***Future Trend Analysis for Long-term Enrolment Planning***

*Fleming College*

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**About this Report**

*In alignment with the Provincial Strategic Mandate Agreement, Fleming College has implemented a Modified Long-Term Enrolment (LTE) Plan Process initially focusing on Sutherland and Frost campuses that is intended to provide an opportunity for Fleming College to align our future College vision with the ever changing environment.*

*This report is a resource document and the result of extensive environmental scan analysis and literature reviews in addition to the following companion reports; the Summary Report: Enrolment, Competitor Data and KPI’s, HEQCO’s Differentiation within the Ontario college System: Options & Opportunities, and Peterborough & Kawartha Economic Development Situational Analysis Report.*

*This report is intended to inform the modified LTE planning process specifically and more generally SMA 3, and the College Strategic Plan. It is the culmination of a collaborative effort between the Library Research Technicians, the Office of Institutional Research and the Strategic Planning & Development Office.*

*The contents identify local and future projections to support our main task of extracting key relevant trends, opportunities for the college and implications. It is intended to guide decisions at purposeful strategic planning activities that will include the President, VPA, the Deans & Chairs, ELT, and EPMC with broader discussions with faculty and students.*

*This report represents phase 1: of the Modified LTE Plan process*

**Executive Summary**

Canadian Labour Market

Government Initiatives/ Funding

Skills gaps/development

Program Delivery/Mix

Technology

Global Context/Comparators

Student Population

Regional Demographics

Internal Perspectives

Student Survey – KPI

Employee Engagement Survey

Enrolment data & IPP

**Focus of The Report**

This *Preliminary LTE Planning Report* is a summary of the research conducted in effort to provide a common understanding of trends and issues of the future and also to provide a basis for a college-wide discussion that will focus on future vision to inform Long-term Enrolment planning, the Strategic Mandate Agreement 3, the College Strategic Plan in addition to other areas or initiatives. Brainstorming activities have been planned to begin this Long-term enrolment planning process.

We are currently undergoing what has been described as the Fourth Industrial Revolution, impacting the fields of genetics, artificial intelligence (AI), robotics, nanotechnology, 3D printing, biotechnology, smart machines, networks and digitization.

Highlights include the identification of the fastest growing occupations due to rapid shifts in the labour market and the aging population over the next decade to include trades, technology, business education and health related fields.

Statistics Canada predicts forty-two percent (42%) of Canada’s labour force is considered highly susceptible to automation within the next 10-20 years, although we are certainly feeling some of those effects now. Computers will soon take care of every statistical analysis, and describe and analyze data and predict future trends.

Some additional highlights reflect the challenge in our community related to domestic enrolment as our region experienced a considerable increase in people aged 65 and over with a growth of over 200%. As a result, healthcare, community assistance and retail employment are identified as the highest employment sectors in our region. Less than a quarter of applicants and less than one third of registrations to Fleming are from students who reside WITHIN Fleming’s catchment area.

Also significant, the Aboriginal population is growing at a much faster rate than non-Aboriginal – nearly 6 times faster.

Opportunities exist now for flexile delivery in nontraditional formats such as micro-credentials and stackable credentials to serve career skills gaps with community partners.

The goal is to use this summative format, in tandem with current work of the deans and schools, to guide the decisions that address a more detailed variety of the following questions:

*Why are we doing what we are doing?*

*Where do we hope to be in 5 years?*

*What do we do well? (areas of strength)*

*What makes us unique?*

From this work, next steps include devising a plan to proactively pursue new markets while stimulating innovation that supports differentiation. This will potentially generate ideas related to new programs, repurposing programs and perhaps even sun setting underperforming programs. The college will collaboratively engage in formalized SOAR activities to provide a strength-bed strategy to address phases 2 – 4 of the LTE planning process.

**Key Findings - Summary Report (Internal Fleming Data)**

Key Findings – Internal Fleming Data by Sherry Gosselin

*Director, Institutional Research Office and Project Management Office,*

*Strategic Planning and Development Department*

The following *Summary Report on Enrolment, Competitor Data and KPI’*s is an important part of the situation analysis intended to assist Fleming leaders engaged in the Long-Term Enrolment (LTE) planning process. This report is a comprehensive business intelligence document comprised of detailed data and information that points to trends and performance over the last 10 years in some cases. Monique Gatt, Research Analyst of Fleming’s Institutional Research Office authored the main body of the report to help inform discussion and decision-making.

As we look at planning a LTE document, some pieces of information are of particular interest and worth highlighting in the situation analysis:

Student Draw

Fleming draws 55% of its domestic students from outside its region. That is the highest compared to all other Ontario Colleges and higher than 11 Ontario Universities. 0nly 15% of domestic students at Frost and Haliburton reside within Fleming’s catchment area.

E-Learning

Fleming’s Ontario Learn (e-Learning) enrolment has increase 24% from 2011 to 2016

The following graphs illustrate where Fleming stands in relation to the average for Medium Colleges[[1]](#footnote-1) regarding eLearning. An objective has already been identified for the 18/19 business plan to increase eLearning programs by 2 programs.

Apprenticeships

Fleming was 14th out of 23 colleges that offer apprenticeship programs in regard to apprenticeship enrollment as a proportion of total enrolment in 16/17.

Indigenous Students

There were 184 Indigenous students that self-identified in 15/16. This is 3.21% of Fleming’s total student population compared to 3.34% average of Medium-Sized colleges1. Fleming is expecting growth to 200-205 by 19/20 (SMA2).

International Students

Over the last 5 years F-T International student enrolment has experienced steady growth, except in the last year where we experienced exceptional growth of 108% from 2016 to 2017 (490 vs 1020).

* + Students from India accounted for 86% of International students in 14/15 and jumped to 94% in 17/18
  + In 17/18 about half of International students were enrolled in Wireless Information Networking and Project Management

Applications and Conversion

Despite a declining direct-entry age demographic, Fleming has experienced an increase in applicatio0ns over the last 5 years (see dotted trending line in both graphs below). Fleming’s conversion rate has trended downward during that same time period.

NewPrograms and Program Mix

There is no doubt, that ‘new programs’ are a catalyst for applications. For Medium-Sized1 colleges alone, there were 3340 applications to F-T ‘New Programs’ in 2017/18.

What those programs are and how they are marketed is equally important. Durham College had the most ‘new programs’ (5) that same year and received 40% (1331) of those 3340 applications. Durham’s top two programs were in the arts. Fleming had 3 ‘new programs’ that same year but only 88 applications compared to: Conestoga who had 3 ‘new programs’ and 609 applications; and Georgian who had 4 new programs and 789 applications. ‘New Programs’ in and of themselves do not necessarily generate large application volumes.

According to HEQCO[[2]](#footnote-2) (pg 21) “credential mix – particularly with regard to degrees and graduate certificates – has emerged as the most significant distinguishing feature in understanding both practical and strategic differentiation between the colleges”.

Retention

Fleming had less retention than the Medium-sized College1 average Year 1 to 2 and better retention for Year 2 to 3 for the 15/16 year.

Over the last 3 years, Fleming has experienced a slight downward trend for retention rates in Year 1 to 2 and a larger downward trend for Year 2 to 3.

13% (12) of all of Fleming’s programs (i.e. 98 programs total) had less than 60% retention from Sem 1 to 2 in 2017. Seven of those 12 programs had Graduation Rates below 60% in 2016/17.

KPIs

Student Satisfaction with:

* Q13 – Knowledge & Skills-Future Career
* Q24 Learning Experiences – Program Quality
* Q39 Quality of Services – **has experienced the greatest volatility**
* Q49 Quality of Facilities/Resources

HEQCO’s Overall Assessment

Every piece of data and analysis will tell a particular story. The Higher Education Quality Council of Ontario (HEQCO) recently released their document *Differentiation within the Ontario College System: Options and Opportunities*2. This document reported on analyzed data at an aggregate level to better understand and compare institutional differentiation within the Ontario system.

