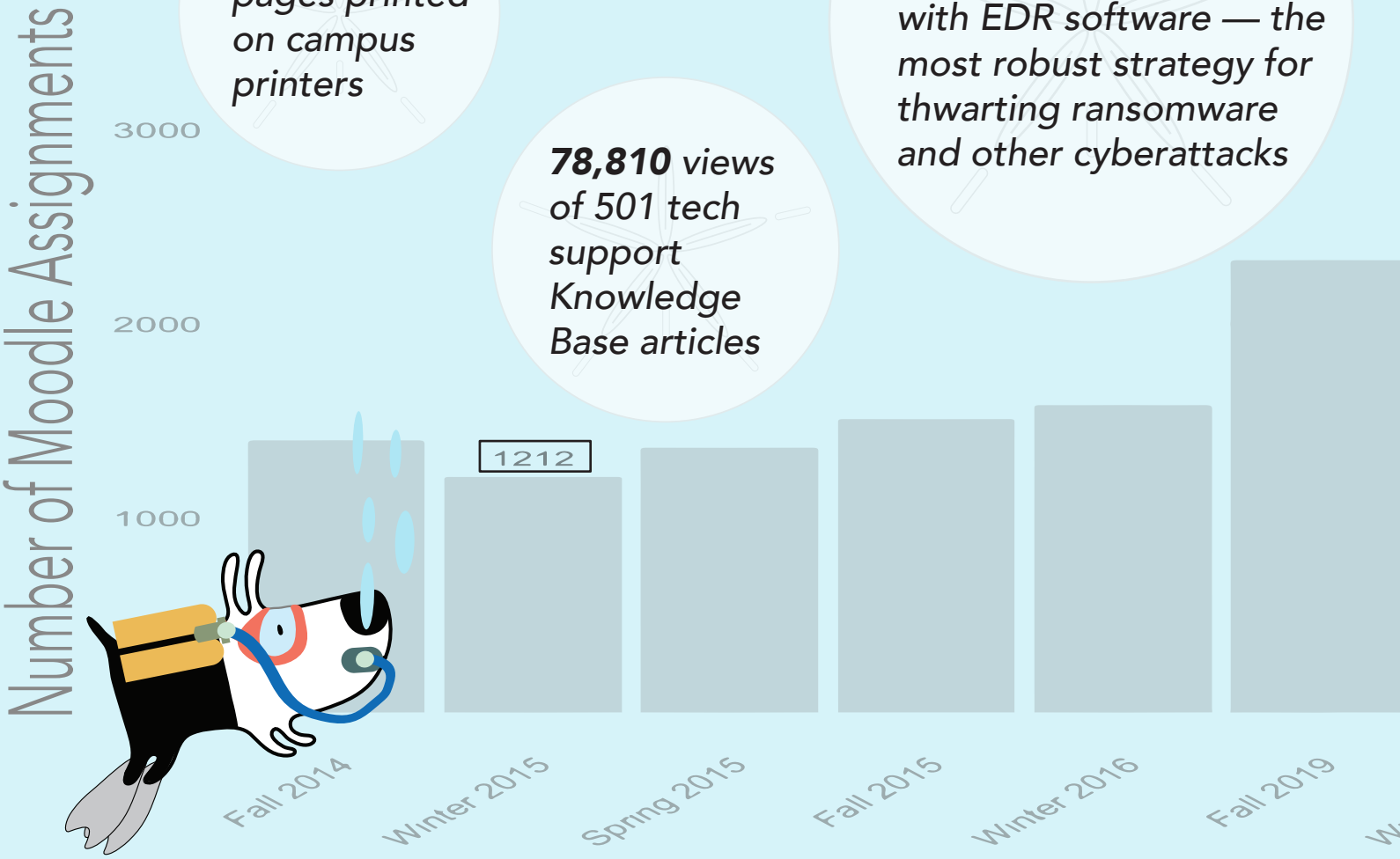
210,120 *images migrated from Reason websites to WordPress sites*



3,140,399 *pages printed on campus printers*

1800 *institutional desktop and laptop computers protected with EDR software — the most robust strategy for thwarting ransomware and other cyberattacks*

78,810 *views of 501 tech support Knowledge Base articles*



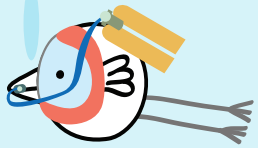
2.57M *logins through Single Sign-On (SSO)*

SSO saved ***90%*** *of those using it from having to re-enter their credentials*

