



# Stepping into the Future

NorQuest Technology Strategy 2022 – 2030

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## NorQuest College Treaty 6 Acknowledgment

NorQuest College acknowledges that we are on the traditional lands, referred to as Treaty 6 Territory and that the City of Edmonton and all the people here are beneficiaries of this peace and friendship treaty. Treaty 6 encompasses the traditional territories of numerous western Canadian First Nations as well as the Métis people who have called this area home for many years. NorQuest College is dedicated to ensuring that the spirit of Treaty 6 is honoured and respected.

### Executive Summary

*NorQuest 2030: We Are Who We Include* is about how the college welcomes learners, serves the community, succeeds based on inclusion as well as helps solve societal challenges by enhancing connection and investment. The strategy focuses on five outcomes: Learner, People, Connection, Investment and Transformation.

By 2030, the college aims to complete several key objectives in relation to the five outcomes; the Technology Strategy will execute several initiatives to make that possible. A series of 3, 5 and 8 year roadmaps have been developed to guide the journey. When looking at the planning horizons, a detailed 3-year plan has been developed that will be updated on an annual basis. As we start looking 5 years into the future, the roadmap gives a general sense of direction as to where we think the college is headed. Once we get to 8 years and beyond, the goals and aspirations are purely visionary given how quickly things change in the digital and technology world.

Over the next three years, there are some key areas for technology investments. Investments in HyFlex, Bring Your Own Device (BYOD) and Virtual Experiences will help attract and retain learners as well as enable them for success. The college is a Work from Anywhere (WFA) organization and employee engagement will improve as we invest in technologies that help people navigate the WFA environment. Therefore, investing in technologies related to Information Security and Privacy is becoming increasingly important. Knowing that employee and learner information is safe and secure will help increase external investment opportunities as well as boost the community's confidence in NorQuest and its programming. It is important to have an IT infrastructure that is reliable, secure and flexible that can handle the college's growth targets, which is why it is vital to continue to invest in this area. As both staff and learners embrace new technologies, the infrastructure will need to handle the surge in demand by increasing its bandwidth and upgrading its network capabilities.

There are some interdependencies between the Technology Strategy and other strategies at the college. Reimagine Higher Education contains a list of 11 Desired States that look at how the college will evolve over time and what NorQuest will possibly look like in 2030. The Desired States are impacted by our existing technology and technology trends. Likewise, the technology being implemented at the college will be influenced by any progress made towards any of the Desired States. The Digital Strategy is focused on digital applications, business capabilities,

processes and data. As such, it has recognized Identity and Access Management (IAM) as an area of investment that is required in order to move a number of digital initiatives forward. Changes made to the IAM solution will have an impact on the digital initiatives and vice versa, which is why it will be important to ensure there is ongoing and clear communication.

The Technology Strategy is concerned with the underlying and foundational technology required by the college to meet its strategic outcomes. It provides strategic technology direction for the college until 2030 which is within the same time frame as the college's strategy. The strategy guides technology related policy, decision making, planning and budgeting. It will help foster an atmosphere where learners and staff feel safe and digitally secure. In addition, the Technology Strategy will help streamline business processes through automation while optimizing costs.

This is not an IT or Business Technology Services (BTS) strategy. Rather, it is a comprehensive college-wide plan that outlines how technology should be used to accomplish strategic objectives and business goals. The Technology Strategy integrates both existing and prior NorQuest strategic work including the Technology Strategy that was developed in 2016 that covered a 2016-2021 time frame. It provides insight into how existing and new technologies can be leveraged to attract both domestic and international learners. The Technology Strategy ensures the appropriate technological tools and resources are available for a work and learning from anywhere environment. The strategy demonstrates how technology can be used to increase program flexibility and diversity as well as remove a number of barriers to create a truly inclusive environment.

## Approach

Consultations with various internal stakeholders played an important role in developing the strategy. We would like to acknowledge the insights, advice and expertise that contributed to the development of NorQuest's Technology Strategy. Every business area and faculty at the college was consulted. Their input was invaluable to shaping a strategy that extends to 2030 and we would like to sincerely express our gratitude to all the contributing areas below:

### Academic

- Faculty of Academic Strategy & Integration
- Faculty of Arts & Science
- Faculty of Business, Environment & Technology
- Faculty of Health Studies
- Faculty of Research & Academic Integration
- Faculty of Skills & Foundational Learning
- Education Technology

### Learner Experience

- Academic Support Centre
- Accessibility Services
- Admissions & Supports
- Indigenous Relations & Support
- Wellness

### Corporate Services & Finance

- Business Planning & Analytics
- Business Technology Services
- Compliance
- Facilities, Fleet & Supply Chain Management
- Financial Services
- Strategic Initiatives

### Marketing & Communications

- Communications & Creative Services
- Student Recruitment
- Web & Digital

### External Relationships & Partnerships

- Advancement
- Business Development
- International Markets

### People & Culture

- Culture & Development
- People & Talent Operations

### Equity, Diversity, Inclusion & Anti-Racism (EDI – AR)

### Office of the President

There are several different strategies within the portfolios and business units at the college. Each strategy was reviewed and analyzed in order to determine how technology could be leveraged to support their efforts. In addition, current state assessments and surveys were conducted in the areas of Infrastructure & Operations, IT Security, Risk Management, End User Services and IT Budget. For each area, the results were analyzed, and a gap analysis was performed. This helped create long-term goals and roadmaps to address the ever-changing state of technology.

