

# IT@UofT



**RESPONSE**  
**RECOVERY**  
**RESET**

IT@UOFT STRATEGIC PLAN ANNUAL REPORT

SEPTEMBER 2020 TO AUGUST 2021



UNIVERSITY OF  
**TORONTO**

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## INTRODUCTION

This annual progress report on our IT@UofT strategic plan highlights the work and achievements of University of Toronto's (U of T) Information Technology Services (ITS) and our collaborative efforts with unit and divisional partners for the period of September 2020 to August 2021. In our last update we described our rapid pivot to remote work, teaching and learning due to the impacts of COVID-19. Since then, we have been called upon to continue and evolve our **response** to urgent academic and workplace needs, plan our **recovery** as we return to campus and also **reset** our priorities to leverage digitally enabled workflow and business process capacity gained through transition to online activity. Highlights profiled in this report feature key projects that advance our current strategic initiatives and support our core values. Despite the exceptional challenges we have faced, together with the IT@UofT community, our progress continues.

# Pandemic response

Throughout the 2020-2021 academic year we have been called upon to exercise agility in supporting the evolving teaching, learning, administrative and research needs of U of T as we navigate the challenges of the COVID-19 pandemic. As the University community prepares for re-entry to a hybrid workplace, we are prepared to support this new transition.

## COVID-19 RESPONSE

In response to COVID-19 we enabled workplace productivity, health and safety by providing:

- **Ongoing enhancements** to [UCheck](#) for on-campus health check screening, vaccine attestation and distribution of manager dashboards in response to evolving needs.
- **QR code pilot project** to help with contact tracing in the event of a confirmed case of COVID-19.
- **Additional COVID-19 related services** included a mask distribution app and help desk ticket workflows.

## WORKPLACE SUPPORT

- **Weekly Connect+Learn sessions** targeting end-user training that addresses accelerated University-wide adoption of cloud-based enterprise technologies such as Teams, OneDrive, ROSI and SharePoint.
- **[Electronic Signature Centre of Excellence](#) introduced** to provide resources and guidance for divisions seeking e-signature solutions, including a product comparison table, a solution planning checklist and best practices.

### IT@UofT three-year goal:

Ensure University-wide fluency in using e-communications and collaboration tools.

### Connect+Learn:

Program activity  
September 2020 to  
August 2021:  
- 75 sessions  
- 4,720 attendees  
- Over 600 newsletter  
subscribers



DocuSign

The shift to remote work has impacted almost all aspects of how the University conducts business. The simple act of physically signing a document has become a slow and inefficient process. The [Electronic Signature Competency Centre](#) website, a joint effort between ITS and divisional representatives, was created to share information and guidance for those in need of an e-signature solution. Subsequently, the Enterprise DocuSign pilot project was launched in December 2020 to enable a fast, reliable way to sign documents and agreements digitally on practically any device. DocuSign uses a virtual “envelope” as a container for a set of documents to be processed. Beginning with an initial allotment of 1,000 virtual envelopes, this pilot has graduated to an enterprise offering serving 11,400 envelopes across eight departments at the University.

## PROTECTING INDIVIDUALS FROM SECURITY THREATS

- **Extend the use of a [multi-factor authentication \(MFA\) program called UTORMFA](#)** requiring two different credentials before granting users access to an account to reduce the number of compromised accounts. This industry standard is critical for protecting data, particularly when working remotely.
- **Piloted advanced threat protection** to over 1,200 researchers and senior academics through deployment of additional security features on the Office 365 platform to reduce spam, phishing and spoofing. This cloud-based security solution uses adaptive intelligence to monitor users accounts and flag suspicious activities for investigation, focusing on protecting individuals, which in turn protects the institution.