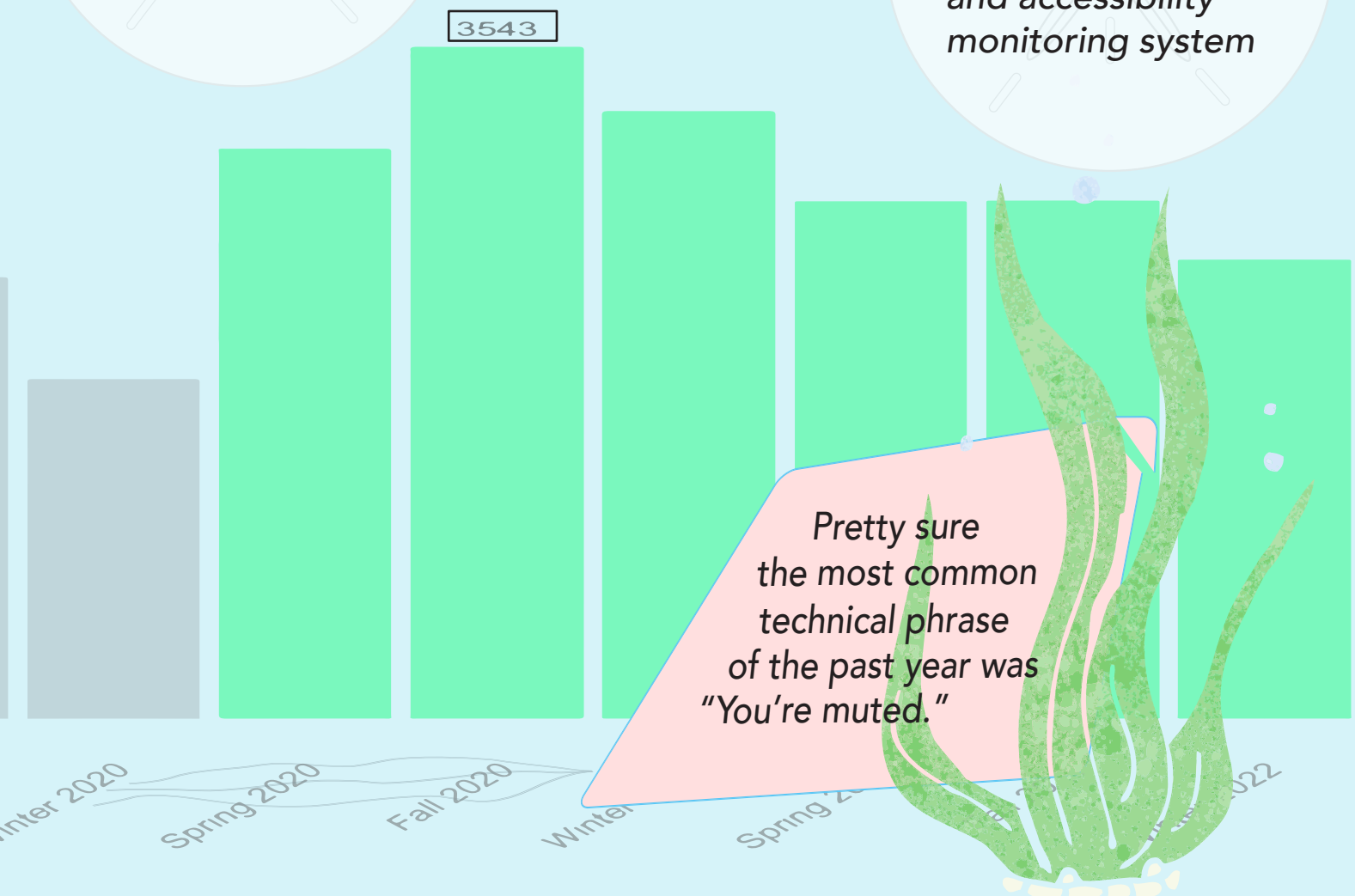
12,637 *new tickets:*

Email: 3,896
Client Portal: 2,863
Phone: 1,963
Chats: 730
Walk-up: 706

Sold 3/8 of the college's IP address space, generating almost ***$1M*** *for the Workday project*



90% *score achieved on DubBot, a website quality and accessibility monitoring system*



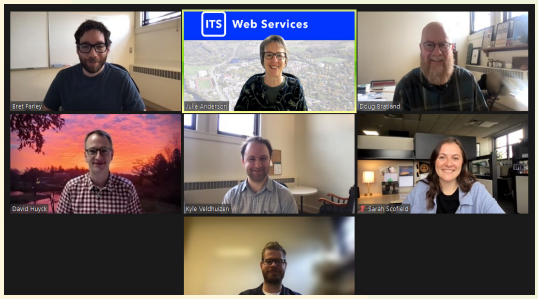
its highlights

The **Technology Purchasing Coordinator** orders all of the hardware, software, and IT equipment for the campus. The **Information Security Officer** is responsible for all dimensions of Carleton's IT security program. The **Senior Project Manager** coordinates the Workday Student project and communications.

- Formed a campus "Change Network" for feedback and guidance on the Workday implementation process.
- Created SEAMS website and communications plan, which includes regular campus presentations and blog updates.
- Deployed next-generation anti-virus (Endpoint Detection and Response) for all institutional Macs and PCs.
- Hired a vendor to perform an "assumed breach" penetration test of our campus network and systems.
- Created an E911 disclosure in response to the new FCC requirement for users of VoIP telephones.
- Managed 1168 technology orders and invoices.