In developing the Technology Strategy, a local Environmental Scan was performed to understand the landscape in the public sector within the Province of Alberta. Several Technology Strategies were reviewed and analyzed from other Post-Secondary Institutions (PSIs) as well as a number of public organizations such as:

Athabasca University  
Bow Valley College  
City of Edmonton  
Government of Alberta

MacEwan University  
NAIT  
SAIT  
University of Alberta

In addition to reviewing their strategies, meetings were held with their Chief Information Officers (CIOs), Chief Technology Officers (CTOs), Vice-Presidents of Information Technology (VP ITs) and Executive Directors. The information they provided gave additional context and insights about their strategies. As well, an international environmental scan was conducted to identify global trends and new competitors in higher education.

## Institutional Change Drivers

The previous Technology Strategy was developed in 2016 and covered the 2016 to 2021 time frame. Over that period, there were a number of significant institutional changes that took place such as changes in learning requirements, a new president, change in senior leadership, portfolio restructuring and the introduction of a HyFlex classroom environment. The above changes caused a shift in strategic direction and business goals that impacted the investments in technology.

Areas that experienced significant changes within the institution are listed below:

### Executive

- Changes at the executive layer as well as the composition of portfolios had a direct impact on the development of the Technology Strategy.
  - One of the most significant changes occurred in July 2020 when the college welcomed Carolyn Campbell as its new President and CEO which led to a change in strategic direction for the college.

### IT Division

- The IT division has undergone several changes and rebranding that changed the way some IT services are delivered and supported.
  - In 2017, a Shared CISO was hired which gave birth to a formal Cybersecurity program.
  - In 2019, the division was restructured and the name changed from Education & Information Technology (E&IT) to Technology & Creative Services (TCS).
  - In 2020, additional changes were made to the division including new leadership and its new name became Business Technology Services (BTS).
  - In 2021, the Digital Security team was formalized in order to continue to strengthen our digital security environment.

### College Strategies

- The formation of several new strategies impacted how technology would be assessed, selected and used.
  - In 2017, Wahkôhtowin Strategy was launched.
  - In 2020, the Cloud Strategy and Physical Campus Planning Strategy were developed.
  - In 2021, NorQuest 2030: We Are Who We Include, Reimagine Higher Education, Customer Attraction Strategy, EDI Strategy and International Strategy were created.
  - In 2022, the Digital Strategy was developed.

**Faculties**

- NorQuest has witnessed the development of new faculties. This required additional supports and investments in technology in order to move forward with their new programs.
  - In 2018, the Faculty of Business, Environment & Technology (FBET) was created.
  - In 2022, the Faculty of Arts & Science was created.

**Business Areas**

- With the creation of new business areas, the college must ensure that the appropriate systems and platforms are in place to allow for growth and scalability.
  - In 2022, both the Equity, Diversity, and Inclusion and Anti-racism (EDI-AR) division and the Office of Safe Disclosure were born.



## External Change Drivers

There are various forces outside of NorQuest's control that influence or impact the institution. By understanding these external change drivers, the college can use technology to be better prepared to respond to future challenges.

A STEEPLED analysis was conducted to evaluate specific socio-culture, technological, environment, economic, political, legislative, ethical and demographic forces (Buller, 2015). Below is a list of the most impactful external change drivers:

### Social

- Issues of EDI have long existed in society but recent events, such as the murder of George Floyd and the discovery of numerous unmarked graves at former residential school sites, have triggered a worldwide response. Individuals from all walks of life are demanding change and the Black, Indigenous and People of Colour (BIPOC) communities are leading the charge. EDI and AR initiatives have taken off, decolonization strategies are being developed and social media giants are being held more accountable for their role in perpetuating racism and discrimination.
- With the growing need and demand for online or hybrid learning environments, there are several new competitors in the higher education space including organizations like Google and Amazon. When compared to publicly funded PSIs, these new entrants can access the capital needed to quickly move initiatives forward. Online learning platforms, such as Coursera, LinkedIn Learning and Pluralsight, have the advantage of being born digital. They have already been playing in the online education space. Traditional brick-and-mortar schools must consider expanding their online presence or they risk losing their relevance and market share.