## ONLINE TOOLS FOR IT SERVICE ACCESS AND INFORMATION

- **Expanded use of the Enterprise Service Centre (ESC)**, also known as ServiceNow, to host all units within ITS as well as 20 divisions and service units from across the University. This transformative initiative allows over 70 distributed support staff to use ServiceNow as an integrated knowledge base and ticket system to respond to approximately 200,000 service tickets per year with an additional 70 People Strategy, Equity and Culture (PSEC) staff handling approximately 40,000 PSEC cases per year. The ESC initiative has been successful in meeting the need for a one-stop integrated service that eliminates the potential confusion of multiple contact points for requests and support.
- **Launched UniversITy Service Catalogue (USC)** in response to requests from the community, aiming to improve communication regarding the breadth of information technology services provided by ITS and improve access through efficient provision of details on availability. The new [USC website](#) has been designed to be extensible to divisional service providers with the objective of creating a unitary catalogue of IT services for the community. With collaboration and data contributed by our IT@Uoft partners, we can now build a user-centred, integrated catalogue of information on both central ITS and local divisional IT services.

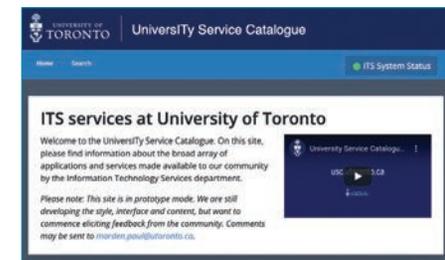
### Metrics August 2021:

#### UTORMFA

- 77.2 per cent of appointed staff
- 19.6 per cent of appointed faculty

// *The ESC building block functionality for automation and streamlining workflows has enabled an agile response to the service demands during COVID-19. //*

Gary Raposo, Manager of Enterprise Shared Services, Enterprise Applications & Solutions Integration (EASI), ITS





## ONGOING SUPPORT FOR COVID-19 REMOTE/ONLINE LEARNING REQUIREMENTS:

The past academic year has seen ongoing high-volume support requests and has required coordination of educational technology professionals, both centrally and through the divisional networks, to ensure agile response to changing needs.

- **Refreshed key platforms in the academic toolbox** to provide enhanced service and meet the new demands around hybrid learning:
  - Web conferencing for teaching and webinars (Teams and Zoom)
  - Computational/data science education (Jupyter)
  - Plagiarism detection solution (Original)
- **In collaboration with the tri-campus community, education technologists developed additional documentation for Quercus tools and guides** for online/remote course design to ensure scalable and ongoing access to asynchronous, self-directed faculty support.
- **Introduced a new accommodated testing services application** for instructors and students, including a requirement for remote exams/tests due to COVID-19.
- **Alibaba Cloud Enterprise Network (CEN)** service continued availability to ensure fast, reliable connectivity for international students in mainland China.

- Total Quercus course shells activated between Sept. 1, 2020 – Aug. 31, 2021: 17,144
- Total learning content added to Quercus between Sept. 1, 2020 – Aug. 31, 2021: 40.1 TB

### **IT@UofT three-year goal:**

Empower educators and learners through broader access to transformative teaching and learning apps and resources.



## ACCESS TO DATA AND CLOUD STORAGE

The ITS team responded to increased reporting needs and extensibility of data storage options in conjunction with a pivot to online activities:

- **Utilization map based on Wi-Fi usage data** rapidly launched in response to COVID-19 space planning needs.
- **Cloud-based technologies leveraged** in response to new demands for Student Information System (SIS) services. New student absence declaration due to COVID-19, live connections for divisional sub-systems, improved reporting for Quali Curriculum Management (CM) and convocation planning tools are contributing to more agile, efficient and convenient remote service delivery with reduced wait times.
- **ITS private cloud infrastructure renewed and expanded** to add capacity to accommodate growth as divisions and units request additional shared computing capacity and data storage to meet the need for new online services, research data and other end user-capacity requirements. Many departments are decommissioning local infrastructure and migrating to shared private cloud services to reduce costs and improve efficiency.

ITS private cloud growth		
	Increase Sept. 2020 – Aug. 2021	Total resource usage at Aug. 2021
<b>Virtual Central Processing Units (CPUs)</b>	▲ 11.5 per cent	8,676 virtual CPUs
<b>Memory</b>	▲ 11.7 per cent	32.1 TB memory
<b>Storage</b>	▲ 35.2 per cent	5.02 PB storage

**Value to the community:** Working together to navigate challenging times enables us to meet our commitment to support students, staff and faculty as we navigate the ongoing impacts of the COVID-19 pandemic. Now, more than ever, personal service and easy access to the tools and resources we need matters most to the IT@UofT community.

