

# Annual Report 2019 - 2020

Nova Scotia Community College  
Finance, Audit and Risk Committee

Provided by Digital Innovation and Technology

*November 20, 2020*

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## Introduction

This report to the Finance, Audit and Risk Committee will provide an overview of the College's Digital Innovation and Technology department. The report will focus on four themes:

1. How We Compare
2. Risk Management
3. Accomplishments (COVID-19 Response)
4. Go Forward Priorities

## 1.0: Overview

The Digital Innovation and Technology (DI & Tech) department has been diligently advancing NSCC's Technology Strategy since its inception in 2016. These efforts put the College in an enviable position to respond to the demands imposed by COVID-19.

The department has a full-time equivalent (FTE) staff count of 85, which includes 33 supporting campus technical operations, 20 supporting enterprise applications, 10 supporting College-wide IT infrastructure, 8 leading and supporting approved projects, 7 managing the College's websites and digital products, 3 providing reporting and analytics, and 2 dedicated to Information Security.

The service delivery model has shifted as cloud-based solutions and services are favored over internally hosted offerings and traditional managed service agreements. The College's full adoption of Microsoft 365 for its communication and collaboration needs has been a tremendous success. D2L's Brightspace is its Learning Management System (LMS), which is also a cloud solution. PeopleSoft is the College's Enterprise Resource Planning (ERP) and Student Information System (SIS) and remains hosted in a third-party data centre to ensure its high availability for staff and students.

The last two periods have seen significant due diligence performed around a strategic investment in a new ERP and SIS. The strategy and roadmap deliverables informed executive and board decision making, resulting in an approval-in-principle to initiate the first phase (procurement) of the multi-year program. Given the fiscal conditions imposed by the pandemic, this has been deferred until fiscal 2021-2022. Key pre-requisite activities identified in the roadmap will be advanced in the short-term to further the institution's readiness.

The department's commitment to providing technology training to staff and students (starting in 2017) was on full display this period as the College shifted its administrative and academic operations online during the pandemic. Without this capability, it would have added to the anxiety of staff and students as the institution pivoted to online delivery in a matter of weeks.

The College's Technology Governance program has been fully operationalized and is focused on continual improvement. This period included a review and refresh of the Technology Governance Committee (TGc) membership. The objectives were to refresh rotational memberships (principals) and to broaden the membership by including new areas like Facilities and eCampus. Work on the addition of sub-committees continues this period.

A focus on advancing the Technology Strategy, implementing best practices, and culture & capacity building has put this department in a position to lead and innovate during a global crisis. We're ready.

## 2.0: How We Compare

Where applicable, metrics are benchmarked against peer institutions. Peer institution data is sourced from the [Educause Core Data Service](#) and comprises survey results collected from over 750 institutions worldwide.

Information Technology Funding	Peer	NSCC
Total Central IT funding as percentage of institutional budget	4.65%	4.94%
Central IT spending on external providers as a % of total spend	5%	15%
Central IT spending on in-house infrastructure as a % of total spend	33%	13%

The College's preference for centrally delivered technology services continues to see it outpace peers in the percentage of Central IT funding as a percentage of institutional budget.

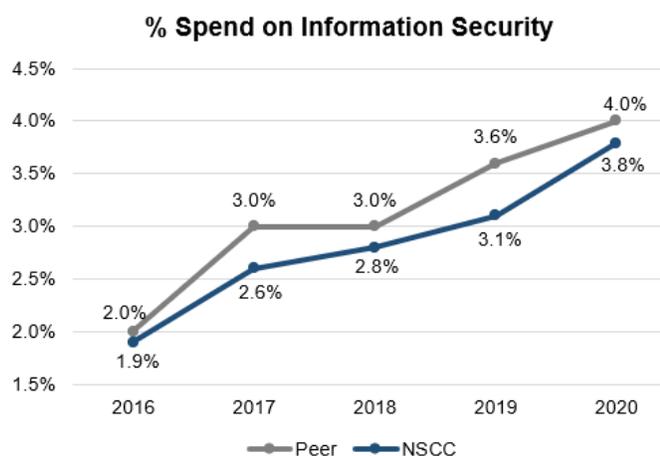
NSCC has sought a balance between the use of in-house infrastructure and external providers. A preference towards cloud services has resulted in decreased expenditure on compute and storage assets. In-house infrastructure is still used for specific legacy systems and use cases where cloud services are not cost-effective or performant (i.e., storing research data).

Information Security	Peer	NSCC
Institutions that are part of multi-institutional collaborations related to information security	51%	√
Institutions that track information security metrics	71%	√
Institutions with mandatory Information Security Training for staff	85%	√
Institutions with Information Security Training for students	49%	√

The College has incrementally increased its investment in information security over the last several periods. This includes additional resourcing, awareness & training platforms, and security tools. This period will see the procurement and implementation of a next generation firewall which protects the College network and enterprise systems.

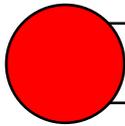
Shared services and collaboration have become an integral part of the cyber security strategy. The College partnered with 7 institutions in Nova Scotia on a shared Chief Information Security Officer (CISO) initiative this period, which will enhance strategic advancement of its security program.

The director was invited to participate in a national Cyber Security Advisory Committee formed by the Canadian National Research and Education Network (CANARIE). This committee proposes security initiatives to the CANARIE board that will enhance the security posture of over 200 research and educational institutions in Canada. NSCC is already engaged on the first of these federally funded initiatives (Intrusion Detection System).



## 3.0: Risk Management

The department collaborates with the Enterprise Risk Management Committee to support the NSCC Executive Team in its mitigation and management of risks that could affect the College's ability to achieve its strategic objectives or compromise its mission and core values.

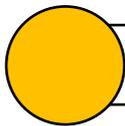


### PeopleSoft Obsolescence

**Risk:** PeopleSoft will be at end of life in 2030. Oracle has ceased PeopleSoft product development in favor of their cloud offering. Delaying the transition to a new ERP and SIS will increase transition cost and risk while perpetuating an inadequate student and employee experience.

**Mitigations:**

- PeopleSoft Campus Solutions 9.2 upgrade project completed. User experience and self-service improvements introduced for students.
- Initiation of procurement for replacement cloud solution approved in principle. Deferred until 2021-2022 due to current fiscal climate.

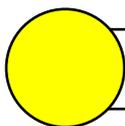


### Cyber Security

**Risk:** The Cyber Security threat landscape is evolving rapidly. If NSCC does not increase its level of due diligence and focus on information security policies, procedures and technologies, highly confidential information and mission critical systems may not be adequately protected.

**Mitigations:**

- Capital purchase of next generation cyber defense products (i.e., firewall) underway.
- NSCC participating in federally funded cyber security program intended to deliver new defense capabilities, increased collaboration, and information sharing among Canada's 200+ research and education institutions.



### Availability of Critical Systems

**Risk:** If a major business system is unavailable at a critical time in the College calendar, or for a lengthy period, it may severely impact the efficiency of College operations and student programs and services.

**Mitigations:**

- Mission critical services at the College are designed and hosted with high availability and disaster recovery in mind. (i.e., ERP, SIS, Microsoft 365, nsc.ca, core network)
- The College's shift to online program delivery has increased its reliance on video conferencing services (i.e., Microsoft Teams). A short service disruption during business hours would be akin to a "digital snow day". An extended outage may force the institution to revert to asynchronous delivery with an increased reliance on the LMS.

## 4.0: Accomplishments for 2019-20

Advancing the 2016 Technology Strategy continues to guide the department's work. This period saw these investments pay dividends for NSCC as it responded to COVID-19 and shifted its administrative and academic operations online in a matter of weeks.

Brief descriptions of departmental accomplishments will be aligned with the strategy's five commitments and twenty-seven goals. Emphasis will be placed on initiatives that directly contributed to the College's response to the pandemic. Where appropriate, the contributions of specific team members will be highlighted.