The report groups indicators into 4 major categories and Fleming is reported to have the following relative position among all Ontario Colleges (the list below goes from Fleming’s strongest category to our weakest category):

1. **Graduate Outcomes (Strongest)**
   1. Graduate employment rate
   2. Graduate average earnings
   3. Graduate job relatedness
   4. Employer satisfaction rate
   5. Loan default rate
2. **Equity of Access**
   1. % First-generation students
   2. % Aboriginal students
   3. % Students with a disability
   4. % Francophone students
   5. % OSAP participation rate
   6. % Part-time students
   7. % Students aged 25+
   8. % Indirect-entry students
   9. % Students with prior PSE
   10. Student mobility rate
3. **Learning Journey**
   1. Retention rate
   2. Graduation rate
   3. Class size
   4. % Graduates in a program with WIL
   5. Student satisfaction
4. **Demand and Demographics (Weakest)**
   1. Applicant-to-registrant ratio
   2. First choice
   3. % International students
   4. % Ontarians from home region

In reviewing Fleming’s weakest category, *4.* *Demand and Demographics*, here are some interesting conclusions:

4.2 *First Choice*: Fleming is ranked 17th among the 24 Ontario colleges in Ratio of First-Choice Applicants to First-year Enrolment. Therefore, it is conversion of these first-choice applicants that needs attention.

*4.3 % International students*: The HEQCO report used 2016-17 data. Had they used 17-18 data a different story would be told because of the large increase in International students that year.

*4.4 % Ontarians from home region*. Fleming has the lowest proportion of ‘first-year students from their Home Region’ (pg 41) and this is considered a negative for the HEQCO study. Yet Fleming feels this fact is one of our greatest differentiation strengths. In fact, we highlighted this fact in our SMA2 emphasizing that we have a wider geographic draw of students from outside our region due to our great reputation for programs at Frost and Haliburton campuses.

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**Overview and Trends**

**Canadian Labour Market – Rapid Shifts**

The Canadian Labour Market has and will continue to experience rapid shifts due to technological advancements (which put certain jobs at risk while simultaneously creating new opportunities), retirements of a large baby boom generation and a transition to a knowledge-based economy.

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| **Trend #1: Local Labour Market Projections**  The fastest growing occupations to 2024 will be in trades, technology, business, education and health related fields.  **Trend #2: Provincial Labour Market Projections**  “Globalization and new technology are changing the nature of work in Ontario. The fastest growing occupations to 2024 will mostly be in Health, Technology, Business and Service related fields.(Ontario Ministry of Finance)  **Trend #3: Canada-wide Labour Market Projections**  Occupations with the fastest projected employment growth are mainly in the Oil and Gas Sector and Health Service fields (Government of Canada, 2016). |

**Government Initiatives/Possible Funding**

Recent budgets, tabled both federally and provincially, expand on existing programs and offer new initiatives to improve access to postsecondary education while ensuring its alignment with current labour market conditions. The current funding model for Ontario Colleges is changing; with this change comes an increased focus on a college’s individual strengths, and performance-based funding tied to outcomes.

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| **Provincial Funding Initiatives** | **Federal Funding Initiatives (2018)** |
| Highly Skilled Workforce Strategy | College & Community Innovation Program |
| Career Kick-Start Strategy | Indigenous Skills & Employment Training Program |
| Ontario Lifelong Learning and Skills Plan | Pre-apprenticeship Program |
| Inclusive Skills Development | Apprenticeship Incentive Grant for Women |
| Business Growth Initiative | Women in Construction Fund |
| Jobs & Prosperity Fund | Ed. & Labour Market Longitudinal Linkage Platform |
| Agriculture Sector Growth | Labour market Development Agreements |
| Aboriginal Economic Development Fund |  |
| Ontario Immigrant Nominee Program |  |
| Transition to Low-Carbon Economy |  |
| High-Quality Accessible Postsecondary Education System |  |
| Advanced Education/Career Opportunities for Indigenous Learners |  |
| Making Postsecondary Education more affordable |  |
| Canada-Ontario Job Grant |  |

**Skills Shortage/Development Needs**

Currently, we are experiencing a skills gap within the labour market, where increasing levels of educational attainment are not leading to graduates with the skills needed to succeed in today’s rapidly changing job market.

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| **Trend #1: Skills Shortage**  Employers typically recruit on basis of employability skills and take knowledge/technical skills for granted (Grant, 2016).  There is a disparity between rising levels of educational attainment and weak alignment with skills/labour market needs (Grant, 2016).  **Trend #2: Skills Development**  Defining factors for future skills training – are these skills highly transferrable? AND are these skills likely to be automated? (ICP, 2017)  Evolving skills demand in relationship to changing technology and new ways of organizing work (changing tasks carried out by people to machines, reducing need for humans to perform complex tasks) (Grant, 2016).  Matching of skills with jobs strengthened through industry-educator partnerships, internships, co-ops, placements (plus continuous professional development, workplace learning opportunities) (ICTC, 2015).  **Trend #3: In Demand Skills**  Top 10 skills needs in Northumberland: Oral & written communication, detail orientated, team player, work independently, clean criminal record, problem solving, integrity, organizational skills &marketing. (CLMP, 2018) |

**Program Delivery & Mix**

Changes in technology, skill requirements and student populations are all impacting methods and expectations around delivery of postsecondary programs.

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| **Trend #1: Flexible Delivery/Non-traditional formats for consideration:** “nano-degrees, short-term training & online learning (MOOC’s) for Ontario-specific skills gaps (specifically targeted to unrepresented groups) (PHSWEP, 2016).  **Trend #2: Experiential/ Applied**  Goal is for every student to have at least one experiential learning opportunity by postsecondary graduation (PHSWEP, 2016).  **Trend #3: Responsive Industry Driven Initiatives (that may related to Flexible Learning/Contract Training)**  Collaboration between PSIs and industry to develop badges (subject to external validation) that will help students highlight skill levels to potential employers – the focus should be on simple competencies, like teamwork, communication, resilience (Education Design Lab, 2015).  **Trend #4: Pathways**  Colleges are attracting 15% of enrolment from university graduates seeking marketable skills (Grant, 2016).  Between 2009 and 2014, the number of university graduates enrolled in Ontario colleges increased by more than 40%, which further lengthened the school-to-work transition for these students (Grant, 2016).  Consider fast-track diplomas and advanced degrees.  **Trend#5: Application status and IPP considerations**  Highlights of programs with the most applications, with 50% growth in registration and IPP mitigation strategy recommendations. |

**Technology**

Rapid technological advancements are impacting not only the type of work that is being done, but also how work is being done, and also act as a driver for more flexible, online program delivery.

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| **Trend #1: Emerging Technology**  Forty-two percent (42%) of Canada’s labour force is considered highly susceptible (probability of 70% +) to automation within the next 10 – 20 years (Statistics Canada, as cited in ICP, 2017).  **Trend #2: Preparing Future Workforce**  We are currently undergoing what has been called the Fourth Industrial Revolution, where changes to the fields of genetics, artificial intelligence (AI), robotics, nanotechnology, 3D printing, biotechnology, smart machines, networks and digitization are additive and fuel further changes (World Economic Forum, The Future of Jobs, as cited in Shank, 2016).  **Trend #3:** **Digitization of Program Delivery- See Category 4** |

**Global Context/Comparators**

The labour market trends and technological impacts being experienced in Ontario and Canada are being similarly experienced in the U.S. and Europe.