### Technological

- The technology landscape is rapidly evolving and changing. Organizations are moving their services to the cloud as it has many benefits such as reliability, scalability, and high availability. However, it does have its drawbacks and may not be suitable for all situations which is why it is important to adopt a Cloud Smart and not Cloud First approach as stated in NorQuest's Cloud Strategy.
- Virtual experiences are transforming the learner environment by improving accessibility for learners and increasing program flexibility and diversity. The pandemic has forever changed the way that everyone works and learns. Technology will be the key for creating a successful online everywhere environment.

**Economic**

- The global economy is facing challenges and Alberta's economy is not immune. This has had a direct impact on higher education. Overall, post-secondary funding has been decreasing which has led to a steady rise in tuition and fees. All the while, Canada's inflation rate is hitting a new 31-year high (Lundy, 2022) which is causing an increase in the cost of living. Learners recognize the value in getting a post-secondary education, however, they are reluctant to take on a large amount of debt to do so. Students will look for employers, educational providers and post-secondary institutions that will help them gain an education and a job or career while allowing them to remain debt free (Kitteringham et al., 2021).

**Ecological**

- During the global pandemic, educational institutions experienced rapid and significant change. There were periods of time where schools shut down completely and courses were taught solely online. Eventually, in-person instruction resumed with a lot of institutions still opting for some sort of hybrid learning environment. Both learners and staff faced several challenges: not everyone had the same level of access to technology in order to go online, their home environment was not conducive to learning or working and the lack of social interaction led to an increase in mental health issues.

## Trends

Understanding the technology and business trends that are driving the higher education sector is important to shaping NorQuest’s Technology Strategy. Trend analysis helps the institution determine areas of investment for finances, resources and time that will maximize student success. It will also assist the college when making decisions related to curriculum and instruction.

### Learning Environment and Student Experience

- Many PSIs are spending more money on classroom technology such as pan-tilt-zoom cameras, enhanced audio systems, digital whiteboards, document cameras and content capture technologies. They are investing in technology that will allow learners to choose, at any given time throughout a course, their preferred method of participation by attending in person, online or through recorded video after the actual class time. This new classroom technology requires an investment in training instructors to use the technology so that it can be incorporated into their pedagogical practices. Investment in classroom technology coupled with training instructors on how to use the technology will allow institutions to expand their reach within the domestic and international learner markets.

### Enrollment Challenges

- Throughout the pandemic, institutions worldwide experienced a decrease in both domestic and international student enrollment. This was caused by several factors: travel and visa restrictions, international border closures, declining global economy and the physical closure of post-secondary institutions. With the relaxing of global public health restrictions, student enrollment numbers have begun to recover. However, now more than ever, it has become important to attract and retain learners. To address this challenge, institutions must provide workforce relevant education and training, invest in tools and services to improve retention, use technology to create a personalized enrollment experience and increase student engagement by investing in the appropriate technologies such as nudge technology. Nudge technology is defined as a “a collection of technologies that work together to achieve timely personalized interaction with students, staff and faculty such as a text (SMS) reminder for class just in time” (Mutimer & O’Brien, 2018).

### Automation

- Various types of automation are being used in an educational context in order to save time, increase productivity and improve the overall student, faculty and staff experience. Workflow Automation, Robotic Process Automation (RPA) and Artificial Intelligence (AI) are emerging technologies in this space. According to Morgan et al. (2022b), RPA solutions are being used to “automate back-office, hybrid and student-facing processes with the objective of reducing labor, cost and human error by reliably performing high-

volume human tasks”. Overall, automation allows staff to focus on more value-added activities instead of focusing on tedious and repetitive tasks that occur frequently.

### **Zero Trust Security**

- According to Raina (2021), “Zero Trust is a security framework requiring all users, whether in or outside the organization’s network, to be authenticated, authorized, and continuously validated for security configuration and posture before being granted or keeping access to applications and data”. The implementation of Zero Trust security has grown substantially since the COVID-19 pandemic began. During the pandemic, institutions were forced to move to primarily online learning and remote work. They were not prepared for this sudden shift where learners and staff were accessing network resources from insecure personal devices. The new vulnerabilities that emerged from shifting to a remote learn and work environment enabled hackers to exploit individuals to a greater extent. Thus, the network architecture must be such that access is restricted to the minimum required but flexible enough to support the increasing needs of remote learners and workers.

### **Continuing Education and Workforce Development Solutions (CE/WFD)**

- According to Morgan et al. (2022), there is a growing need for continuing education and workforce development solutions. These solutions are designed to support the management of students enrolled in non-credit, non-degree courses and programs. These platforms support the admission, registration, and payment for these systems. Integration with the student information system (SIS), learning management system (LMS) and identity and access management solution (IAM) are typically provided. By investing in these solutions, institutions can address the need for continuous learning which is becoming the new reality of work.

## **I&T Operating Model**

*NorQuest 2030: We Are Who We Include* focuses on digital optimization. This means providing a better learner experience and improving overall productivity, products, and revenue. To accomplish the above, one must look at the Information & Technology Operating Model or the I&T Operating Model. I&T represents all the Information & Technology related activities across the organization and not just the activities of the IT department (BTS). The I&T Operating Model describes how IT capabilities will be used by NorQuest to successfully achieve its strategic outcomes. In other words, it describes “how things will get done”.