A dashboard is provided below identifying initiatives completed and in progress. A detailed account of these initiatives can be made available on request.



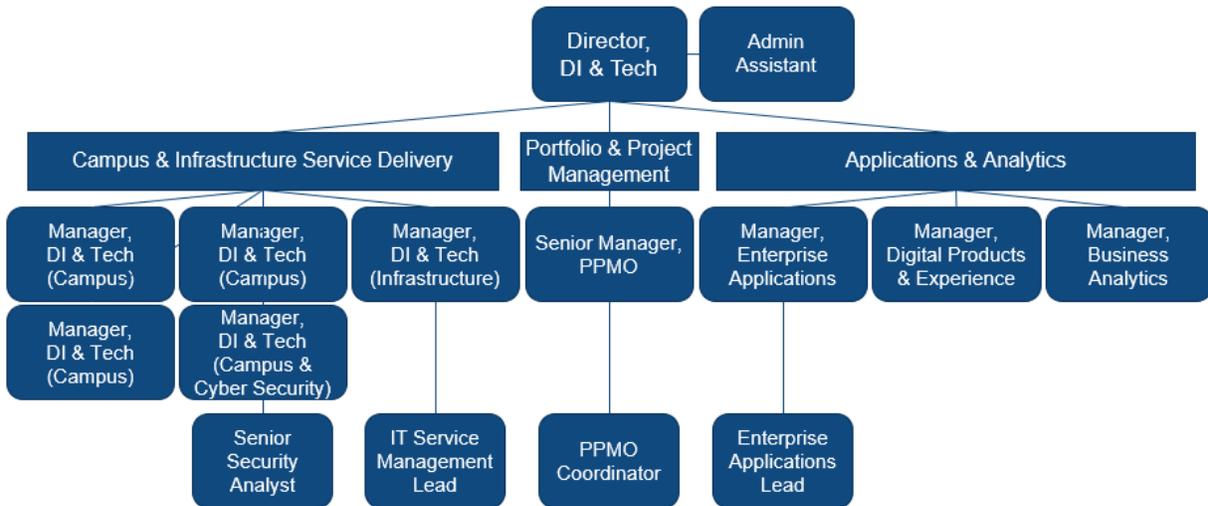
### 4.1: Technology Strategy Dashboard

**C** = Completed Initiatives  
**IP** = In Progress Initiatives

Strategy Commitment	16-17 (Year 1)		17-18 (Year 2)		18-19 (Year 3)		19-20 (Year 4)		20-21 (Year 5)	
	C	IP	C	IP	C	IP	C	IP	C	IP
Providing effective and on-going training and resources (3 goals)	1	5	8	1	3	1	5	1		
Increasing access by establishing more online services (7 goals)	3	3	6	4	4	2	9	1		
Providing improved support to customers and increasing self-service options (4 goals)	4	1	1	3	5	4	11	2		
Enhancing communication & collaboration (6 goals)	6	1	4	6	5	4	5	3		
Increasing technology standardization to drive consistency and efficiency (7 goals)	3	3	3	11	12	8	7	7		
<b>Total</b>	<b>17</b>	<b>13</b>	<b>22</b>	<b>25</b>	<b>29</b>	<b>19</b>	<b>37</b>	<b>14</b>		

## 4.2: Organizational Updates

The organizational structure of the department has solidified over the last two periods. Clear portfolios exist for the provision of technology support and infrastructure service delivery, the management of enterprise applications and digital products, and the stewardship of priority projects. The scope of the business analytics function has expanded, allowing it to deliver value to new areas.



### Workforce Planning

Just prior to the pandemic, the department engaged Human Resources to assist with longer term workforce planning. The objectives being to identify organizational change that may be required to support the department (and by extension the College) in its planned migration to a modern, cloud ERP and SIS.

The scope of this work would evaluate changes required to ensure the successful implementation and subsequent operation of the new system. These potential changes would be identified through a gap analysis of skills or capacity required that may not exist in the department today.

The pandemic resulted in this work being placed on hold. It is anticipated that this will begin in early 2021 and will be reported on in greater depth next period.

## 4.3: Technology Governance

The College's Technology Governance program is now fully operational and following the maturity assessment conducted last period, is now in a continuous improvement cycle. It remains positively regarded by the College community and has garnered interest from other institutions in the region.

Following the completion of 2-year terms for the Campus Principal members of the TGc, a full review of the committee's membership was conducted. The objectives of this review were to address gaps in the committee's representation across the institution. The outcome of that review was two additions:

- Facilities & Engineering
- eCampus Principal (joining Metro and Rural Campus Principals)

There is a desire to leverage the strategic oversight available from TGc to govern relevant sub-committees and working groups. A Web Governance Committee formed following the implementation of Connect (Intranet for staff and students) in 2018. It has governed enhancements to the College's various web properties under the joint sponsorship of the Director, Marketing & Communications and the Director,

Digital Innovation & Technology. A motion at TGc recommended this committee be brought under its oversight. This motion was carried and ratified by Executive Council. This integration is scheduled to occur prior to the end of fiscal 2020-21.

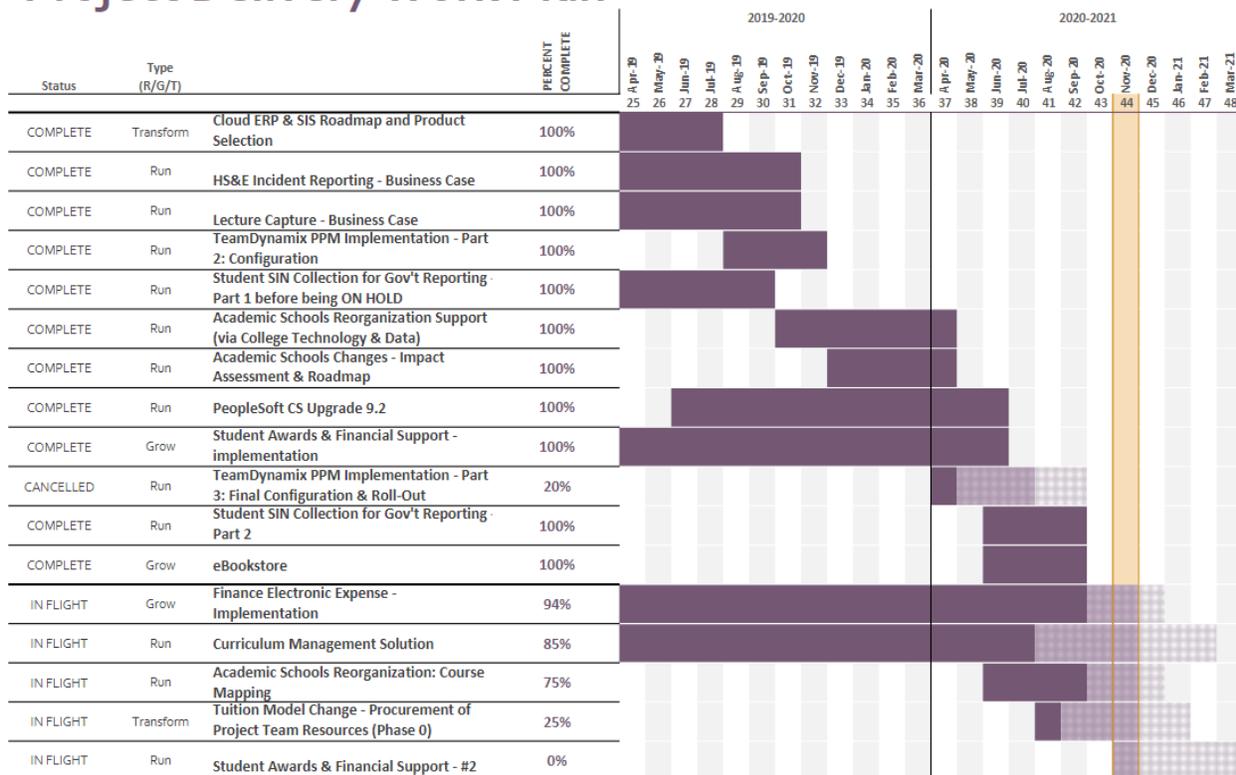
#### 4.4: Project Delivery

The Project & Portfolio Management Office (PPMO) continues to mature and benefits from the clear project priorities provided by Technology Governance. They have demonstrated a flexibility to pivot resources and focus on the current needs of the organization, as evidenced by its ability to manage the process, data, and system changes driven by the Academic Schools Reorganization.