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| **Trend #1: U. S.**  **Rising tuition costs with declining domestic enrolment**  Some American postsecondary education trends are similar to those we are currently experiencing in Ontario (from Miller, 2017)   * Funding caps/decreases fueling tuition cost increases. Declining number of high school graduates to enrol in postsecondary, in favour of “non-traditional” students * Institutions are experiencing pressure to take responsibility for academic quality and outcomes * Programs are changing in response to student/consumer demands (i.e. demand for health-related education driven by aging baby-boomers). College viability depends on ability to continuously evaluate/improve services   **U. S. Immigration controls**  Recent immigration controls that have been introduced in the U.S. will impact current/future international student enrollment in U.S. and could push these students into the Canadian PSE market (Miller, 2017).  **Trend #2: European Union**  **Cross-industry Workforce needs/training**  Cross industry jobs in demand by 2020  From January 2016 World Economic Forum (WEF) report, *The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution* (cited in Thompson, 2016)   * Data Analysts (to make sense of data generated by technology) * Computer Programmers, Software Developers, Information Security Analysts, etc. * Architects, Engineers (biochemical, nanotechnology, robotics, materials) * Specialized Sales Representatives (i.e. mobile advertising) * Senior Managers (media, entertainment, information - lead through transformations) * Product Designers (commercial, industrial - creative jobs require human) * HR/Organizational Development Specialists (hiring AND reskilling of workers) * Regulatory/Government Relations Experts (deal with emerging technologies)   **Employability Skills**  Jobs are becoming more flexible and complex which is in turn driving the demand for employees who can manage complex information, think independently, be creative/efficient with resources and communicate effectively (Eurostat, 2017). |

**Student Population /Underrepresented Student Groups**

With a continuous decline in domestic student populations, PSIs will need to attract students from historically under-represented groups (i.e. adult learners, Indigenous, newcomers) in addition to those from traditional student markets (i.e. direct entrant from high school).

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| **Trend 1: Declining Domestic Enrolment**  2013 – 2017 both Sutherland and Frost campuses on average experienced continued declining domestic enrolment. See companion document *Summary Report Enrolment, Competitor Data and KPI’s*  **Trend #2: Adult Learners, Indigenous, Rural, Low income, Newcomers/Immigrants**  Approximately 50% of Canadian adults participated in further education courses annually. (Livingstone & Raykov, 2013).  Aboriginal population is growing at a much faster rate than non-Aboriginal – nearly 6 times faster between 1996 and 2006 (Government of Ontario, 2011).  Aboriginal participation in PSE lower than non-aboriginal (58% vs. 78% --- more likely to be underrepresented in Ontario universities, NOT colleges) (Zhao, 2012).  Projections indicate that **all** population growth in the working age population over next 25 years will come from immigration (Ontario Ministry of Finance. Ontario’s Long-Term Report on the Economy  **Trend #3: International:** Internationalization Plan also see companion document *Summary Report*  International enrolment increased 108% from 2017 – 2018 for the International students with 90% of the student from India. Wireless Information Networking and Project Management have the highest enrolment of these students. Overwhelming interest is in Technology and Business programs, both graduate certificate and diploma level. |

**Regional Demographics**

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| **Trend #1: Population Growth**  Our region experienced a huge increase in people aged 65 and over with a growth of over 200% (53,040 people). Also consider future expansion of Hwy# 407 to region and subsequent implications.  **Trend #2: Employment Sector**  The largest employment for residents of Peterborough & the Kawarthas is within the healthcare and social assistance sector followed by retail trade.  **Trend #3: Regional Areas of Development**  Common sector areas that are intended for development include agriculture, manufacturing (clean tech), and tourism. |

**Internal Perspectives – Students, Faculty, ELT and BOG.**

Internal evaluation surveys were conducted to capture the perspective of the students, faculty, Executive Leaders Team and Board of Governors via KPI’s, the Employee Engagement Survey, and informal assessment polling.

According to the KPI results, the students at Brealey were most satisfied with the usefulness of assigned course materials, food services and recreation and athletics facilities. They were least satisfied with internet connectivity, financial aid services and development of their computer skills.

The students at Frost were most satisfied with the usefulness of assigned course materials, social spaces and individual/group study space. They were least satisfied with the International office and other international student services, services for finding filed placement, clinical experience, internship or co-op work term and personal counselling services.

The Employee Engagement Survey results indicated that people, space, students and autonomy were consistently ranked as strengths. Conversely, communication, accountability, capacity and leadership were among some of the common areas identified for improvement.

ELT felt that specialization and sustainability were major strengths and differentiators of the college while Innovation in teaching & Learning and Partnerships were identified as a notable Fleming weakness.

The BOG indicated that the student experience, specialization and sustainability were major strengths and differentiators. They also indicated the following were about the system average: Student experience, innovation in teaching & learning, access & equity, enrolment plan & accomplishments and partnerships.

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**Considerations**

The need to identify interdisciplinary opportunities with transferable skills embedded in all relevant programs that appeal to both domestic and international students is not a new concept. The question is what will that look like for Fleming College to establish our areas or differentiation, play to our strengths and assist us in crafting SMA 3. In other words:

*Why are we doing what we are doing?*

*Where do we hope to be in 5 years?*

*What do we do well? (areas of strength)*

*What makes us unique?*

Specific program ideas with the concept of interdisciplinary offerings with foundational skills (critical thinking, creativity & innovation, flexibility, digital literacy, collaboration, social perception, perseverance and initiative) has been on the radar of the deans and schools at curriculum discussion meetings and will need to continue to be a focus.

Skills shortages and rapid technological advancements will also impact program delivery and prompt us to explore flexible delivery in non-traditional formats with a heightened emphasis on applied learning. There is a clear need for flexible, short and potentially stackable credentials directed at Ontario or Peterborough specific skills gap.

The increased age of the population in the area would suggest broadening our healthcare related offerings and potentially our general interest continuing education offerings. Occupations relate to Community care facilities for seniors remain an area expected 10% growth and may also provide interdisciplinary opportunities with our schools (health, culinary, business) and also with our continued partnership with St. Joseph’s at Fleming as well as the many other Long-term care facilities in the region. Home healthcare Services and Child Daycare Services are also projected to experience at least 10% growth. In addition, massage therapist, dental assistants, hygienists and therapists are flagged among the 10 top growing occupations in the Peterborough region.

The Peterborough & Kawartha Economic Development have identified clean technology, agriculture and tourism as areas of focus for growth. Concerted efforts to address those areas with career preparation would be prudent and may also provide an opportunity for Fleming to differentiate. With respect to agriculture there is new emphasis on alternate food source farming (indoor and rooftop farmers), sustainable food sources, related farming equipment repair, potential legalization of marijuana (in conjunction with school of Business regarding the complicated laws governing distribution) and medical marijuana distribution (interdisciplinary with Pharmacy Technician Program).

Technology is also the fastest growing occupation cluster in the Peterborough area that includes trades and laborers, electricians, heavy-duty equipment mechanics and refrigeration & air conditioning mechanics. This dovetails with the 2.2M Retrofit funding the province is providing for Peterborough (Provincial Government Transition to a Low-Carbon Economy) and the 2017 changes to the Ontario Building Code with respect to energy efficiency. A branding or differentiation aspect may be applicable for the School of Trades and Technology with continued community partnerships. An example of an opportunity is with Kawartha Humane Society has approached the college regarding the participation of students in their scheduled 2019 build that will result in a 250,000 sq ft. high efficiency establishment. The School of T & T is already affiliated with many community partners.