It is important to identify and determine what IT capabilities are necessary to meet NorQuest’s current and future needs as well as what technology is required to improve business processes in a cost-effective manner. One must also ascertain what is needed to provide long-term maintenance and support for IT-based systems. Some examples of IT capabilities include Infrastructure Management, IT Planning and IT Service Delivery.

The I&T Operating Model has nine key and interdependent components. As shown in Figure 1, those nine components are in turn split into three sets of related components: engage, enable and deliver. Table 1 goes on to describe each one of the components.

**Figure 1**

*I&T Operating Model Components Framework*



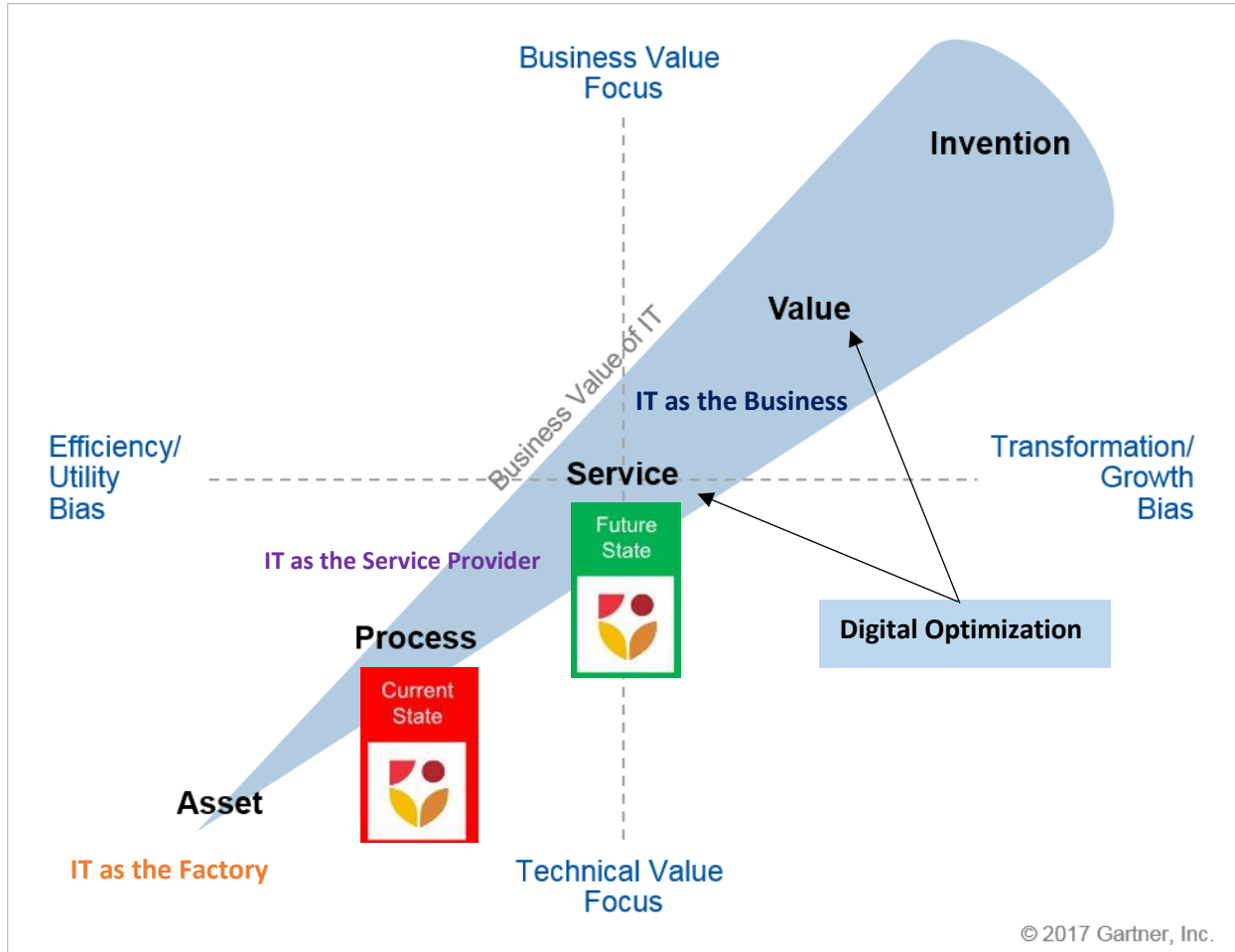
*Note. Adapted from Simon, M., & Cox, I. (2022). What Is an I&T Operating Model, and How Do You Accelerate Its Design Process?*

**Table 1***I&T Operating Model Component Description*

<b>Set</b>	<b>Component</b>	<b>Description</b>
Engage	Performance	How will I&T contribution be managed and measured?
Engage	Decision Rights	Who will make critical decisions, when and how?
Engage	Financials	How will I&T be funded, how will budgets and costs be allocated and managed?
Enable	Organizational Structure	How will resources, roles and reporting lines be organized?
Enable	Sourcing and Alliances	What are the principles and approaches to external providers?
Enable	Talent	How will the necessary people, competencies and skills be developed and acquired?
Deliver	Ways of Working	What methods, frameworks, processes and relationships will be used?
Deliver	Tools	What tools and assets will be used to support, enable and deliver I&T?
Deliver	Places	Where will people and assets be located (physically and virtually)?