The shift to working remotely during the pandemic did little to slow project delivery. Project managers, business stakeholders, technical teams, and vendors were able to continue advancing priority projects using Microsoft Teams. The only downside to this approach has been the inability to celebrate project success with cake.

Updates on the projects completed and in progress over the last period are available below.

### Project Delivery Work Plan



#### Academic Schools Reorganization

A reorganization of Academic Schools was announced on October 4, 2019. Its objectives were to “better reflect the programs we offer today and to position ourselves to continue to grow, adapt and innovate at a pace that matches the needs of our students and the sectors and communities we serve”.

The impact of this reorganization to College data, systems and reporting was known to be significant, yet not fully understood. To ensure success, two projects championed by Academic Planning & Operations were initiated to assess the technology and data impacts across the College and to methodically deliver

the necessary work to support the changes to the organization. These projects were successfully completed in April 2020.

### PeopleSoft Campus Solutions 9.2 Upgrade

In 2019, a project was initiated to upgrade PeopleSoft Campus Solutions, the College SIS, to the latest version of the software (9.2). This would ensure the system remained fully supported by Oracle and would give the College access to new functionality. It was decided that this project should be more than a traditional technical upgrade and was branded “Upgrade+” as a sign of our commitment to advance the student experience. The project went live in July and brought with it the following improvements:

- Self-Service for Applicants and Students were fully redesigned and modernized using Oracle’s “Fluid” technology.
- Self-disclosure options were enhanced to increase the level of detail provided by Indigenous and African Nova Scotian applicants.
- Navigation across the system was modernized by transitioning from “classic” to the more mobile-friendly “Fluid” view.

### Student Awards & Financial Support Solution

Following the successful Make Way Campaign, TGc approved a business case for a project to optimize the administration of awards to students. The project was championed by the Student Awards and Experience Office and was delivered in partnership with the NSCC Foundation, Financial Services, and DI & Tech. A solution was procured via request for proposal (RFP), and then successfully implemented in time for the Spring 2020 awards cycle and to support Urgent Aid beginning in September.

Regrettably, the vendor (Survey Monkey) then reneged on its contractual commitments and will be sunsetting the product early in March 2022. Supported by legal counsel, the College negotiated an amended agreement and must embark on a follow-up project, beginning in the fall of 2020, to procure and implement a replacement solution no later than March 2022.

### eBookstore Implementation

A key tenant of the College’s pandemic response was minimizing unnecessary campus visits for students. The lack of an online bookstore was identified as a priority gap to be addressed. An eBookstore project was established in mid-June to procure and implement an eCommerce solution to enable online ordering and payment processing. It would also facilitate the development of an order fulfillment framework for adoption across all campuses.

Working at warp speed, the project team successfully launched the eBookstore solution to users on August 24, in time for the start of the fall term. Four weeks post-launch, the eCommerce site had a reported adoption rate of 43%.

### Finance Electronic Expense (eClaims)

A desire to optimize a time and paper intensive process led the TGc and Executive Council to approve a business case to modernize the College’s expense reimbursement process. The project that followed has faced numerous challenges, including the loss of its sponsor David Dewey.

The team persevered and is pleased (and relieved) to see this new cloud solution going live to all Central Office employees on November 16. This will be followed by the full launch to all employees on November 30.

eClaims will create efficiencies for Financial Services, Internal Audit, and most importantly claimants. Reimbursements should occur more quickly and by taking the process online, claims can be completed from home.

### Curriculum Management Solution

Academic Development manages the critical function of Curriculum Management for the College. This includes course and program development, course and program review processes, and annual curriculum review and publishing. This project is replacing the legacy patchwork of technology with a modern solution that streamlines these complex business processes.

The CourseLeaf Curriculum solution has been procured via RFP and the project team is working with the vendor (Leepfrog) and College stakeholders on implementation. At the time of this report, the project is at 85% completion and trending towards an early 2021 go-live.

## 4.5: ERP and SIS Renewal

A position paper authored in 2018 started a conversation about the obsolescence of PeopleSoft, the College's ERP and SIS. The tone of that conversation was balanced between risk and opportunity. The risk of remaining on a system that many institutions would be migrating away from by 2030. The opportunity associated with investing in cloud technology as a catalyst to transform College business processes and modernize the user experience of the student and employee.

This conversation was compelling enough to warrant more due diligence, resulting in the completion of a strategy & roadmap initiative, facilitated by Deloitte in 2019. This yielded the following insights:

- Cloud offerings from industry leading vendors were viable and could meet the College's needs.
- The renewal would take 3-4 years and would require three distinct phases, starting with Procurement, followed by HR & Finance and culminating with the implementation of the new SIS.
- The effort would include significant internal and external (consulting) effort, with onetime costs estimated at \$13.5M (including a 20% contingency). Operating costs would not be materially impacted.
- Delaying the renewal would only result in cost increases as further incremental investments in PeopleSoft (to meet organizational priorities) would increase the scope of a future migration to the new system.



Socializing these insights within College governance began in earnest with presentations to the Finance, Audit & Risk Committee in December 2019 and the Executive Team in January 2020. The outcome of these presentations was positive as it established mutual understanding of the risks and benefits of this undertaking. It was not a matter of *if* but *when*.

At the Board of Governors meeting in April 2019, this work was discussed in the context of the 2020-21 Business Plan. This resulted in approval-in-principle to proceed with the initiation of the procurement phase of the renewal. Subsequently, the financial impacts of the pandemic resulted in a decision to defer the initiation until fiscal 2021-22.

### Renewal Readiness

The strategy & roadmap deliverable included a list of readiness activities that could be undertaken prior to the initiation of the renewal program. While the initiation of the Procurement phase has been deferred, there are two readiness initiatives advancing this period.

#### 1. Tuition Model Change

The College aspires to transform its tuition model to overcome both strategic and operational challenges inherent with the current program-based model. Doing so is viewed as foundational to meeting commitments in NSCC’s Strategic Plan and Academic Plan. Further, the tuition model is enabled via deeply rooted configurations in the ERP and SIS. Advancing this now provides opportunities to simplify and align these configurations with best practice-aligned systems like Oracle Cloud and Workday.

The TGc and Executive Council approved the prioritization of a project to advance this work. An RFP is in development to procure consulting resources to support the successful delivery of this project. It is anticipated that the project will begin in early 2021.

## 2. Identity Management System Replacement

With over 2,000 employees and 20,000 learners, the College relies on automation to provision user accounts and access to key systems and services. The technology used for this automation was custom developed in PeopleSoft. The decision to replace PeopleSoft necessitates the replacement of the Identity Management System prior to the ERP and SIS renewal.

Project management resources have been assigned to initiate this project in early 2021. The current system will be replaced with a Commercial off-the-shelf product that is known to integrate with Oracle Cloud and Workday.

## 4.6: Completed and In-Progress Initiatives

### 4.6.1: Providing Training and Resources

#### Background

It is fitting that the Technology Strategy identified “Training and Resources” as its first commitment to the College community. The department’s response to the pandemic can be viewed as a triumph of adult education. The technology training capability nurtured over the last three periods was a critical success factor for an organization forced to rapidly shift to remote working, teaching and learning.