# Pandemic recovery

While the community looks forward to the opportunity to return to campus, ongoing reliance on increased remote work options is also anticipated.

## TOOLS AND RESOURCES FOR RETURN TO CAMPUS

In response to COVID-19 we enabled workplace productivity, several new services and programs that support return to campus initiatives:

- **New “Your workplace environment” ITS web page** provides key information and tips for the community in remote working and working on campus. ITS has been preparing for the significant changes anticipated in workplace practices as we return to onsite activities.
- **QLess virtual line management tool** allows virtual line place holding and a text prompt receipt when at the front of the line for a desk or service interaction to alleviate physical distancing issues.
- **Meeting room booking software** leveraged to address health and safety needs for space planning in the coming months as we return to campus.
- **Specialized “Back to Campus” Connect+Learn programming** provided orientation and coaching on tools and technologies that can assist the University community’s return to campus. It offered 23 sessions attended by over 1,000 employees in August 2021.





## INFORMATION SECURITY FOR THE INSTITUTION:

The Information Security team has implemented a transformational five-year plan to stabilize and reinforce our strategies and standards for data security and privacy as we move beyond the emergency remote state. In the face of increased criminal and nation state threats, improvement to foundational ITS security layers include:

- **New remote work security standards** articulated in consultation with the [Information Security Council \(ISC\)](#). During COVID-19, the institution and units accepted certain risks in order to continue to work. However, going forward we must manage and mitigate those risks with additional rigour.
- **Firewall protection for network** through installation of next generation firewall online has been introduced. This is the first such device at the edge of our U of T network and significantly enhances our ability to detect and respond to threats on our network.
- **Incident response practices** renewed given heightened threats of ransomware and other compromises to our data security. A new framework for the tri-campus community is now ISC-endorsed and the Chief Information Security Officer (CISO)-approved to improve consistency in how we respond to inevitable attacks.
- **First divisional data inventory and self risk assessment** completed at the divisional level, providing structure to ensure meeting of policy requirements for managing security and privacy risk.

**IT@UofT three-year goal:**  
Enable a secure computing environment and protected management of information.

## STRENGTHENING ADMINISTRATIVE INFRASTRUCTURE

**Administrative web services (AMS)** achieved significant efficiencies and performance across divisions by revolutionizing current infrastructure framework to ensure a consistent, intuitive and streamlined user experience.

- **Full upgrade of all core SAP systems** to improve speed and reporting for all administrative systems, including the Human Resources Information System (HRIS) and Research Information System (RIS). The project is currently transforming the entire HR Talent Management Suite and the core PSEC, Research and Finance systems and sets the stage for other future updates.
- **Additional upgrading to U of T's Financial Information System (FIS)** to provide a highly responsive transactional and reporting system.
- **SuccessFactors Learning Management System, performance and goals and recruitment** as part of the HRIS implemented to support hiring practices and HR processes across all divisions and units.
- **Fiori Launchpad Reporting** launched as an AMS reporting solution to provide reporting functionality on live AMS data during AMS downtimes including holiday shut down, fiscal year end, pay runs, etc.
- **Updated Expense Reimbursement Direct Deposit (ERDD) web application** introduced using SAP's new interface design principles to provide an updated user interface with improved usability and accessibility.

**Next Generation Student Information Systems (NGSIS)** extended access to integrated platforms to provide timely access to student information systems and data:

- **Cloud based ACORN launchpad implemented**, resulting in tenfold increase in student access time for course enrolment windows.
- **Enterprise-wide student advising platform** was rolled out as a Phase 1 project in partnership with the Faculty of Arts and Science as a proof of concept.



### SAP core infrastructure

Over the past two years, EASI has completed a massive upgrade to FIS, HRIS and RIS, setting the stage for all other future updates. SAP has evolved their technology platform to include innovative core technology with in-memory database capability, and has also acquired market leading cloud vendors, which are now part of their product offerings.



The SAP applications are deeply integrated with a range of internal and external service providers in a decentralized network of approximately 350 core users responsible for financial and PSEC payroll operations across three campuses. We will use the latest SAP technology to upgrade all Administrative Management Systems – providing a consistent and streamlined user experience for all.