*Note.* Adapted from Gartner, Inc. (2021a). *Building an Action Plan for the I&T Operating Model.*

The I&T Operating Model components can be simplified into five common patterns: asset, process, service, value and invention. As the names of the patterns suggest, each one uses the appropriate combination of I&T Operating Model components to focus on what is being optimized. Figure 2 shows how each pattern progressively becomes more business oriented and aligns itself more with business outcomes and growth. Each pattern builds upon the previous patterns and requires progressively higher levels of IT-related maturity. The fact that one pattern requires more maturity than another does not make it better. The framework simply indicates a migration path for going from one model to another. The model that is best for an organization depends on the organization's digital ambition, as described below.

**Figure 2***I&T Operating Model Patterns*

Note. Adapted from Simon, M., & Cox, I. (2022). *What Is an I&T Operating Model, and How Do You Accelerate Its Design Process?*

NorQuest's digital ambition is one of digital optimization. For the college to move forward to digital optimization, BTS must move from its current Process Model to a Service Model. This means transitioning from being reactive and running like a utility to becoming proactive and a business partner. BTS will become an enabler and position the college areas for success. BTS will be more integrated with the business, focused on optimizing the experience of the learners, staff and faculty as well as expand and continuously evolve services to help give NorQuest a competitive advantage in the higher education space.



## How to Win

The Technology Strategy contributes to the mission of the college by providing guidance on how technology can be used efficiently and effectively to achieve its strategic outcomes and business goals. NorQuest's technology services need to be reliable, secure, cost-effective and adapt to meet the needs of an ever-changing learner and technology landscape.

To support NorQuest's goal of becoming the first choice for an inclusive and seamless educational experience, technology will be used to:

- Attract and retain learners
- Anticipate learner needs
- Improve accessibility
- Increase program flexibility and diversity
- Support an inclusive educational experience

It is important that learners continue to have consistent, reliable and easy access to services. This means the college must expand and enhance its service offerings and research to best serve its learners and position them for success. The appropriate use of technology can help achieve this as it becomes a facilitator of access to education.

By leveraging NorQuest's technology and resources, the college can maximize service delivery, amplify its impact and better support learners. The effective use of technology can:

- Improve the user experience
- Streamline processes
- Expand digital literacy
- Strengthen data driven and evidence based decision making abilities

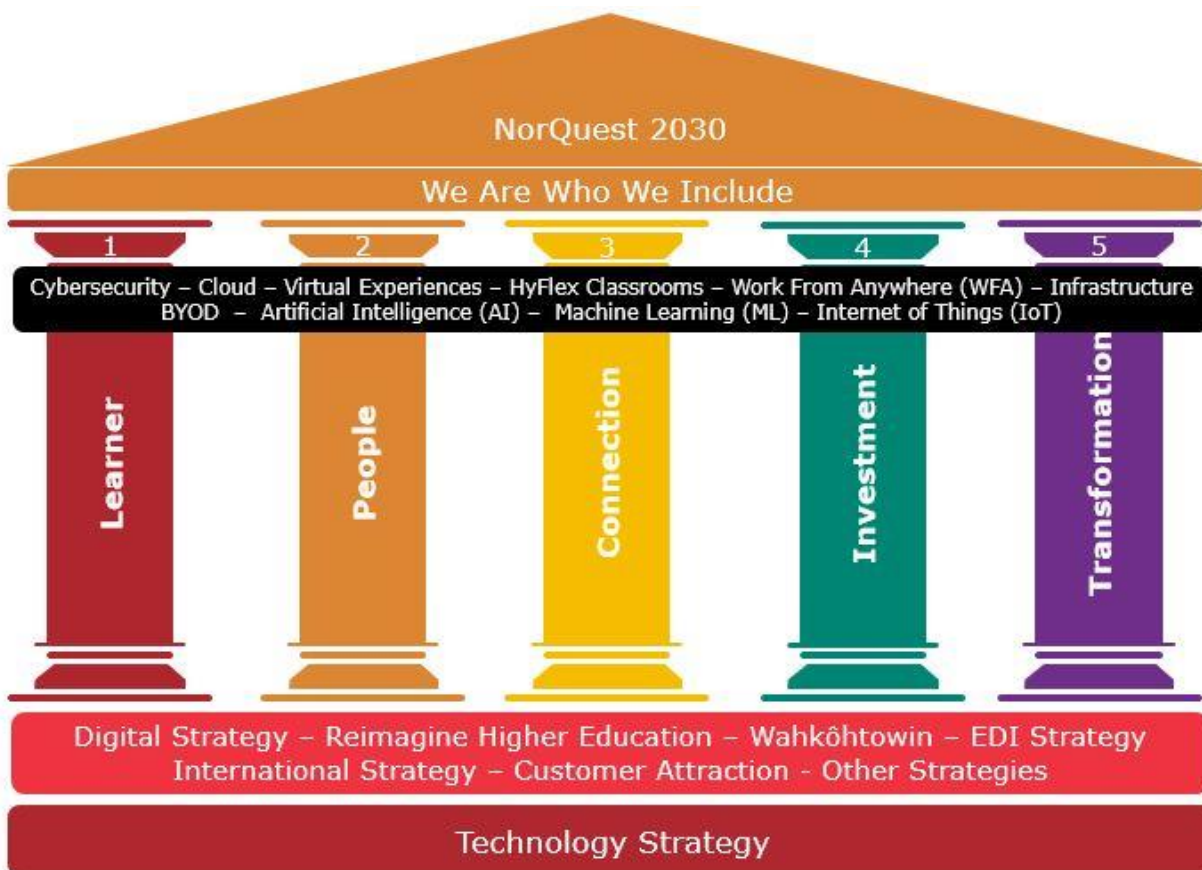
By enhancing business intelligence, predictive analytics, machine learning and enterprise resource planning, the institution can maximize return on investment. The implementation of self-help support tools, the addition of enhancements to college applications and simplifying processes for learners through automation will have a significant impact on improving the user experience at NorQuest. Lastly, optimizing processes, services and operations will help support the college and its learners as it grows.