#### Delivering Training Programs for NSCC-endorsed Technology

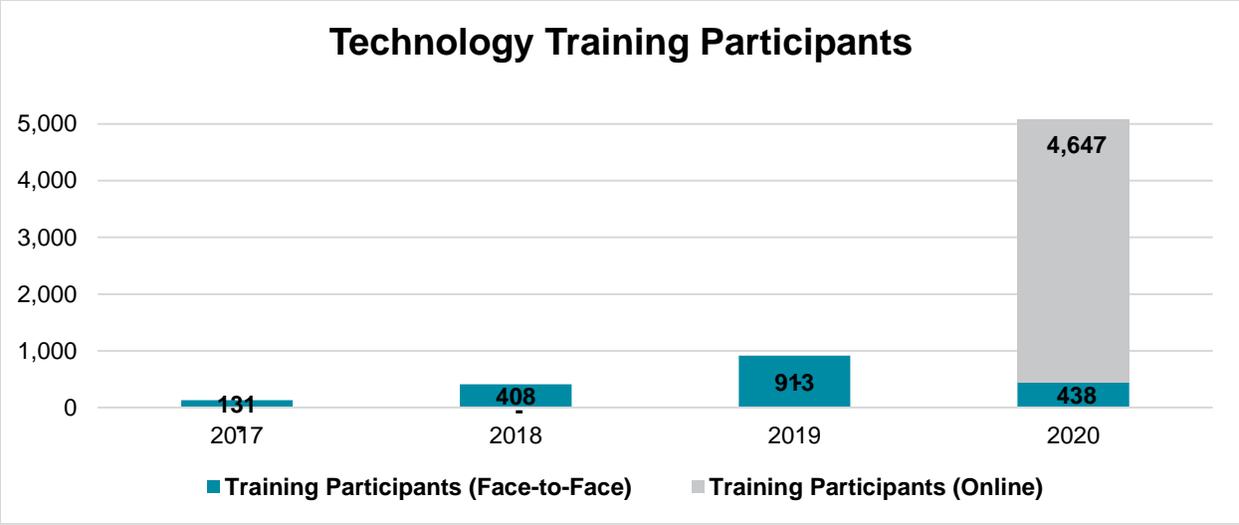
As 2020 began, technology training was established as a core service offering of the department. Objectives for the year were to strengthen the sustainability of the service, start delivering more training online, and to implement a first-ever technology onboarding offering for students. When the pandemic reached the province, the department was in a position where it did not have to build out a training program. It just had to scale up what it was already doing.

March 17 saw the first online offerings of “Getting Started with Microsoft Teams”, a 1-hour introductory course. By the end of March, 80 sessions were delivered resulting in the training of 736 community members. In parallel, intermediate and advanced Teams courses were developed and brought online in April.

In all, the department’s team of 20 facilitators trained over 5,000 community members in 2020. Without this capability and capacity, the institution’s transition to online delivery would have been negatively impacted.

“Today’s session was great. The information was clear and well presented. I feel it is important for all staff to take part in.”

Margie Eager  
Library Technician  
Strait Area Campus



Formalize Technology Onboarding Offering for Students

The department played a key role in enabling the College’s online delivery of New Student Orientation in September. In addition to supporting the technology used to deliver all orientation programming, the department also developed and delivered three sessions to student audiences.

- Using Microsoft Teams
- Microsoft 365
- Tech Support & Security at NSCC

These sessions were intended to baseline students on the core technologies required for them to successfully engage in an online learning environment. It also provided the department an opportunity to share cyber security best practices and describe the technical supports available to students should they encounter difficulties.

2,400 students attended these orientation sessions.

**4.6.2: Increasing Access**

Background

In the context of a pandemic, the goals identified under the Access commitment in the Technology Strategy stand out. They called for increased flexibility in program delivery models and tools and processes that would support *anywhere, anytime* access to services and resources. As staff and students were forced to adjust to remote working, teaching, and learning the department lived up to its name through the rapid development of innovative solutions to support this transition.

Responding to Gaps in Connectivity

The pandemic shined a light on the digital divide that exists in the province due to socio-economic challenges and gaps in internet infrastructure, especially in rural communities. Innovation and partnership were required to address these gaps to aid students in connecting to a fully online learning environment.

With campuses closed, an idea emerged to redesign the College's Wi-Fi network to direct wireless signal into parking lots. This would allow a student or member of faculty to connect to the internet from the safety of their vehicle for the purposes of accessing needed resources or even attending a virtual class. Care was taken to ensure this service was designed with safety in mind and collaboration with the Health & Safety team and Marketing & Communication yielded clear messaging to support the service. The service was not highly used, but those that did were sincerely grateful the option was available. This feedback was received from a faculty member at Burridge Campus:

"I had a student who needed to get out of the house, so she drove into the parking lot to do her assignment. She said it relieved her stress."

A partnership with the Foundation yielded additional connectivity options for students in need. Michelle Bussey and her team established a partner program with Eastlink to provide residential internet to students in need living in an Eastlink coverage area. This offering, funded by donors, provided free connectivity until August 31, 2020.

For those living outside Eastlink coverage areas, the Foundation funded the procurement of 50 cellular "turbo sticks". DI & Tech procured these devices, developed self-serve setup instructions, and delivered them to Student Services teams around the province to be issued to students on an urgent aid basis.

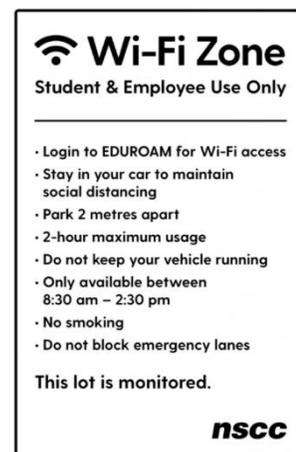
#### The Year of the Laptop: Staff

If 2020 had its own currency, it would be laptop computers. The College found itself in a fortunate position for a couple of reasons: 1) The department was in possession of 200 surplus laptops that had not yet been donated to K-12 and 2) DI & Tech and Academic had already started accelerating the deployment of laptops to faculty.

Working with Human Resources and Campus management teams, the surplus laptops were targeted at essential personnel transitioning to working from home. This included a mix of administrative and academic staff, ranging from payroll to finance to student services.

For faculty, discussions and planning with Academic started back in 2019. At the time, 80% of faculty continued to rely on desktop computers and it was felt that the College could supercharge the use of technology in the classroom and provide more flexibility to faculty through an accelerated transition to laptops. This led to the procurement of 250 Dell laptops in February that were received in mid-March. This allowed the priority deployment of these laptops to faculty transitioning off campus to finish the term with online delivery.

The safe deployment of laptops was a priority for the department given the level of anxiety and uncertainty during the early days of the pandemic. New procedures were developed to ensure the safety of the customer and the DI & Tech staff handling the deployment. Online bookings were used to establish appointments with buffer to avoid lines and clustering, open spaces were selected for the appointments, personal protective equipment was worn, and extensive cleaning conducted in the presence of the customer receiving the laptop.





*Dell Latitude 5300 2-in-1 Laptops for Faculty*

As the full extent of the pandemic became clear, the College made the decision to procure an additional 155 units to address the remaining technology gaps for faculty. These were received in April and deployed to faculty identified and prioritized by Academic.

To say the procurement, preparation and deployment of hundreds of laptops was a significant undertaking would be an understatement. The level of effort and coordination to pull this off was extreme and only possible through the heroic commitment of DI & Tech's campus teams.

#### The Year of the Laptop: Students

At the same time as the department worked to meet the computing needs of staff and faculty, there were hundreds of students who lacked the technology they required to meaningfully participate in online learning. This presented another opportunity for partnership between DI & Tech, The Foundation and the Library through the rapid expansion of the [Library Laptop Loan Program](#).