The **Systems and Infrastructure Group** (SIG) builds and maintains Carleton's core technology infrastructure: datacenter, servers, storage, and networking. This includes authentication and identity management across hundreds of applications. SIG works closely with the information security officer to safeguard the systems under our control.

- Started network redesign, for enhanced segmentation.
- Deployed new DHCP infrastructure to streamline devices getting a network IP address.
- Completed multi-year implementation of Clearpass for authenticating user devices on the network. Facilitates students' use of Internet-of-Things (IoT) — Alexa, smart light bulbs, wearable devices, etc.
- Migrated campus faxing from cloud provider to our campus VoIP phone system.



The **Web Services Group** (WSG) partners with all areas of the college to create and support Carleton's web presence. WSG is focused on migrating the college's web sites from Reason to WordPress and identifying the best ways to deliver solutions for more specialized needs.

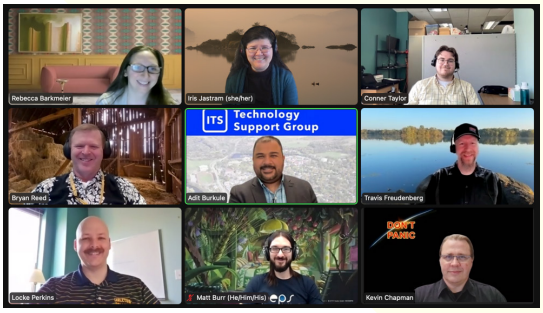
- Launched new campus calendar in WordPress.
- Started a monthly training program on WordPress skills.
- Created new Student and Faculty / Staff gateway pages.
- Partnered with student workers in the DataSquad to implement the Career Pathways visualization in WordPress.
- Worked with Alumni Relations to migrate core portions of their website to WordPress, including their Directory, Update form, Social Login, Farewells, and Alumni Network.

The **Academic Technology** group (AT) consults with the community on current and emerging curricular and research technologies. AT supports all learning and teaching with technology, centering on strategies and tools for inclusion, diversity and equity. They partner with faculty to help integrate digital thinking into the curriculum.

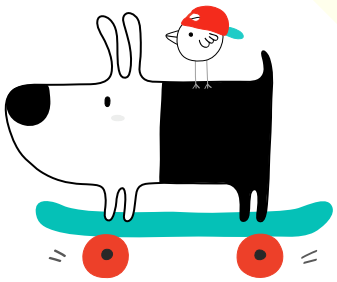
- Refocused the team to emphasize Universal Design for Learning, Learning Innovation, Moodle, and Domain of One's Own (Carleton's web platform for academic uses).
- Led the development of emerging guidelines and strategies to (re)organize digital storage, including Google Drive, Dropbox, and Panopto.
- Built out the classroom support system through just-in-time online tutorials and scheduled tech tours.
- Managed several infrastructure changes to Moodle for improved efficiency and effectiveness.
- Selected for AAC&U workshop series to develop an e-portfolio pilot with the Career Center and the LTC.

The **Enterprise Information Services** group (EIS) administers software applications for campus student information, financials, human resources, document management, reporting, and data warehousing. EIS also provides analysis and process review for interested campus departments.

- Launched the Workday project, starting with Human Resources and Finance.
- Collaborated with technologists throughout campus to set up the SnapLogic integration tool.
- Migrated self-service functionality from the recently-unsupported Old Hub to the temporary New Hub.
- Established campus teams for collaborating on data integration and reporting & analytics.
- Managed the testing of over 1000 Human Resources and Financial business processes during Workday unit testing.



The **Technology Support Group** (TSG) supports Carleton community members' use of technology in offices, classrooms, labs, event spaces, and remote locations. This includes services such as the ITS Helpdesk and PEPS, and functions such as hardware and software purchasing, configuration, and distribution.



- Launched the new ITS Knowledge Base to answer common technology questions for the Carleton community.
- Imaged and deployed over 400 machines to faculty and staff, completing two years' worth of replacements.
- Replaced 200 lab computers, moved or relocated approximately 300 lab machines, and rebuilt 30 lab spaces, returning them to their pre-pandemic state.
- Supported 500+ events through PEPS.
- Implemented the CallTower software system to improve call routing at the Helpdesk, with availability during campus outages.
- Deployed new Apple device management system (Jamf) and upgraded the Windows management system (Kace).

GETTING SUPPORT

For help with a work-stopping issue:
Call: 507 222 5999

For help with an urgent classroom issue:
Call: 507 222 5002

To check whether a service is down:
Visit: go.carleton.edu**/its-service-status**

For help with a non-urgent issue:
Visit: go.carleton.edu**/helpdesk**
Visit: go.carleton.edu**/servicecatalog**

To get technology alerts via text:
Visit: go.carleton.edu**/tech-alert**
Follow the instructions to add your cell number

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

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