The Technology Strategy's success is defined by the success of all the college's strategies. Using the analogy of a house, the Technology Strategy is the foundation on which everything else is built. The Digital Strategy, Reimagine Higher Education, Wahkôhtowin and other strategies could be looked at as the subfloor that is built upon the foundation and relies on the Technology Strategy in order to achieve their business goals and strategic outcomes. In turn, all the strategies support the five pillars or outcomes of NorQuest 2030 which are: Learner, People, Connection, Investment and Transformation. This culminates into *NorQuest 2030: We Are Who*

*We Include.* The different investments that come as a result of the Technology Strategy impact each and every NorQuest 2030 strategic outcomes (see Figure 3).

**Figure 3**

*The Technology Strategy is the Foundation*



## Strategic Technology Investments

Investing in value-add technologies will significantly contribute to moving the college forward in its strategic initiatives. When considering new technologies, a certain amount of scrutiny and due diligence is required. In some instances, the college may not want to be the early adopter of a particular piece of technology. In other cases, the use of cutting-edge technology could give NorQuest a significant competitive advantage over other institutions. Not only should NorQuest be looking at new and emerging technologies but it also needs to consider how to increase accessibility to its current technologies.

As a publicly funded institution, responsibility must be taken to steward public funds appropriately. As more and more of our business relies on technology, such as online teaching and learning, the IT budget is expected to evolve and expand. BTS has been fiscally responsible but it is important to note that in order to meet the college's growth targets and strategic outcomes there will need to be a significant investment in technology. BTS will continue to work on cost optimization as those investments occur.

Below is a list of key areas of investment that come as a result of the Technology Strategy:

### 1. Online Everywhere (learn and work)

#### A. HyFlex Classrooms

HyFlex, Hybrid, Synchronous, Asynchronous, Online and In-Person learning environments allow the college to meet the students where they are at and maximizes their chance of success. The use of the latest technology in HyFlex classrooms allows learners to choose, at any given time throughout the course, their preferred method of participation by attending in person, online or through recorded video after the actual classroom session. For some students, getting to a physical location to attend a post-secondary school may be a challenge or obstacle in itself. The HyFlex model makes education more equitable as the same level of education is made available without the learner having to physically come on campus. The course outcomes and quality of teaching and learning remain the same no matter the delivery mode a student chooses.

#### B. WFA

The college has turned into a true Work from Anywhere (WFA) organization in which technology has played a pivotal role. In order to accommodate the different workstyles reliably and securely, Multi-Factor Authentication (MFA) was implemented, the IT Portal and Virtual Private Network (VPN) were updated, additional Terminal Servers were created, staff desktop computers were replaced with laptops, bookable hoteling spots were developed and Microsoft Teams became more

heavily used as a communication and collaboration platform. Even though a lot of technological change has already been introduced, there will be more change to come. Meeting rooms will need to be fitted with TVs, monitors, cameras and sound systems in order to accommodate a mixed environment where some attendees are in-person and others are attending virtually.