The loan program had seen minor expansion in recent periods as DI & Tech would funnel surplus laptops to support the growing demand around the province. Prior to the pandemic, the loan program was managing a pool of 243 laptops. When the Foundation stepped forward to allocate donor funds to expand the program, new laptops were hard to come by due to global demand and supply chain issues. It was decided to target refurbished laptops from a variety of resellers and lessors in Canada. Over the course of the weeks that followed, 482 laptops were purchased or leased to expand the loan program.

Powered by the  
generous donors at  
**nSCC Foundation**

DI & Tech staff at the Institute Campus took receipt of these laptops and after testing them, they affixed a "Powered by the generous donors at NSCC Foundation" sticker and shipped them to the campuses identified by the Foundation.

The success and impact of this initiative made its way to the Department of Community Services and they offered to support the continued expansion of the program. Their contribution allowed the College to purchase an additional 222 Dell laptops that were brought into the program in October. With the loaner pool now approaching 1,000 units, it gave the Library flexibility to reconsider the length of time a student could borrow a laptop. It was extended from one week to the entire term.

To better manage this growing pool of laptops that would not be regularly connected to the College network, new management tools were required. Over the summer the department implemented Microsoft Intune, a cloud-based management platform for PCs and mobile devices. This allows the College to manage, secure, and deploy software to devices over the internet. It streamlines the user experience for the student borrowing a laptop and simplifies the process of reimaging a laptop on its return. The library

loaner pool was the ideal pilot group for this technology. It is anticipated that this will be expanded to all College laptops and smartphones over the next two periods.

### Software Anywhere

Given the breadth of programming offered at NSCC, there are hundreds of software packages (371) that students must have access to over the course of their respective program. The department uses Microsoft technology to manage this software and deploy it to computers in campus computer labs. As teaching and learning went online during the pandemic, this created a significant challenge. How would we provide remote access to hundreds of pieces of software? Above and beyond the sheer logistical challenge, there were different constraints that needed to be factored in. They included:

1. Licensing Limitations – In some cases, the College paid for a license to run the software on a College-owned PC, not a student personal device.
2. Performance Requirements – Certain pieces of software require more computing power than a student's home computer or laptop may provide.
3. Connectivity Requirements – Specific use cases require the piece of software to interact with data stored on the College network which is not accessible from the internet.

This complexity necessitated the development of multiple solutions for different categories of software. There was a concern that this complexity would be difficult for students and faculty to navigate. In response to this, simplified requests were built in the Technology Service Desk which put the onus on DI & Tech staff to match the correct solution with the need at hand. Self-service knowledge articles were developed that walked the customer through how to use their software remotely, once the appropriate access was provisioned by the department.

This presented another opportunity for innovation as one scenario necessitated the implementation of bleeding edge cloud technology from Microsoft, Azure Virtual Desktop. This service would allow students to access College-licensed instances of Microsoft Project or Visio on personal devices from home. NSCC was the first institution in Atlantic Canada to leverage this technology and Microsoft asked DI & Tech staff to share lessons learned with other institutions looking to adopt it.

## 4.6.3: Providing Improved Service and Support

### Background

The Service and Support commitment in the Technology Strategy laid out logical goals. To increase access to technical assistance, self-service options, and to ensure College internal and external web environments could adapt to changing needs. The rapid transition to online delivery increased the baseline technology needed to participate. This resulted in a corresponding increase in the technical support the department would be asked to provide.

### A New Service Delivery Model

A decision to adopt IT Service Management (ITSM) best practices put the department on a track to be able to respond to the support demands of the pandemic. The implementation of the Technology Service Desk in 2017 brought a modern self-service platform to NSCC that allowed staff and students to submit requests for service and consume knowledge material developed to aid them in solving common problems without assistance.

Last period, the department started the evolution of its delivery model to support the formal introduction of eCampus. This included the development of a new after-hour support service and plans to introduce a new support channel (Live Chat) and more modern tools to allow staff to remotely connect to staff and student computers over the internet for support purposes. The latter was implemented and went live in early March.

As the College started its shift to remote working, teaching, and learning, these plans seemed almost prophetic. The department already had the capability to connect to staff and student machines over the internet and it only had to accelerate its planned implementation of Live Chat, which had already been purchased. This work culminated with Live Chat going live on April 6. Accessible from the home page of the Technology Service Desk, the positive impact of this new support channel was immediately felt.

This implementation created another opportunity to partner within the institution. It was quickly decided that the same Live Chat platform would be purchased to support the virtual support requirements in Student Services and in Campus Libraries. DI & Tech led the procurement and implementation for its colleagues culminating in them going live on the platform in September.

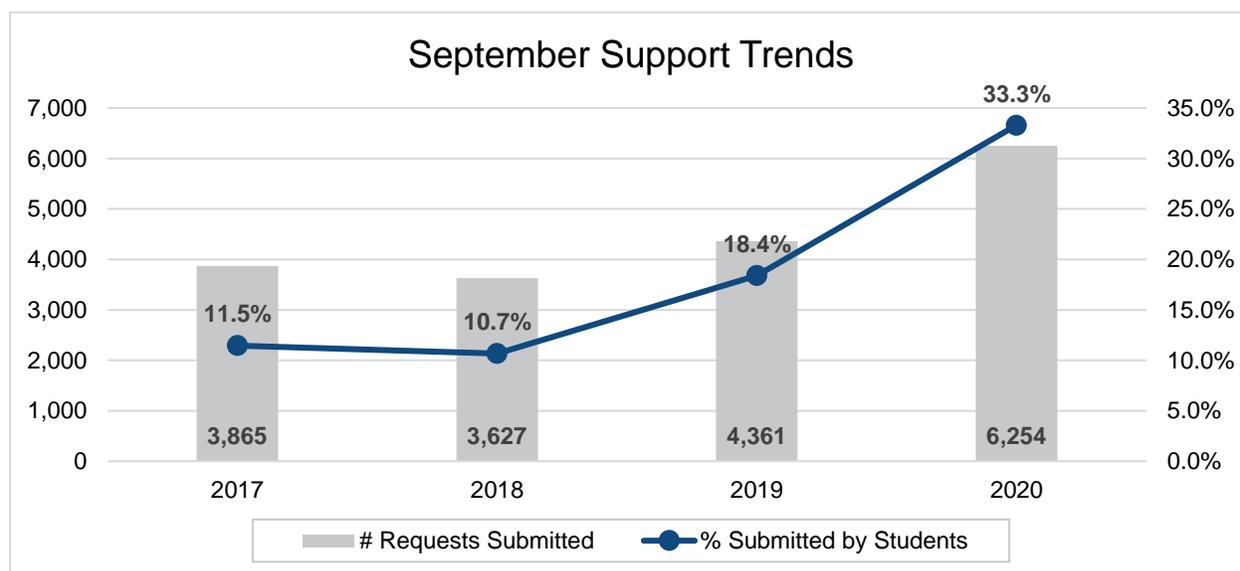
“You guys are amazing. What you’ve pulled off in a matter of a few weeks is nothing short of incredible. And you keep doing it. Every day, you pull another rabbit out of the hat. I hope you’re getting appreciation and amazing feedback from across the province. You’re whole team is absolutely rocking it. The glue, holding this whole thing together. I, for one, am in awe of all of you.

Lindsey Oram  
Manager, HR Planning

### A September Like No Other

The department anticipated a tsunami of support activity in September as faculty and students started the academic year with online and blended delivery. This proved to be true with 6,254 requests submitted during the month, a 43.4% increase from September 2019. The new live chat channel proved to be popular with staff and students with 861 chat sessions during the month.