Computer design and related services are important for the immediate needs and future. The effects of the implementation of automation are starting to be felt even now, particularly in industries that are data driven. For example, insurance actuaries and investment advisors are already being replaced by Robo advisors. Interface writers, computer systems design, information systems managers and data analysists are areas and careers flagged for growth and opportunities again for interdisciplinary design. There is still the need for human interpretation of the data….for the time being!

Correlation of IPP identified mitigation programs with those occupations forecasted to decline in the next decade will provide the College an opportunity to sunset those underperformers and also determine how many programs the college should realistically be offering.

The domestic student enrolment continues to decline with a potential to focus on and attract underrepresented groups including Adult learners, Indigenous, rural, low income, newcomers and immigrants. There is an opportunity to target students in our catchment area that are choosing to attend other colleges. Also consider future expansion of Hwy# 407 to region and subsequent implications. Retention and conversion plans are also most important.

With the increased International enrolment at the College of 108% from 2017 – 2018 with 90% of the student from India, and the anticipated increase in students from other countries, efforts to develop and redesign program to meet this market need in addition to Wireless Information Networking and Project Management which currently have the highest enrolment of these students. International students are overwhelmingly applying to graduate certificates and diplomas in programs related to Business and Technology. Creation of a variety of program offerings to this market is a priority.

Between 2009 and 2014, the number of university graduates enrolled in Ontario colleges increased by more than 40%, which further lengthened the school-to-work transition for these students (Grant, 2016).

Consider fast-track diplomas and advanced degrees to target this market.

While this report contains both new and familiar information, the question becomes how we use it to move the college forward to be competitive in the future. The process involves a large input of information addressing multiple elements that we will need to distill and prioritize in order to create a LTE Plan in addition to contributing to the Strategic Plan and the SMA 3. Ongoing formalized activities with college-wide representation are planned to facilitate this discussion.