- **Timetable Builder** application that allows students to rapidly build an optimized course schedule. The tool builds a timetable algorithmically with the click of a button, based on the courses that students need (and want) to take.
- **Degree Confirmation** application enables prospective employers to verify the credentials of our graduates, minimizing the risk of credential fraud and protecting our graduates from the illicit use of their designations by others.

## COMMUNITY ENGAGEMENT

As we have progressed through the recovery phase, additional online community events and programs to support awareness of new initiatives, staff professional development and cross-divisional information sharing have been introduced.

### IT@UofT outreach

- Improved communications through *In the Loop* newsletter, ITS Tech Talks, Your workplace environment web page, ITS town halls and FAQs.
- Tri-campus information security weekly meetings to share information on key topics and build security skills capacity.
- IT@UofT conference drew 824 U of T staff and faculty and featured 100 speakers in more than 40 sessions.
- EVE Event Management System features enhancements and expanded use for a range of professional development and campus community events.



### IT and administrative leadership consultation

- Renewed Advisory Committee on Enterprise Information Technology (ACE-IT) mandate and identified action items through facilitated process to build shared vision and develop greater alignment across divisional and enterprise IT.
- Engaged divisional chief administrative officers (CAOs) in discussion of emergent initiatives and priority alignment across three campuses.



### EVE Event Management System

[EVE is an online application](#)

developed by ITS Academic and Collaborative Technologies

(ACT) to meet specialized needs for managing events and event registration at U of T. It is designed to facilitate the interaction between event registrants and organizers, allowing users to track their events through their EVE accounts, while organizers can keep registrants up to date with event listings and notifications. The platform is seeing increased adoption by divisions and departments across U of T, including the Centre for Research Innovation and Support. There were 368 events hosted via EVE from September 2020 to August 2021. This is a 24.7 per cent increase from 295 events during the same period the year prior.



## EMERGENT NEEDS FOR DIGITAL TEACHING, LEARNING AND RESEARCH

Innovation initiatives ensure ongoing instructor support in use of digital learning technology, both online and in the classroom, with attention to plans for return-to-campus and hybrid models.

- **Advanced and accelerated capacity to leverage learning analytics**
  - Facilitated planning by activity of Vice Provost Innovations in Undergraduate Education-sponsored Learning Analytics strategy table and prepared Learning Analytics Green Paper.
  - Facilitated program to support instructor use of Canvas analytic data.
- **Educause technology research in the academic community** surveys implemented for first time at U of T, providing valuable insights that informed IT@UofT's actions in our continued response to the pandemic through the recovery stage.
- **Virtual learning strategy projects** initiated with support to participating divisions completing deliverables outlined in provincially funded initiative for content modules, Open Educational Resources (OER), online courses and faculty development resources.

## NETWORK AND DATA INFRASTRUCTURE

Upgrades and enhancements to our wired and wireless network infrastructure are essential to meet demand for sustainable low-cost services.

- **100 Gbit campus core network upgrade:** Upgraded the University's core campus network (connecting buildings together), main campus routers and internet service provider (ISP) connectivity were also upgraded to 100Gbit connectivity to increase data throughput and reduce latency on the network supporting research and administrative activities on campus.



### Virtual learning strategy (VLS) projects

U of T has received approximately \$1.8M through an Ontario Ministry of Colleges and Universities funding program, targeting improved access and innovation to digital resources for our students. As we have learned during the past year, U of T has the capacity to respond to emergent needs for digital resources to address curricular activities across the disciplines. Through the VLS program additional rich learning content will be available to our own students, as well as those at other institutions across the province and beyond, with content development supported by ITS Digital Learning Innovation unit.

### IT@UofT three-year goal:

Leverage alternative service delivery models that can deliver enhanced security, increased agility, improved return on investment (ROI) and more flexible solutions.

- **Microsoft (MS) Azure infrastructure as code development:** On-premises virtualization services augmented with a secure hub and spoke architecture for hosting in the MS Azure cloud leverages the expertise of Enterprise Infrastructure Solutions (EIS) staff and use of infrastructure as code scripts.
- **Enterprise backup project implemented** to provide geographically distant backups for virtual machines running in the ITS private cloud environment.
- **Improved high-bandwidth wireless** through a multi-year project to replace almost 10,000 wireless access points with Aruba Networks infrastructure. This tri-campus project provides enhanced Wi-Fi guest services, improved device connectivity for students in residence, advanced artificial intelligence (AI) analytics to assist in services like wayfinding and network operation and reduced operational cost through green-power initiatives.