Despite the significant increase in requests, the department was able to maintain a reasonable service level, with 86.4% of these requests being resolved within 1 business day. This was achieved through a conscious decision to generalize support across a provincial pool of support staff. A chat request from a student at Burridge Campus may be fielded by an analyst at Marconi. A phone call from a faculty member at Cumberland Campus may be answered by an analyst at Kingstec. This fundamental change in delivery model provided economies of scale previously not possible.



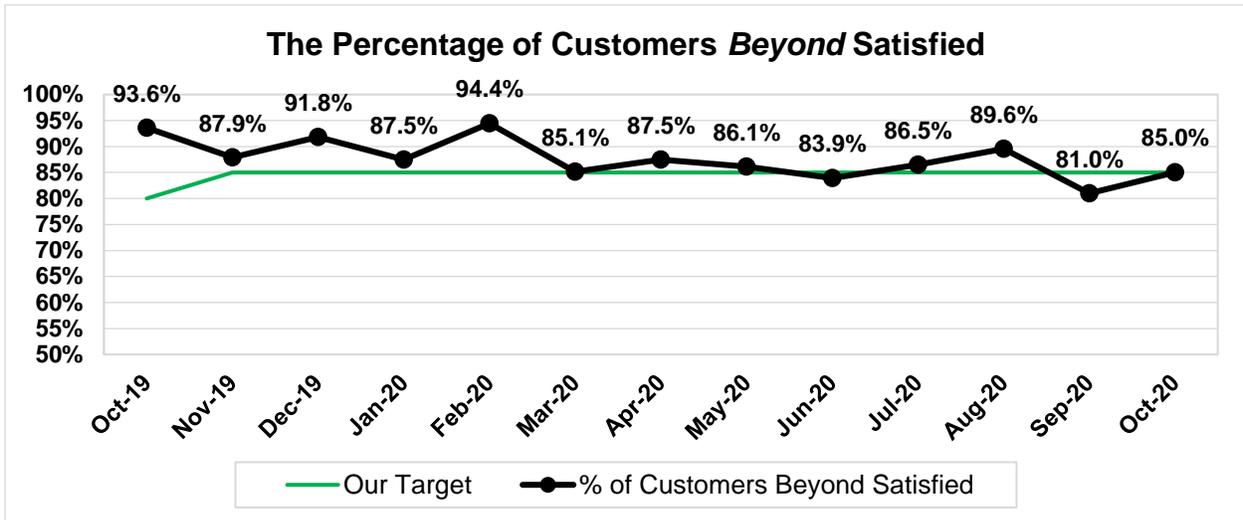
### Customer Service During a Pandemic

The staff in the department have always demonstrated a level of commitment to the College that has yielded very positive customer satisfaction results. With the workload, stress, and anxiety brought on by the pandemic, it would be natural to expect a dip in customer satisfaction scores.

As communicated last period, the target for this indicator increased from  $\geq 80\%$  to  $\geq 85\%$ .

2017	2018	2019	2020
79.9%, 353 surveys	85.5%, 753 surveys	90.5%, 770 surveys	85.5%, 834 surveys

Despite the negative conditions brought by the pandemic, the department still achieved its revised target when looking at annualized results. Monthly results in June and September dipped below target which is understandable given the unique pressures that occur in those months.



### 4.6.4: Enhancing Communication & Collaboration

#### Background

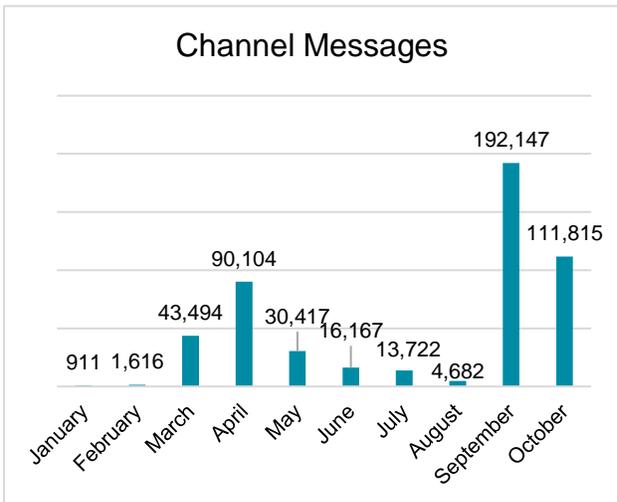
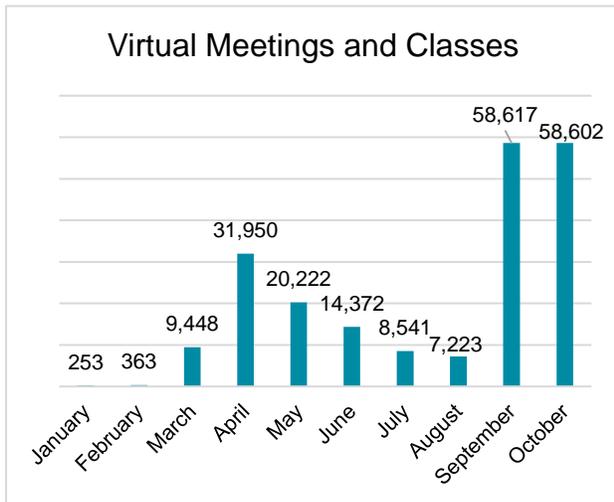
NSCC’s culture is predicated on being collegial and collaborative. The Technology Strategy sought to leverage technology to foster this culture and advance communication, collaboration, and engagement across the institution. The pandemic forced us to communicate and build community virtually using technology.

#### Accelerated Adoption of Unified Communications

The department has been in a state of transition with its audio and video conferencing technologies over the last several periods. Collaborative delivery between campuses previously relied on more expensive Polycom infrastructure. Microsoft Skype for Business (implemented in 2016) saw rapid adoption as it was accessible to all staff and students and integrated with the College’s communication and collaboration platform. When Microsoft announced that Skype for Business would go end of life in 2021, the department accelerated its implementation of its replacement, Microsoft Teams.

After developing a formal training program and self-service knowledge materials, Teams went live for staff on October 28, 2019. The thinking at the time was to first release to staff to provide them time to acclimate to the new environment prior to releasing it to students. Teams went live for students on February 28, 2020. Timing is everything.

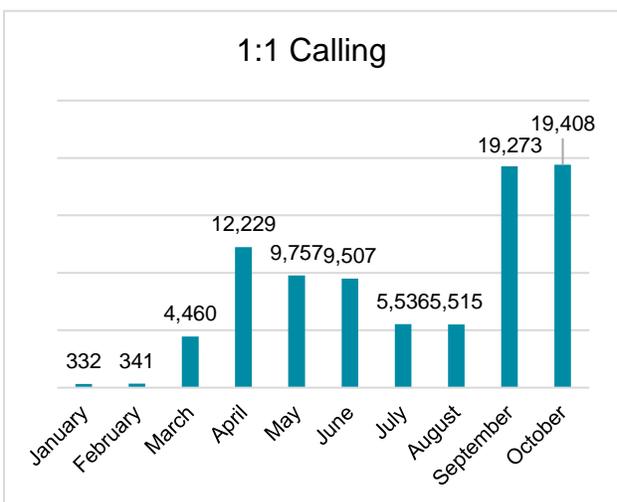
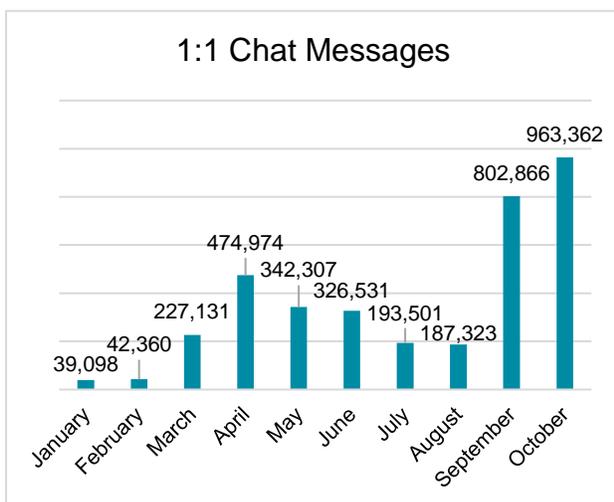
With the entire College community licensed for Teams and DI & Tech ready to train on and support it, the pandemic arrived. This period of forced adoption saw Teams utilization explode.