**Appendix:**

**Details and Trends**

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| **Canadian Labour Market – Rapid Shifts**  The Canadian Labour Market has and will continue to experience rapid shifts due to technological advancements (which put certain jobs at risk while simultaneously creating new opportunities), retirements of a large baby boom generation and the transition of our economy from goods-producing to knowledge-based.  **Trends:**   1. **Local labour market projections** 2. **Provincial labour market projections** 3. **Canada-wide labour market projections** | |
| **Opportunity or Challenge** | Both an Opportunity (to closely align program offerings with labour market needs) and Challenge (if program mix does not produce graduates to fill gap areas within labour market). |
| **Timing of Change** | Within next 5-6 years (following 2016 to 2024 trends) |
| **Rationale** | ***Local labour market projections*:**  EMSI labour market projections indicate that within the Peterborough Region (which includes Peterborough, Kawartha Lakes, Northumberland and Durham Census Regions/Divisions), the fastest growing occupations to 2024 will be in trades, technology, business, education and health related fields. EMSI occupational projections are based on EMSI’s industry data, regional occupation data from the Labour Force Survey (LFS) and regional staffing patterns from the Census.  **Top 10 *Fastest* Growing Occupations within the Peterborough Region:**  (number, percentage change in jobs projected from 2016 – 2024)   * Other trades helpers and labourers (220, 34%) * Post-secondary teaching and research assistants (317, 33%) * Dental assistants (228, 26%) * Business development officers; marketing researchers; consultants (327, 25%) * Dental hygienists and dental therapists (215, 25%) * Massage therapists (185, 25%) * Computer and information systems managers (249, 21%) * Electricians (except industrial and power system) (532, 20%) * Information systems analysts and consultants (666, 19%) * Heavy-duty equipment mechanics (175, 19%) * Refrigeration and air conditioning mechanics (175, 19%)   (EMSI, Q1, 2017 Data Sets)  Some of the largest occupations within the Peterborough Region that will experience growth to 2024 are also in trades, technology, education and health related fields, in addition to service related fields (such as sales, security and community service).  **Top 10 *Largest* Occupations** **within the Peterborough Region:**  (number, percentage change in jobs projected from 2016 – 2024)   * Electricians (except industrial and power system) (532, 20%) * Information systems analysts and consultants (666, 19%) * Registered nurses and registered psychiatric nurses (953, 17%) * Heavy equipment operators (except crane) (311, 17%) * Social and community service workers (523, 16%) * Security guards and related security service occupations (477, 16%) * Computer programmers and interactive media developers (334, 16%) * Early childhood educators and assistants (962, 15%) * Elementary school and kindergarten teachers (884, 15%) * Sales and account representatives - wholesale trade (non-technical) (766, 13%)   (EMSI, Q1, 2017 Data Sets)  **Local:**  Local occupational demand projections are also produced by the Workforce Development Board (WDB). These projections are based on various federal sources (i.e. 2011 National Household Survey, Labour Force Survey, Canadian Job Bank, etc.), provincial sources (Ontario Government Open Data, Manpower Employment Outlook Survey, etc.) and local sources (WDB/Local Employment Planning Council client activity, job postings, CERIC career advancement/development organization, etc.). These projections are to 2021 and differ from EMSI projections, but are included here to show demand at the local sub-region level.  A 2013 study by the Martin Prosperity Institute (MPI) on occupations and industry in Peterborough suggest that this area is comprised of an older population compared to other areas within the province of Ontario. As our population continues to age, there will be increased demand placed on Health services and other service sector occupations (MPI, 2013).  Most local demand will be within the Service sector, with Retail sales or managers appearing in the top five occupations with highest projected demand to 2021 for each of the sub-regions in Fleming’s catchment area.  **Top 10 occupations by highest projected demand for Peterborough:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Occupation** | **Number**  **of Jobs 2016** | **Number**  **of Jobs**  **2021** | **Expected Retirees** | **Total Demand** | | 6421 Retail salespersons | 2,934 | 3,139 | 541 | 745 | | 3012 Registered nurses and registered psychiatric nurses | 1,652 | 1,824 | 279 | 451 | | 1241 Administrative assistants | 1,387 | 1,509 | 202 | 325 | | 0621 Retail and wholesale trade managers | 1,501 | 1,603 | 203 | 305 | | 1311 Accounting technicians and bookkeepers | 721 | 814 | 196 | 289 | | 6711 Food counter attendants, kitchen helpers and related support occupations | 1,843 | 2,061 | 48 | 267 | | 1221 Administrative officers | 990 | 1,099 | 131 | 240 | | 6611 Cashiers | 1,267 | 1,368 | 138 | 239 | | 4032 Elementary school and kindergarten teachers | 1,197 | 1,311 | 107 | 220 | | 6733 Janitors, caretakers and building superintendents | 771 | 856 | 121 | 207 |   **Top 10 occupations by highest projected demand for Kawartha Lakes:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Occupation** | **Number**  **of Jobs 2016** | **Number**  **of Jobs**  **2021** | **Expected Retirees** | **Total Demand** | | 6421 Retail salespersons | 1207 | 1273 | 210 | 276 | | 3012 Registered nurses and registered psychiatric nurses | 716 | 778 | 126 | 188 | | 0821 Managers in agriculture | 744 | 655 | 246 | 157 | | 0621 Retail and wholesale trade managers | 787 | 829 | 102 | 144 | | 6711 Food counter attendants, kitchen helpers and related support occupations | 835 | 929 | 48 | 142 | | 6731 Light duty cleaners | 223 | 247 | 95 | 119 | | 6611 Cashiers | 728 | 777 | 69 | 118 | | 7511 Transport truck drivers | 458 | 498 | 58 | 98 | | 4032 Elementary school and kindergarten teachers | 780 | 841 | 36 | 97 | | 1311 Accounting technicians and bookkeepers | 302 | 339 | 54 | 90 |   **Top 10 occupations by highest projected demand for Northumberland:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Occupation** | **Number**  **of Jobs 2016** | **Number**  **of Jobs 2021** | **Expected Retirees** | **Total**  **Demand** | | 6421 Retail salespersons | 1478 | 1530 | 225 | 277 | | 0621 Retail and wholesale trade managers | 944 | 979 | 178 | 214 | | 0821 Managers in agriculture | 725 | 638 | 279 | 193 | | 4032 Elementary school and kindergarten teachers | 960 | 1018 | 82 | 140 | | 6341 Hairstylists and barbers | 481 | 489 | 123 | 132 | | 6711 Food counter attendants, kitchen helpers and related support occupations | 687 | 751 | 65 | 129 | | 1221 Administrative officers | 574 | 622 | 76 | 124 | | 1241 Administrative assistants | 461 | 488 | 84 | 111 | | 6733 Janitors, caretakers and building superintendents | 298 | 330 | 76 | 109 | | 6731 Light duty cleaners | 520 | 573 | 53 | 106 |   **Top 10 occupations by highest projected demand for Haliburton:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Occupation** | **Number**  **of Jobs 2016** | **Number**  **of Jobs 2021** | **Expected Retirees** | **Total**  **Demand** | | 6322 Cooks | 119 | 132 | 57 | 71 | | 0621 Retail and wholesale trade managers | 331 | 350 | 46 | 66 | | 6421 Retail salespersons | 291 | 306 | 42 | 57 | | 3012 Registered nurses and registered psychiatric nurses | 212 | 232 | 32 | 52 | | 0714 Facility operation and maintenance managers | 84 | 93 | 39 | 49 | | 8612 Landscaping and grounds maintenance labourers | 242 | 282 | 0 | 40 | | 4212 Social and community service workers | 161 | 176 | 21 | 36 | | 1411 General office support workers | 26 | 29 | 31 | 33 | | 7271 Carpenters | 140 | 169 | 0 | 29 | | 3413 Nurse aides, orderlies and patient service associates | 153 | 167 | 14 | 29 |   ***Provincial labour market projections:***  “Globalization and new technology are changing the nature of work in Ontario. Changes include increased demand for highly skilled workers; declining shares of middle‐skill and middle‐paying jobs; growth in alternative forms of employment, such as contract and part‐time work; and a shift from goods‐producing to service industries” (Ontario Ministry of Finance, 2017).  EMSI labour market projections indicate that within the province of Ontario, the fastest growing occupations to 2024 will mostly be in Health, Technology, Business and Service related fields. EMSI occupational projections are based on EMSI’s industry data, regional occupation data from the Labour Force Survey (LFS) and regional staffing patterns from the Census.  **Top 10 *Fastest* Growing Occupations in Ontario:**  (number, percentage change in jobs projected from 2016 – 2024)   * Nursing co-ordinators and supervisors (3,386; 29%) * Business development officers; marketing researchers; consultants (6,573; 22%) * Post-secondary teaching and research assistants (6,664; 20%) * Bakers (4,077; 20%) * Information systems analysts and consultants (19,621; 19%) * Database analysts and data administrators (3,324; 19%) * Computer and information systems managers (5,932; 17%) * Maîtres d'hôtel and hosts/hostesses (4,176; 17%) * Other metal products machine operators (5,426; 16%) * Supervisors, finance and insurance office workers (5,284; 16%)   (EMSI, Q1, 2017 Data Sets)  Some of the largest occupations within the province that will experience growth to 2024 are in Health, Education, Technology, Business and Finance related fields.  **Top 10 *Largest* Occupations** **in Ontario:**  (number, percentage change in jobs projected from 2016 – 2024)   * Information systems analysts and consultants (19,621; 19%) * Human resources professionals (6,287; 15%) * Registered nurses and registered psychiatric nurses (16,166; 14%) * Nurse aides, orderlies and patient service associates (12,873; 14%) * Early childhood educators and assistants (11,597; 14%) * Financial and investment analysts (5,618; 14%) * Professional occupations in advertising, marketing and public relations (6,521; 12%) * Elementary and secondary school teacher assistants (4,557; 12%) * Light duty cleaners (10,693; 11%) * Computer programmers and interactive media developers (8,138; 11%)   (EMSIi, Q1, 2017 Data Sets)  ***Canada-wide labour market projections***:  The Canadian Occupational Projection System (COPS) indicates that occupations with the fastest projected employment growth are mainly in the Oil and Gas Sector and Health Service fields (Government of Canada, 2016).  **Ten Fastest Growing Occupations, 2011-2020 in Canada:**   |  |  |  |  | | --- | --- | --- | --- | | **NOC** | **Occupations** | **Employment**  **(2010)** | **Growth Rate**  **(2011-2020)** | | N081 | Primary Production Managers | 9,548 | 3.02 | | N823 | Underground Miners, Oil & Gas Drillers, etc. | 42,234 | 2.77 | | N311 | Physicians, Dentists and Veterinarians | 101,972 | 2.56 | | N112 | Human Resources and Business Service Professionals | 187,505 | 2.49 | | N648 | Other Occupations in Personal Service | 77,016 | 2.48 | | N822 | Supervisors, Mining and Oil and Gas | 24,647 | 2.39 | | N314 | Therapy and Assessment Professionals | 48,963 | 2.22 | | N841 | Mine Service Workers and Operators in Oil | 11,896 | 2.19 | | N522 | Photographers, Graphic Arts Technicians, etc. | 47,307 | 2.18 | | N315 | Nurse Supervisors and Registered Nurses | 273,051 | 2.16 |   Source: [HRSDC 2011 COPS Reference Scenario (projections).](http://occupations.esdc.gc.ca/sppc-cops/c.4nt.2nt@-eng.jsp?cid=39)  Occupations with the highest *proportion* of projected job openings to 2020 are in Management and Health Service fields (although, these are not necessarily the areas with largest *number* of projected job openings). Two-thirds of projected job openings are in occupations that usually require PSE or are in Management (Government of Canada, 2016). Occupations projected to have the highest number of job openings to 2020 are in Administrative and Regulatory Occupations, followed by Motor Vehicle/Transit Divers (Government of Canada, 2016).  Retirements are also important to consider when looking at occupational forecasting, as the large baby-boom cohort continues to age out of the workforce - approximately 2/3 of projected retirements will be in High-skilled or Management occupations (Government of Canada, 2016).  **Ten Occupations with the Largest Number of Job Openings, 2011-2020 in Canada:**   |  |  |  |  | | --- | --- | --- | --- | | **NOC** | **Occupations** | **Employment (2010)** | **Job Openings (2011-2020)** | | NOC 122 | Administrative & Regulatory Occupations | 399,209 | 204,093 | | NOC 741 | Motor Vehicle & Transit Drivers | 464,387 | 177,017 | | NOC 666 | Cleaners | 404,197 | 174,303 | | NOC 421 | Paralegals, Social Services Workers, etc. | 398,786 | 171,151 | | NOC 111 | Auditors, Accountants and Investment Professionals | 361,128 | 168,834, | | NOC 341 | Assisting Occupations in Health Services | 316,195 | 165,027 | | NOC 315 | Nurse Supervisors & Registered Nurses | 273,051 | 161,992 | | NOC 414 | Secondary or Elementary School Teachers & Counsellors | 445,896 | 156,240 | | NOC 217 | Computer and Information System Professionals | 372,786 | 152,836 | | NOC 143 | Finance & Insurance Clerks | 384,966 | 138,984 |   Source: [HRSDC 2011 COPS Reference Scenario (projections).](http://occupations.esdc.gc.ca/sppc-cops/c.4nt.2nt@-eng.jsp?cid=39)  Projections from CareerBuilder.ca (as cited in Auerbach, 2015) identify the following industries as expected to **experience at least a 10% growth** from 2015 to 2020:   * Community Care Facilities for Elderly * Community/ Social Service Workers; Registered Nurses; Food Counter Attendants * Home Health Care Services * Visiting Homemakers; Registered Nurses; Nurse Aids/Patient Service Associates * Child Daycare Services * Early Childhood Educators; Managers in Social/Community/Correctional Services; Cooks * Computer Systems Design and related services * Information Systems Analysts; Computer Programmers; Software Engineers/Designers * Oil and Gas Extraction * Petroleum Engineers; Oil and Gas Well Drillers; Financial Auditors   Projections from Canadian Occupational Projection System (COPS) 2015 -2024 within Arts, Culture, Recreation and Sport Occupations:   * Projected to face a labour surplus situation * Half of occupations with lowest retirement rates are in this sector (younger workforce) * Job seekers will outpace employment opportunities for Graphic Design/Illustrators * Opportunities may still lie in skill development with digital technologies in art, combining arts with Aging population, deaf and disability arts, experimenting/developing hybrid Indigenous art forms and/or collaborations with environment, justice, human rights sectors * Due to rapid evolution of digital technology, need skills development for capacity to fully embrace opportunities for creating, marketing, promotion within this field   (Ministry of Tourism, Culture and Sport, 2016). |
| **Resources** | Auerbach, D. (2015, June 11). *15 of the Fastest-Growing Occupations in Canada*. Retrieved from CareerBuilder: <http://www.careerbuilder.ca/blog/2015/06/11/15-of-the-fastest-growing-occupations-in-canada/>  Government of Canada. (2016, February 24). *Canadian Occupational Projection System (COPS)*, Date modified: 2016-02-24. Retrieved from Government of Canada: <http://occupations.esdc.gc.ca/sppc-cops/c.4nt.2nt@-eng.jsp?cid=39>  Martin Prosperity Institute. (December 2013). Occupational and Industrial Distribution in Peterborough: A Benchmark and Comparison Study. Retrieved from: <http://martinprosperity.org/media/Who%20Works%20Where%20in%20Peterborough_Overview.pdf>  Ministry of Tourism, Culture and Sport. (2016, April). *Environmental Scan of the Culture Sector. Ontario Culture Strategy Background Document.* Retrieved from <https://www.ontario.ca/document/environmental-scan-culture-sector-ontario-culture-strategy-background-document/sector-profile-arts>  Ontario Ministry of Finance. (2017). 2017 Ontario Budget: A Stronger, Healthier Ontario.  Retrieved from: <https://www.fin.gov.on.ca/en/budget/ontariobudgets/2017/budget2017.pdf> |