## ENHANCING RESEARCH CAPACITY

Support for research activities across all divisions is a key focus in our strategic plan:

- **A dramatic increase of 92 per cent** (556 to 1,071) of the use of **REDCap Secure Data Collection** service.
- **Launched REDCap-for-Teaching** proof of concept for those wishing to teach survey design methods.
- **Expanded support to Centre for Research Innovation & Support (CRIS) and emerging data sciences programs**, with a particular emphasis on identifying data storage services.
- **Supported launch of Digital Research Infrastructure (DRI) governance structure** in partnership with the division of the Vice President of Research and Innovation (VPRI) and the Library to build alignment on digital research resources such as Advanced Research Computing (ARC), data centers and repositories.
- **Introduced Research Information Security Program** in partnership with VPRI and the Library to provide guidance on security frameworks, compliance and controls, risk assessments, pre-vetted system recommendations and other services directly to our scholars to reduce risk to U of T's world class research.

// *We are focusing on making wireless as secure, reliable, widely available (including outdoor spaces) and easy to access as much as possible. A robust wireless service is critical to the University community. Statistics indicate that each person at U of T carries, on average, just under three wireless devices. //*

Douglas Carson, Senior Manager,  
Enterprise Networking, EIS, ITS



### **IT@UofT three-year goal:**

Leverage shared infrastructure and technologies supporting research.

### **Value to the community:**

As we ride the waves of the COVID-19 pandemic and get ready to return to campus, IT staff focus on ensuring that both remote and on-campus community members are supported in with tools and resources that leverage use of digital workflows and processes effectively and efficiently.



# Reset to prepare for the future

We aim to take lessons learned from our emergency pivot to remote work and study, and apply it to planning for improvement of services or leapfrogging to new digitally enabled models.

Initiatives currently on the horizon include the following:

- **Continue implementation of the Student Success Hub** by building on the proof-of-concept work done last year, the multi-year cross divisional student advising initiative, co-sponsored by the Provost's office and the Faculty of Arts and Science, will complete a scope discovery and also an enterprise-wide implementation of the Salesforce Advisor Link platform in 2021. The goal is to enable consistent, best practice advising within and between divisions through effective and efficient access to, interaction with and management of a comprehensive student advising record. Advising provides the opportunity for students to seek – and for the institution to initiate and provide – support and advice about academic, administrative, financial and personal well-being issues to help students achieve their personal and academic goals. It also supports institutional goals of ensuring student success, providing quality service, achieving recruiting, retention and graduation targets and engaging with alumni.
- **Modernize current AMS financial operations** to create significant administrative efficiencies and enhanced usability including Electronic Funds Transfer (EFT), electronic signatures, invoice workflow and approval (A/P) and implementation of embedded analytics for reporting.
- **SAP SuccessFactors Employee Central (EC)** will replace the current HRIS, and will provide users with all Employee Self-Service and Manager Self-Service Human Resources functions – from hire to retire – in a new cloud-based service platform including talent management products (Learning, Recruitment, Performance & Goals).
- **My Research Applications and Agreements (MRA) System** is being rebuilt by EASI and the VPRI to better serve the U of T research and innovation community through a modernized and user-friendly experience to submitting research funding applications.

// *The pandemic has exposed many financial and human resources processes that can be reimagined such as employee on-boarding, electronic funds transfer for payments, and use of electronic signatures for critical business processes.* //

Cathy Eberts, Director, Enterprise Applications and Deputy CIO, ITS



#### **IT@UofT three-year goal:**

Leverage shared infrastructure and technologies supporting research.