The above two metrics speak to and measure the level of collaboration happening on Microsoft Teams. An average of 58,609 virtual meetings and classes in September and October appears to be the College “run rate” of community members coming together to work, teach and learn in a virtual environment.

Teams channels are threaded conversations dedicated to a particular topic, department, project or course. Microsoft refers to these spaces as “where the work actually gets done” – where text, audio, and video conversations open to a whole team happen, where files are shared, and where apps are added.

These virtual spaces played a critical role in the support of faculty and students during the early days of the pandemic by way of the Teaching and Learning Commons, respectively. Guidance was provided to faculty around how the creation of a Team for their course could streamline the scheduling of virtual classes and minimize disruption during class by having the proper permissions established.



The above two metrics speak to and measure communication in a way previously not possible. The 1:1 conversations that occur on campus during the run of a day are impossible to quantify. With the shift to online delivery and the standardization around Teams, this gives us a sense of how engaged staff and students are on the platform.

The adoption of the 1:1 calling features within Teams is a clear sign that the institution is willing to shift calling to Teams, allowing the College to transition away from the landline services currently provided by Bell. This presents an opportunity to convert the lower value spend associated with landlines into higher level security services from Microsoft.

The success of Teams has allowed the department to rationalize its conferencing technologies. Legacy Polycom infrastructure was decommissioned on June 30 and Skype for Business disabled on October 29.

### Supporting Communication During a Crisis

As everything started to change in March, the need for effective communication to all College audiences was more important than ever. This necessitated close partnership between the Digital Products & Experience (DPX) section within the department and Marketing & Communications.

New subsites and landing pages on nsc.ca were created to support the messaging associated with the College's pandemic response and its quick pivot to online delivery. The [COVID-19 communications subsite](#) received significant praise for its intuitive design, tailored content, and positive storytelling.

A partnership between the provincial government and the College around providing support to Nova Scotian businesses during the pandemic resulted in the swift development of a [communications subsite](#) that could be included in a press release issued by the province.

“This is incredible! To all those who worked so hard, and so fast to make this happen... thank you!”

Don Bureaux  
President

DPX's contributions were felt across the College's landscape of digital products during the pandemic. What follows is a few of the most impactful:

- The Student Job Board app was rebuilt to provide greater flexibility and functionality for employers to post employment opportunities for NSCC students and alumni.
- The Academic Calendar app on nsc.ca was rebuilt to support continuous starts, a new procedure necessitated by business changes brought by the pandemic.
- Supported the implementation of Live Chat for Student Services and the Library.
- Implemented hardening and security measures on web forms on nsc.ca after an observed increase in cyber-attacks during the pandemic.

## 4.6.5: Increasing Consistency Through Standards

### Background

The Standards and Consistency commitment is where the rubber meets the road in the Technology Strategy. It called for effective governance that could guide how technology could best advance the strategic interests of the College. Standardization would ease the use of technology and create more efficient support. The safety and security of the technology environment would be job one. The department's focus on these goals put the College in a position to succeed during the pandemic.

### Next Generation Cyber Security Defense Products

The 2020/21 business plan included a measure around the capital purchase and implementation of a next generation firewall for the College. The firewall plays a critical role in the security of the institution by acting as a barrier between the internet-at-large and the College pan-provincial network. The current firewall nearing end-of-life presented an opportunity to introduce “next generation” firewall capabilities that would advance the College's security posture and streamline critical services like remote access.

Due diligence activities were conducted to assess the market space and determine what vendors offered products that aligned with the College's requirements and network architecture. To assist in this exercise, the College's existing network managed service provider (Bell) was engaged to facilitate. Their report assessed the products available from the following market leading vendors: Cisco, Fortinet, Juniper, and Palo Alto. While the College has invested heavily in Cisco for much of its network equipment, their firewall offering represents less value for money. Fortinet's Fortigate product line was the recommended solution.



Given the importance of this decision, a second opinion on Bell's report was secured from Bulletproof, a leading security solutions & services company in the region. They agreed with the report's analysis and recommendations.

With these due diligence steps completed, a Request for Quotation (RFQ) process was undertaken in partnership with Central Procurement. The RFQ was issued on September 21 and closed on October 16. The tender was awarded on November 13 and the implementation will begin in the weeks ahead.

### Cyber Security Collaboration and Shared Services

While the Higher Ed IT Shared Services consortia of Nova Scotian post-secondary institutions (PSEs) wound down this period (replaced by an expanded technology portfolio within Interuniversity Services Inc), a shared services opportunity presented itself around a Shared CISO initiative. Similar efforts have been successful in other jurisdictions around the country, most notably in British Columbia and Ontario. 7 of the 11 PSEs expressed interest as it would be a more affordable way to bring cyber security strategy leadership to their respective institutions. NSCC committed to the proposed 2-year pilot project in March 2020.

After a failed recruitment exercise, the group (referred to as the CISO-7) decided to purchase a "CISO-as-a-service" offering from the Ontario Cybersecurity Higher Education Consortium (ON-CHEC) on a trial basis until the end of the fiscal year. The service includes the following:

- Expert advice on critical cyber security issues, strategy, program management, and governance.
- Access to security self-assessment tools and benchmarks for higher education.
- Tailored support and guidance to establish your security roadmap and program.
- Participation in the collaborative development of security guidelines and frameworks for the broader higher education community.

The College is also more engaged on a national level with a recent invitation to sit on CANARIE's Cybersecurity Advisory Committee. The purpose of the committee is to provide advice and guidance on advancing national collaboration that supports strengthened cybersecurity capabilities across the sector. It also provides guidance to CANARIE with respect to specific cybersecurity program initiatives aimed at boosting the cybersecurity posture of Canada's 200+ research and education institutions.



Three initiatives were recommended, approved and funded this period.

1. Intrusion Detection Systems – To provide a common capability for all institutions to detect and locally respond to network intrusions. (Funding: \$1.5 - 2.0M)
2. Deployment of DNS Firewall to all Institutions – While not a replacement for an institution's core Firewall, it adds a layer of defense against common attacks. It provides an ability to consolidate data on threats. (Funding: \$1.6 – 1.8M)
3. Development of a Consolidated Threat Feed – To provide a streamlined way for all institutions to learn about and mitigate against major threats targeting the sector. (Funding: \$1.5 – 2.0M)

With the director's participation on the committee, NSCC will continue to be at the "front of the line" as these initiatives progress over the next period.

## 5.0: Go Forward Priorities

To demonstrate how the Technology Strategy continues to act as a map, showing us where we need to be and how we can get there, the department's go forward priority initiatives will be itemized by the strategy commitments they support.

### 5.1: Providing Training and Resources

#### Expand Student Technology Training Offerings

The pandemic provided the department the opportunity to grow its direct relationship with students around technology training. Out of necessity, this was focused on core technologies like Microsoft Teams. Next period the department will broaden these offerings to address competency gaps in other technology platforms and services.

#### Partner with Academic on Integrated "Technology in Teaching" Training

Collaboration with Academic around the training and support of enabling technologies improved dramatically during the pandemic. Next period the department will partner with the Centre of Teaching and Learning to co-deliver training sessions that provided the required technical training and demonstrate how to leverage these tools and services within the context of teaching.

### 5.2: Increasing Access

#### Initiate Procurement of Cloud-based ERP and SIS

The response to and financial impacts stemming from the pandemic have resulted in the procurement of a modern ERP and SIS being deferred until fiscal 2021-22. Pre-requisite initiatives will advance in the interim and the procurement strategy will be finalized in collaboration with key College stakeholders.