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| **Government Initiatives/Funding**  Recent budgets, tabled both federally and provincially, expand on existing programs and offer new initiatives to improve access to postsecondary education while ensuring its alignment with current labour market conditions. The current funding model for Ontario Colleges is changing; with this change comes an increased focus on a colleges’ individual strengths and performance-based funding tied to outcomes.  **Trends:**   1. **Provincial Funding Initiatives** 2. **Federal Funding Initiatives** | |
| **Timing of Change** | Within next 5 years |
| **Opportunity**  **or Challenge** | Opportunity |
| **Rationale** | ***Provincial Funding Initiatives***  ***Ontario’s Provincial Budget 2017:*** (Ontario Ministry of Finance, 2017).  “Ontario’s Highly Skilled Workforce (HSW) Strategy, people of all abilities and backgrounds can develop their talents, knowledge and skills to benefit from, and contribute to, an evolving economy. The strategy will provide people with opportunities across the continuum of learning — from Grades K–12, to apprenticeship and postsecondary education — as well as skills development and lifelong learning for both unemployed workers and those active in the labour market, but looking to acquire new skills.”  (p. 60).   * Career Kick-Start Strategy (p. 61) * “New $68-million Career Ready Fund to help…create more opportunities for students and recent graduates. This will include launching a new program to help employers offer more workplace learning opportunities for postsecondary students and creating new digital tools to help match students with employers” (p. 62) * Free, full access to skills-focused online content through LinkedIn Lynda.com for all postsecondary students * Modernizing/simplifying apprenticeship system (to increase access) * Ontario Lifelong Learning and Skills Plan (p. 63)   (creating opportunities for adult learners/workers, including expanded Literacy and Basic Skills program, Dual Credit opportunities for adults, etc.)   * Enhancing adult education/essential skills system (literacy, including digital, numeracy) * Mature students will have access to same OSAP support as younger students * Revamped Employment Ontario programs (including Second Career) to support unemployed, displaced, incumbent workers requiring retraining * Inclusive Skills Development (p. 65) * Employment Strategy for People with Disabilities (including increased capacity for support at PSIs) * Ontario Bridge Training Program for internationally trained immigrants (NOT students or temporary foreign workers) seeking licensing or certification within labour market (across sectors such as pharmacy, engineering, nursing, physiotherapy, financial services, information and communications technology, skilled trades) – training from not-for profit organizations * Investing in Jobs for Today and Tomorrow (p. 70) * “Remaining at the forefront of the globally competitive world of transformative technologies, Ontario positions itself to anticipate and respond to the impacts of new employment opportunities and economic growth. The government continues to make significant investments to support Ontario’s transition to an innovation‐based, low‐carbon economy.” (p. 70). * generated close to 700,000 net new jobs since 2008-09 recession * commitment to research and development of transformative technology   + Artificial Intelligence (deep learning/machine learning) $50-million government /$80-million private sector investment in Vector Institute for AI   + 5G wireless technology ($130-million 5-year project investment)   + Advanced Computing ($75-million 5-year investment in Advanced Research Computing and Big Data Strategy)   + FinTech sector/Financial Services strategies   + Increased access to capital for entrepreneurs (Investment Accelerator Fund) * Business Growth Initiative (p. 75) * “…create opportunities to make Ontario’s economy more innovative, help scale up small businesses into medium‐sized and large enterprises, and reduce the regulatory burden on businesses…more well‐paying jobs will be created across Ontario.” (p.75) * Colleges Applied Research and Development Fund (3-year, $20 million fund to support industry-academic collaboration between Ontario business and colleges) * Cleantech Equity Fund (new $55-million fund to make equity investments in cleantech firms, which are small and medium-sized enterprises) * Jobs and Prosperity Fund (p. 84) * $2.7-billion 10-year fund “…helps the government partner with businesses to enhance productivity, innovation and exports.” (p. 84) * used to support Manufacturing sectors (auto, aerospace, chemicals, food processing) * Agricultural Sector Growth (p. 86) * primary agriculture, food/beverage processing * Aboriginal Economic Development Fund (p. 89) * $95-million 10-year investment (since 2014) for improved access to financing, skills training and community economic planning supports * Ontario Immigrant Nominee Program (OINP) (p. 90) * “...Ontario nominates people for permanent resident status, including skilled workers, international students, temporary workers and experienced entrepreneurs with established foreign companies who are looking to expand their business operations in Ontario.” (p. 90) * Transition to Low-Carbon Economy (p. 92) * “…committed to a plan that will result in economic growth and job creation by protecting the environment against further climate change.” (p. 92) * including $20-million for R&D (low-carbon technology) * incentives for adopting new technologies to reduce emissions (SMEs, industry, households) * Green Investment Fund (existing) * High-Quality, Accessible Postsecondary Education System (p. 145) * Post-Secondary Institutions Strategic Investment Fund (to improve on-campus research facilities, with focus on sustainability) * Reformed funding formulas that will link portion of funding to performance outcomes and areas of institutional strength (Strategic Mandate Agreements to set clear targets) (Ontario Ministry of Finance, 2017). * Incentivize industry/postsecondary partnerships in line with the “Differentiation Policy” which encourages PSIs to play to their unique strengths and revised corridor funding model (PHSWEP, 2016) * Advancing Education/Career Opportunities for Indigenous Learners (p. 147) * $200-million 3-year investment to improve access to postsecondary education/training opportunities (including investment to Aboriginal Institutes) * Making Postsecondary Education more affordable (p. 30)   Including OSAP changes/enhancements:   * Reduce expected parental/spouse contributions * Increase minimum salary for repayment (from $25k to $35k) * Available as a single, upfront grant * RESPs will not reduce financial assistance thru OSAP * Will make tuition free for low-income and most-middle income students   Canada-Ontario Job Grant   * Direct financial support to employers for training for new or existing employees:   *Customized Training:* to assist with developing and delivering tailored training solutions to meet employers’ labour needs (where nothing currently exists)  *Upskilling:* short-term technical and essential skills training that meet sector needs (only for Agriculture, Forestry, Fishing Hunting; Manufacturing, including Food; Mining, Quarrying; Oil and Gas Extraction sectors) (Ontario Ministry of Advanced Education and Skills Development, 2017).  Second Career   * Financial support for tuition, books, transportation, living and child care expenses (up to $28K) for those laid off/not working or working temp job (Ontario Ministry of Advanced Education and Skills Development, 2017).   ***Federal Funding Initiatives***  **Canada’s Federal Budget 2018:**  (Government of Canada, 2018)   * College and Community Innovation Program * $140 million over 5 years for increased support of collaborative innovation projects between small- and medium-sized businesses and colleges/polytechnics (p. 93) * Indigenous Skills and Employment Training Program (p. 132) * Replaces Aboriginal Skills and Employment Training Strategy * Additional funding that will assist 15,000 more clients gain skills/find jobs * focus on training for higher-quality, better paying jobs vs. quick re-employment * Pre-Apprenticeship Program (p. 61) * To encourage underrepresented student groups to explore careers in skilled trades (women, Indigenous, newcomers, persons with disabilities) * Apprenticeship Incentive Grant for Women (p. 61) * In combination with existing Apprenticeship Completion Grant, up to $8,000 in support over course of apprentice training in Red Seal trades * Women in Construction Fund (p. 62) * Building on existing models that have been effective in attracting women to trades * Education and Labour Market Longitudinal Linkage Platform (p. 56) * Digital platform to provide accurate, up-to-date labour market information to help with making informed career decisions (including expected earnings, in-demand skills) * Labour Market Development Agreements (p. 59) * Additional funding for co-development of local solutions to unique challenges faced by workers in seasonal industries   ***Transition to Low Carbon Economy Details***  The province is providing more than $2 million in new funding for repairs and retrofits to social housing in Peterborough.  Peterborough MPP Jeff Leal made the announcement on Thursday morning at city hall, stating the city will receive up to $2,208,161 to upgrade social housing apartment buildings over the next five years — contingent on carbon market proceeds.  The upgrades will include new energy efficient heating, improved insulation and window replacements.  The province plans to invest up to $657 million for repairs and retrofits to social housing apartment buildings across the province over five years. Ontario is investing more than $2 billion over the next three years in affordable and sustainable housing across the province, including millions more for repairs and retrofits to social housing buildings.  Under the Green Investment Fund, Ontario has already invested $82 million on energy retrofits for high-rise social housing towers of 150 units or more  Changes to the building code:  Changes to the Ontario Building Code this year will bring more energy efficiency to all new homes as well as some renos.  The 2017 revisions are about 15 per cent more efficient than the previous set, adopted in 2012.  While green design practitioners praise these changes, they say the next big development will likely come into effect in about five years, when the code is revised to incorporate new carbon-pricing policies, and also includes more prescriptive provisions around the energy embedded in building materials.  Northern Europe's experience is that once energy-efficiency codes exceed a certain point, the savings, in terms of energy costs for homeowners, become very significant. That shift, is especially important in an aging society in which seniors with fixed incomes represent a growing proportion of the population. |
| **Resources** | Government of Canada. (2017). Budget 2017: Building a Strong Middle Class. Retrieved from: <https://www.budget.gc.ca/2017/docs/plan/budget-2017-en.pdf>  Government of Canada. (2018). Budget 2018: Equality + Growth: A Strong Middle Class. Retrieved from: <https://www.budget.gc.ca/2018/docs/plan/budget-2018-en.pdf>  Government of Ontario. (2011). Aboriginal postsecondary education and training policy framework. Retrieved from: <http://www.tcu.gov.on.ca/pepg/publications/APETPFramework.pdf>  Ontario Ministry of Advanced Education and Skills Development. (July 31, 2017). Hiring and training incentives for employers. Retrieved from: <https://www.ontario.ca/page/hiring-incentives-employers>  Ontario Ministry of Finance. (2017). 2017 Ontario Budget: A Stronger, Healthier Ontario. Retrieved from: <https://www.fin.gov.on.ca/en/budget/ontariobudgets/2017/budget2017.pdf>  Premier’s Highly Skilled Workforce Expert Panel. (June 2016). Building the workforce of tomorrow: a shared responsibility. Retrieved from <https://www.ontario.ca/page/building-workforce-tomorrow-shared-responsibility> |