- **Introduce Azure for Research** through our partnership with the CRIS to meet increased interest in using Azure services for research activities.
- **Connect+Learn** will continue to offer supportive and collaborative drop-in training that respond to the emerging needs of a dynamic hybrid workplace.
- **Learning analytics infrastructure** will be developed as we expand staff capacity to support learning data analytics initiatives, including data formatting and reporting; development of a data store; processes for extraction and cleaning of data from Quercus and other institutional sources.
- **Continue expansion of Academic Toolbox** to address pedagogical needs and enhance our ability to support a post-pandemic hybrid learning environment through renewal or introduction of new platforms for:
  - High-stakes exam and assessment
  - Discussion activities
  - Collaborative annotation
- **Build on the success of the recently completed Voice over Internet Protocol (VoIP) migration project** to improve the user experience through the integration of Public switched telephone network (PSTN) phone calling into the MS Teams environment for a more seamless experience and additional cost savings.
- **Canadian Shared Security Operations Centre (CanSSOC)**, coordinated through ITS, received \$1.8M in federal funding to roll out a threat sharing service with a target of 200 higher education institutions sharing information in a timely manner that prevents or quickly responds to threats that are commonly seen across the sector.
- **Identity Modernization Program** will begin to gather requirements and build a proof of concept for Identity Governance and Administration as phase 1 of a multiyear process to renew access systems. Important target outcomes include granular controls for local units, improved onboarding and offboarding and a streamlined user experience.



**Value to the community:**

We have our eye on the future with plans to leverage what we have learned through our COVID-19 experiences to ensure that the University of Toronto is a leader in enabling use of information technology to support teaching and learning and research for a changed and changing world.

# Tracking our progress

All ITS units are tracking progress on more than 300 projects that together represent our collective advancement of priorities identified in our strategic plan. Available data can be analyzed by strategic pillar, three-year goals and individual initiatives to provide concrete reporting on our achievements to date. Visit the [dashboard](#) to view ITS initiative progress.



**PEOPLE**



**SOLUTIONS**



**COLLABORATION**

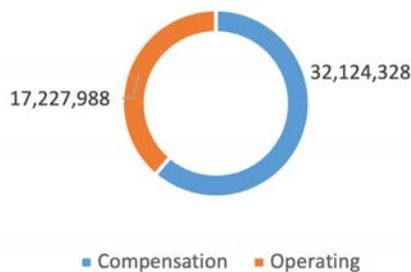


# Budget

Following the disruption caused by the COVID-19 pandemic, ITS, consistent with our recovery plan, resumed activities focused on targeted investments. By exercising agility from a fiscal perspective, ITS delivered on several initiatives including the following: competed a request for proposal for tri-campus Wi-Fi and began deployment at all three campuses; deployed enterprise-class servers and expanded enterprise storage; continued the roll-out of MFA; finalized the technical upgrade to S4 HANA as part of SAP Modernization; continued to make significant progress on several NGSIS projects (course information systems, awards, accommodated tests and exams); completed hardware refresh of our data centre; continued to operate and fine-tune Alibaba CEN service available to students in mainland China.

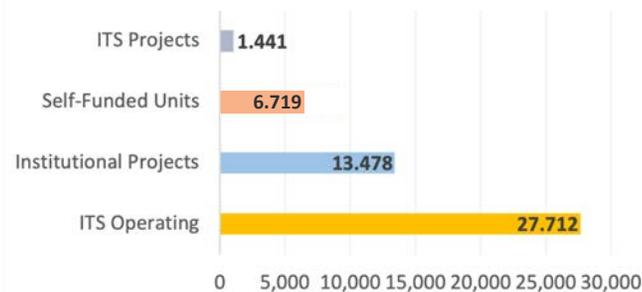
## ITS Total Expenditures

\$49.4M | F2021



## Total Expenditures by Category

F2021 | in millions



# Closing

Looking forward, 2022 promises to be another year of rewarding progress as we continue our work to deliver excellence in technology services and solutions in collaboration with the U of T community. Initially, the COVID-19 crisis served as a catalyst to forge stronger relationships across campuses, divisions and business units as we united to ensure the continuity of support for the University mission. The strengthening of these partnerships is now proving to be a solid foundation to support the three pillars of our IT@UofT strategic plan – **People, Solutions** and **Collaboration**. With our eyes on the horizon, we can focus on the opportunity to take advantage of new habits of mind, staff skills and community expectations for continued improvements to service models and work experience at U of T. From online meeting options to self-serve administrative tools, improved IT security to shared service catalogues, our digital workplace has elements that can be seen as a new normal we can build upon together.

## **Bo Wandschneider**

Chief Information Officer (CIO), ITS





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