## **2. Cybersecurity**

The cyber threat landscape is constantly evolving which makes it essential to invest in technologies and practices related to Information Security and Privacy. Cyber threats come from a number of different sources including nation states, organized criminals, hacktivist groups and even our own staff who may unknowingly click on a malicious link. Due to the increased incidents of ransomware, malware and phishing, the cybercrime damage costs have doubled in the last few years (Sobers, 2021). During the COVID-19 pandemic, the reports of identity theft doubled and the number of data records stolen was more than the previous 15 years combined (Cripps, 2021). Bad actors are increasingly targeting individuals through phishing e-mails in order to get access to systems and confidential information. Information Security has become more than just hardware and software; it is IT security governance, processes, procedures, social engineering education and security awareness training. NorQuest must continue to take a layered approach to Information Security and Privacy to maintain a digitally safe and secure environment. A major security incident would cause reputational damage and impact our ability to attract and retain learners, which in turn would lead to financial loss.

## **3. Infrastructure**

It is important to have an IT infrastructure that is reliable, secure, flexible, scalable and up to date so the college can meet its strategic outcomes and business goals. It is the underlying technology required for the college to be successful and includes physical assets like Wireless Access Points (WAPs), servers, switches and routers. As both staff and learners embrace new technologies, the infrastructure will need to handle the increased demand. For example, high resolution online training material and HyFlex classroom environments will require increased bandwidth so users do not experience laggy or choppy video and audio. As the college grows, the number of staff and learners on campus will increase, leading to a rise in wireless utilization. Today, everyone expects to be connected to the world wirelessly and this is not going to change moving forward, as the number of internet ready devices that each person owns is steadily increasing. NorQuest's wireless infrastructure must be prepared to handle more simultaneous connections with a higher device density. Investments in a highly available digital network that can support a growing online consumer

base are important to the success of our learners and the college as a whole.

#### **4. Bring Your Own Device (BYOD)**

Learners are preferring to use their own devices for classroom learning over traditional lab-based approaches. By actively promoting BYOD initiatives and providing the infrastructure to support them, the college will be encouraging learners to use their devices in NorQuest's learning environment which will further their educational journey. This approach will increase learner engagement and leads to improved learner success. BYOD also creates the technical foundation for a virtual learning environment which enables the college to reach more learners within the global community.

#### **5. Virtual Experiences**

The use of virtual technologies is allowing instructors to bring the real world into the classroom. Virtual experiences, such as Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR) and Extended Reality (XR) are helping to create a fully immersive learning environment that would otherwise not be possible. The technology is transforming the learner experience by improving accessibility for learners as well as increasing program flexibility and diversity. For example, using these technologies can make all textbooks and printed material readily accessible to students with disabilities, removing a number of barriers. (Kitteringham et al., 2021).

#### **6. Artificial Intelligence (AI), Machine Learning (ML) and Robotic Process Automation (RPA)**

Pursuing the areas of Artificial Intelligence (AI), Machine Learning (ML) and Robotic Process Automation (RPA) will be beneficial to the college in several ways. These technologies can help personalize all the experiences across the entire student lifecycle which will improve student engagement and help attract new learners. They will help NorQuest operate more efficiently by automating a number of administrative activities that take place during the admissions process such as visa processing and course registrations. Student retention will improve because the college will proactively identify learners that are at risk of dropping out. This will give NorQuest staff the opportunity to reach out to the students and develop plans to help them get back on track. Lastly, by allowing these technologies to perform time intensive tasks and make problem-solving more efficient, faculty and staff can re-focus their efforts on more value-add activities which will improve the overall learner experience. Some of the technologies worth investigating include chatbots, face detection and recognition technology, digital assistants and natural language processing.

## **7. Internet of Things (IoT)**

There are billions of physical devices around the world that are now connected to the internet, collecting and sharing data. The term that is commonly used is the "Internet of Things" or IoT. IoT is mainly used for devices that wouldn't normally be expected to have an internet connection and can communicate with the network independent of any human interaction. IoT includes light bulbs, smart thermostats, appliances, building heating/cooling controls or alarm systems. Significant savings can be found by investing in things like web-based systems that control a building's mechanical equipment. This leads to increased energy efficiency and reduced operating costs. Not only will this be more environmentally friendly but the savings realized could be re-invested into reusable resources such as laptops and computers.

## People & Culture

Technology has played a role in developing the college's culture and has been impactful in the lives of its employees. This trend will continue as technology continues to be interwoven into our everyday lives and the workplace. NorQuest launched a workstyles program pilot just prior to the COVID-19 pandemic and there were two workstyles that were identified:

1. *Campus workstyle* means you work on site all or most of the time at a dedicated assigned workspace, either to meet operational requirements or by preference.
2. *Flex workstyle* means you work away from campus 60-70% of the time.

Unfortunately, a provincial work from home order was in place for a majority of the pandemic which did not allow for a true pilot to run. However, many lessons were learnt about working from home, virtually and in a hybrid environment. At the time of writing, the public health restrictions have been lifted and life is returning to "normal" though life will never be the same. The pandemic has caused a shift in the workplace culture and shown that, in most circumstances, it is possible for staff to work away from the office and still be productive.