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| **Skills Shortage/Development**  Currently, we are experiencing a skills gap within the labour market, where increasing levels of educational attainment are not leading to graduates with the skills needed to succeed in today’s rapidly changing job market.  **Trends:**   1. **Skills shortage** 2. **Skills development** 3. **In-demand skills** | |
| **Timing of Change** | Current |
| **Opportunity or Challenge** | Both an Opportunity (to respond by focusing on developing future skills/competencies and a Challenge (if the college does not position itself to produce graduates with the skills/competencies needed to succeed in today’s job market). |
| **Rationale** | ***Skills Shortage/Alignment:***   * Disparity between rising levels of educational attainment and weak alignment with skills/labour market needs (Grant, 2016). * Why shortfalls despite high levels of educational attainment? * 45% of foreign-born Canadian university graduates scored in the lower range of literacy and numeracy skills (below level required to perform most jobs efficiently/effectively * 16% of Canadian-born University graduates in lower range for literacy, 23% in lower range for numeracy (Grant, 2016). * Credential demands of employers do not necessarily align with skills demand (Grant, 2016). * 2/3 of Ontarians 16-65 have Level 1 or 2 literacy proficiency levels on the Adult Literacy and Life Skills Survey. Level 3 is considered minimum standard to cope with increasing demands in knowledge/information economies (OECD & Statistics Canada, 1995, as cited in Kerr, 2011). * Smaller emerging labour pool (over next 10 years, retirees will likely exceed number of new entrants from Canada’s education system – education alone will not be enough to prepare entrants for available jobs) (Grant, 2016). * PSIs and government policy makers need to strategically align curriculum to labour market needs (while recognizing complexity of skills development system and nature of labour market demands) (Grant, 2016). * Skills mismatch influenced by cyclical gap between demand and supply - need to ensure “right-skilling” of workforce (aligned with economic and digital strategies) (ICTC, 2015). * Employers rely heavily on educational institution credentials as evidence of skill (don’t independently verify skills already assessed by PSIs) (Grant, 2016). * Typically recruit on basis of employability skills and take knowledge/technical skills for granted (Grant, 2016). * Lack of mentorships, apprenticeships, cooperative education opportunities leave students at higher risk of irrelevant skill development (fit may not be obvious to employers) (Grant, 2016). * The Ontario Government is developing of sub-groups to take advantage of existing relationships with employers to determine the skills/qualifications they are seeking, develop solutions to align curriculum, training and experiential learning opportunities for students, new immigrants, adult learners to address needs/gaps (PHSWEP, 2016) * 2008 Access and Support to Education and Training Survey found that 32% of Ontarians 18-64 reported unmet training/education needs (as cited in Kerr, 2011).   ***Skills Development:***   * Skills develop over long periods of time, but labour market needs are more immediate (Grant, 2016). * Skill is developed through experiential learning more than through structured learning (Grant, 2016). * Skills are defined as abilities acquired through education, training, experience, that are applied in economy/society to achieve life satisfaction * Essential: provide foundation for work, lifelong learning * Employability: skills needed to enter, remain and progress in work * Knowledge: awareness, understanding of information, facts, ideas (specific field) * Technique: skills related to specific tasks (Grant, 2016). * Canada’s skill development system has evolved away from work experiential learning toward longer school stays (more likely to develop skills in formal education than work environment) (Grant, 2016). * Increasing numbers of graduates with rising levels of educational attainment, coupled with employers’ beliefs that higher-educated graduates are preferable has created greater number of underemployed, disgruntled/under skilled workers (graduates less likely to work in field, not good return on skill investment (Grant, 2016). * Evolving skills demand in relationship to changing technology and new ways of organizing work (changing tasks carried out by people to machines, reducing need for humans to perform complex tasks) (Grant, 2016). * Matching of skills with jobs strengthened through industry-educator partnerships, internships, co-ops, placements (plus continuous professional development, workplace learning opportunities) (ICTC, 2015). * Defining factors for future skills training – are these skills highly transferrable? AND are these skills likely to be automated? (ICP, 2017) * PSIs need to find ways to shift focus to needed skills/competencies (potentially through Ontario-specific skills/competencies framework) (PHSWEP, 2016).   ***In Demand Skills:***   * Still need humans for: complex thinking/problem solving, contextualized analysis, programming, machine operation/programming, tasks involving dexterity, communication (flexible, empathetic), personal/business services requiring “human touch” (Grant, 2016). * Sharp increase in demand for “business” skills (critical thinking, interpersonal communication, self-management, ability to learn) (ICTC, 2015). * Literacy, numeracy skills need to be measured within postsecondary education (PHSWEP, 2016). * Foundational Skills (PHSWEP, 2016; ICP, 2017) * Complementary to, can be learned alongside core, disciplinary skills * Can be transferred across occupations, sectors * Require higher cognitive functions * Are analytical/service related and are not easily replicated by technology   Sensemaking Social Intelligence  Novel/Adaptive Thinking Cross-Cultural Competency  Computational Thinking New Media Literacy  Transdisciplinarity Design Mindset  Cognitive Load Management Virtual Collaboration  *(Grant, 2016)*  Critical Thinking Leadership  Creativity/Innovation Collaboration  Adaptability/Flexibility/Resilience Social Perception  Independence/Interdependence Initiative/Perseverance  Communication/Digital Literacy Philosophy/Originality  *(PHSWEP, 2016; ICP, 2017)* |
| **Resources** | Grant, Michael. *Aligning skills development with labour market need*. Ottawa: The Conference Board of Canada, 2016.  Institute for Competitiveness and Prosperity. (September, 2017). Labour market shift: training a highly skilled and resilient workforce in Ontario. Retrieved from: <https://www.competeprosper.ca/uploads/The_labour_market_shift_in_Ontario_Sept_2017.pdf>  Kerr, A. (July 20, 2011). Adult learners in Ontario postsecondary institutions. Toronto: Higher Education  Quality Council of Ontario. Retrieved from:  <http://www.heqco.ca/SiteCollectionDocuments/At-Issue-Adult-Learners-ENG.pdf>  Premier’s Highly Skilled Workforce Expert Panel. (June 2016). Building the workforce of tomorrow: a shared responsibility. Retrieved from <https://www.ontario.ca/page/building-workforce-tomorrow-shared-responsibility>  The Information & Communications Technology Council (ICTC). (2015). The Smart Economy Reshaping Canada’s Workforce: Labour Market Outlook 2015-2019. Retrieved from: <http://www.digcompass.ca/wp-content/uploads/2015/07/Labour-Market-Outlook-2015-2019-FINAL.pdf> |