#### Implementation of Cloud Device Management on New Phones and Laptops

The College's current mobile device management capabilities are less effective when devices spend significant time disconnected from the College network. To better manage and secure College mobile devices, Microsoft Intune will be installed and configured on new College smartphones and laptops prior to their deployment to staff.

### 5.3: Providing Improved Service and Support

#### Implement New Safety and Incident Reporting Solution

The College has a regulatory obligation to track and report on all safety incidents, hazards and near misses that occur amongst staff and students. The existing business processes and enabling technology are inefficient and not sustainable. A business case was developed and approved by the TGc and Executive Council. Due to the College's pandemic response, the Health & Safety team has not been available to participate in the project. Initiation has been deferred until early 2021.

#### Information Architecture and User Experience Improvements to nsc.ca and Connect

With the College undergoing significant organizational and Academic School changes over the last period, it is incumbent on nsc.ca to ensure the information on nsc.ca is structured in a way that aligns with and supports its current structure and objectives (i.e., lines of business). DPX will collaborate with Marketing & Communications and Academic on an Information Architecture update to the public website.

To ensure the continuous improvement of Connect, the College's intranet portal for staff and students, updates to the user experience will be undertaken. There is a desire for campuses to have easier to find, more robust sites and to improve the distinction between College-wide and campus content to ensure the most relevant content is surfaced for users.

## 5.4: Enhancing Communication and Collaboration

### Develop Roadmap for Transition of Landline Calling to Microsoft Teams

With Microsoft Teams now the College's unified communications platform, there is an opportunity to migrate away from the legacy landline services provided by Bell in favor of direct dial service provided from Teams. A roadmap will be developed to determine the technical, contractual, and organizational change initiatives necessary to complete this transition successfully.

### Design, Implement Redundancy for nsc.ca

The College relies on nsc.ca as a hub of communication to external audiences. It is also the primary means of communicating closure information to staff and students. The current hosting provider is within the region which is not a best practice from a business continuity perspective. If an extreme weather event occurred, there is the potential that nsc.ca may be negatively impacted. This initiative will design and implement the geographical diversity necessary to mitigate this risk.

## 5.5: Increasing Consistency Through Standards

### Implement Integration between Brightspace and Microsoft Teams

While the introduction of Microsoft Teams has enabled the College's online delivery, it has added steps for faculty to prepare for and deliver their courses. D2L recently announced an integration capability between Brightspace and Teams called "Course Connector" that will streamline the setup and continued synchronization between the two systems. This will be procured and implemented in collaboration with Academic.

### Develop Breach Response Plan and Retain Breach Coaching Services

The department will partner with Cox & Palmer to develop a data breach response plan that leverages coaching services available from their cyber security & privacy practice. This initiative will culminate in a formal tabletop exercise with College stakeholders to test the efficacy of the plan.

## Appendix A: Technical Support Metrics by Campus

Campus technical support is provided by a team of 29 technicians. The team consists of 13 Digital Technology Leads and 16 Digital Technology Analysts. The table below shows the breakdown of technicians by campus and how that number relates to weighted numbers of students and staff.

The methodology used for this analysis was updated this period to factor elements of the College's COVID-19 program delivery. The number of shared use PCs in campus computer labs was removed as a component of the analysis due to decreased relevance. New weightings were devised to factor in the following:

- Student vs. Staff
- Staff Type
- Student Academic School
- Delivery Method

Campus	# of Techs	Weighted Students per Tech	Weighted Staff per Tech	Weighted Customers per Tech	Estimated Occupancy	# of Targeted Techs	Adjusted Tech Ratio
Akerley	2	97.0	77.5	174.4	38%	1	132.9
AVC	2	30.3	35.7	66.1	27%	1	35.3
Burridge/Shelburne	2	39.0	52.0	90.9	32%	1	57.7
Cumberland	1	52.2	68.3	120.5	31%	1	36.9
eCampus	0						
Institute/Central	5	28.3	137.3	165.6	19%	2	80.7
Ivany	5	98.7	55.1	153.8	38%	2	144.7
Kingstec	2	69.4	57.3	126.7	36%	1	91.4
Lunenburg	1	66.9	66.3	133.2	37%	1	49.8
Marconi	3	54.7	50.3	104.9	30%	2	47.0
Pictou	2	44.1	47.9	92.0	33%	1	61.2
Strait Area	2	57.1	56.5	113.6	40%	1	91.8
Truro	2	63.3	49.9	113.3	31%	1	69.8
Total / Averages	29	65.4	69.6	135.0	30%	15	77.0
				<b>Remote Techs</b>	70%	14	197.1

The biggest challenge in managing the department's new service delivery model is balancing the number of technicians that need to be onsite to support blended/hybrid delivery vs. those that can work remotely supporting staff and students learning online.

The analysis identifies Akerley and Ivany under the most pressure due to their customer counts, program/delivery method mix and estimated on-campus occupancy. A retirement at Akerley initially caused management to consider pivoting the vacancy to a position that focuses on Metro Audio Visual / Event support. The status quo will be maintained until the College's "new normal" support requirements are better understood.

While not currently under duress, Cumberland campus and its two sites are being monitored. The current approach to managing peaks is to supplement with a technician from Truro Campus.

# Appendix B: Thank You Tech Superheroes!

Team Member	Key COVID-19 Contribution
Simon Anderson	Student Job Board App Rebuild
Andrew Arsenault	Faculty Laptop Deployment, Training
Rob AuCoin	No Touch Student ID Card Project
Cara Beals	Technology Training, Teaching Support
Colleen Blake	Remote Access to Onbase Scanning
Jodi Bowes	Technology Training
Janet Brisson	Technology Training
Matthew Carter	Cellular Stick Deployment
Ryan Clancey	Remote Access & Software Deployment
Kevin Cowper	Microsoft Teams Leadership, Training
Spencer Dawson	Technology Training
Christian Deveau	Microsoft Teams Administration
Shannon Fleet	Library Loaner Laptop Expansion
Ryan Geldart	Technology Training, Remote Trades Lab
Chris Goucher	No Touch Student ID Card Project
Pete Hamlin	Technology Training
Melissa Harris	WebCal App Changes, Live Chat
Stephen Harris	External Wi-Fi Implementation
Shelley Hire	Teaching Support
Kathy Hunt	eBookstore Implementation
Nick Jessop	Library Loaner Laptop Expansion
Dale Kaye	Technology Training
Pat Kelley	Technology Training
Lisa King	Technology Training
Andre Klefenz	Live Chat Implementation
Sarah La Forest	Rolling Waitlist Support
George Loveridge	EJV Access, Tuition & Fee Changes
Alyson MacDonald	Student Job Board App Rebuild
Peter MacLean	Technology Training, Live Chat
Nicole McLean	Faculty Advisor Assignment
Ian Millett	Technology Training
Matt McGillivray	Technology Training
Michael McGuire	Technology Training
Lewis Murphy	Technology Training
Oge Nwachukwu	eBookstore Implementation
Jillian Parsons	Academic Calendar App Rebuild
Scott Perry	Technology Training
Christian Ponikau	Technology Training
Rob Ray & Ranger	Provincial Laptop Delivery
Jamie Richards	Technology Training
Susan Richter	Training and Subsite Builds
Mark Rodgers	Faculty Laptop Deployment
Greg Serafinus	Teaching Support
Juanita Smith	SIS Configuration
Holly Stackhouse	Teaching Support, Readspeaker/TutorMe
Andre Surette	Technology Training
Randy Sweeting	Technology Training
Erin Tramble	Technology Service Desk Updates
Michael Trumbull	Remote Access to Onbase Scanning
Clint Walker	Remote Access & Software Deployment