NorQuest is committed to identifying and addressing matters related to Equity, Diversity and Inclusion (EDI) and becoming an Anti-Racist (AR) organization. The use of various technologies can enable organization-wide change and help address EDI issues in a holistic fashion. AI and ML solutions are data-driven and can be used to eliminate inherent or unconscious biases around age, race, ethnicity and gender. EDI tools can help uncover and avoid bias during the recruitment and interview process, support more equitable compensation practices, train staff on how to recognize bias as well as track the college's progress towards achieving its EDI goals. Data and analytics are important to developing insights about the workplace which in turn will guide decision-making. There is software that can be used to compare the college with other institutions in its diversity efforts. The information found in the comparisons can help identify areas of improvement so actionable steps can be taken.

NorQuest's workplace culture will continue to evolve to align with its Purpose and Qs. Leveraging existing technologies and the use of emerging technologies will help with this endeavour. Event technology platforms can be used to hold large hybrid college-wide culture events and it has many benefits. Hybrid events remove geographical barriers, attendees can message each other before, during and after the event which makes it easier than ever for people to network, the sessions can be recorded and accessed by individuals at a later date which is especially useful if two sessions of interest are happening at the same time and live polls as well as surveys can be created providing a valuable source of information. Replacing the college's legacy intranet with an omnichannel employee communications platform will help nurture NorQuest's culture and create an increased sense of belonging. If implemented properly, NorQuesters will be able to find the information that they need to function in a flexible work environment, have personalized information that's relevant to them and enjoy a seamless, integrated and consistent experience by

orchestrating communications across all channels such email, mobile devices, digital signage and social media.

Whether we are leveraging existing technologies or introducing new technologies into NorQuest's environment, there are new skills and competencies that will need to be acquired by staff and faculty. Teaching instructors and staff on how to use all the features of an application or software requires a certain set of skills, pedagogical knowledge and specific training in adult education. Currently, within the college, there are several areas that can provide the above training and services. It includes the Faculty of Research & Academic Innovation, Culture & Development and Education Technology. It is important to note that BTS' primary role is not to teach, train or educate faculty and staff on how to use specific pieces of software or applications. However, BTS does provide a number of Knowledge Base (KB) articles and other online support material in order to help the end users. BTS provides technical support, assistance and maintenance on the applications/software but they are not responsible for knowing the ins and outs of all the products or providing instruction on how to use them. BTS' main objective is to install, configure, and setup the products to ensure that they are working as intended. Given all the above, the various faculties, divisions and business areas need to come together to determine how training can be provided in an effective, uniform and consistent manner.



## The Road to Success

A strategy that is not executed is useless which is why a number of roadmaps have been developed. The roadmaps will be used to help plan which technologies will be implemented and when this will occur. A series of 3, 5 and 8 year roadmaps have been developed to guide us along the journey. When looking at the planning horizons, a detailed 3-year plan has been developed. As we start looking 5 years into the future, the roadmaps will give a general sense of direction as to where we think the college is headed. Once we get to 8 years and beyond, the goals and aspirations are purely visionary given how quickly things change in the digital and technology world.

There are four main areas in which roadmaps were created and below are the names of the roadmaps that were developed:

- IT Service Management (ITSM)
- Cybersecurity
- Technology Infrastructure
- Cost Optimization

All the roadmaps were designed in parallel with *NorQuest 2030: We Are Who We Include*. They are dynamic documents that will be updated on a regular basis.

## Strategic Principles & Governance for Information and Technology

It is important to have a set of guiding principles to guide technology decisions that align with *NorQuest 2030* and enable areas to make those decisions faster and in a more consistent manner. The principles below were developed as a result of consultations and feedback provided by stakeholders from across the college:

1. NorQuest will leverage existing technologies and systems before considering other possible solutions.
2. The college will take a “Cloud Smart” approach instead of a “Cloud First” adoption in order to determine which cloud services are worth pursuing based on data classification, risks to the institution, privacy considerations and financial impacts.
3. The college will use technologies that meet NorQuest's IT security and privacy requirements.
4. We will maximize efficiency and realize cost optimizations through the centralized management of technology related to hardware, software, and services.
5. We will meet the current and future needs of our learners, faculty, and staff through current, stable, reliable, agile, and scalable technology infrastructure.

IT governance is achieved in a collaborative manner by engaging leaders, faculty and staff through a number of existing committees:

- Employee Experience
- Enterprise Resource Planning
- Higher Education
- Learner Experience
- Strategic Enrolment Management (SEM)

In 2022, a new committee and several councils were created:

- Academic Council
- Deans' Council
- Equity, Diversity, Inclusion & Anti-Racism Council
- Strategic Operations Committee (SOC)

It has yet to be determined on how the new councils and committee will take part in the technology decision-making process. However, this should be decided as soon as possible to ensure that decisions are still made in a timely manner, at the right level and with proper oversight.

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