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| **Program Delivery & Mix**  Changes in technology, skill requirements and student populations are all impacting methods and expectations around delivery of postsecondary programs. – *Please see Fleming’s Summary Report companion document for more details*  **Trends:**   1. **Flexible delivery/Non-traditional formats** 2. **Experiential/Applied** 3. **Responsive industry driven initiatives** 4. **Pathways** 5. **Application status and IPP considerations** | |
| **Timing of Change** | Current |
| **Opportunity or Challenge** | Both Opportunity (for new methods of delivery) and Challenge (if traditional methods of program delivery are exclusively relied on) |
| **Rationale** | ***Flexible delivery/Non-traditional formats:***  “Students will have more opportunities to learn at different times in different places. eLearning tools facilitate opportunities for remote, self-paced learning. Classrooms will be flipped, which means the theoretical part is learned outside the classroom, whereas the practical part shall be taught face to face, interactively” (Henny, 2016).   * “Nano-degrees” – short, quick, intense and precise delivery of skills and knowledge intended to prepare students for a specific profession directly (Miller, 2017). * Traditional institution-based delivery is giving way to web-based delivery mechanisms (ICTC, 2015). * Launch short-term, bridge training for Ontario-specific skills gaps (specifically targeted to unrepresented groups) (PHSWEP, 2016). * Increase in online learning (MOOC’s, free) is a technological disruption to traditional program/course delivery (The future of universities, 2014). * Must train/re-train workers throughout careers to keep up with changing demand (The future of universities, 2014). * MOOC’s “…low-start up costs and powerful economies of scale…dramatically lower the price of learning and widen access to it.” (The future of universities, 2014). * Many who enrol in MOOC already have degree (The future of universities, 2014). * Skills gaps can be closed with upskilling programs that are shorter than a full diploma program (PHSWEP, 2016). * “Micro-College” postsecondary education oriented around a minimum entry point into a particular profession (Frey, 2013). * New opportunity arising for short-term, pre-apprenticeship training (Frey, 2013). * Emerging technologies and business trends are creating more opportunities for micro-college training on a regular basis (Frey, 2013). * “School-within-a-school approach” - colleges may find niche they take on to be key differentiator from other schools, becoming feeder mechanisms for additional types of credentialing (Frey, 2013). * Can be instantly positioned at cross-section of skill and commerce (Frey, 2013).   ***Experiential/Applied:***  “As careers are adapting to the future freelance economy, students of today will adapt to project based learning and working. This means they have to learn how to apply their skills in shorter terms to a variety of situations.” (Henny, 2016).   * Experiential Learning (co-ops, work placements, mentorships, internships, industry recognized in-class projects, volunteer positions, summer jobs/experience programs, apprenticeships) --- goal is for every student to have at least one experiential learning opportunity by postsecondary graduation (PHSWEP, 2016). * Leveraging industry linkage to provide high-quality experience-based education that is responsive to needs of industry/business while improving student readiness for workplace (ICP, 2016). * Longer placements (8 – 12 months) (PHSWEP, 2016). * Successful experiential learning benefits students AND employers (PHSWEP, 2016). * Work placements/internships strengthen link between educators and employers (ICTC, 2015).   ***Relevant/Responsive/Skills-based/Industry-driven:***   * Postsecondary institutions should focus on measuring/credentialing cognitive and transferable skills (PHSWEP, 2016). * New training program for existing workers to acquire skills/competencies to adapt to changing nature of workplace (PHSWEP, 2016). * Industry support needed in design/delivery of responsive/diversified programs that focus on applied learning. (ICTC, 2015). * Innovation centres/talent incubators bring employers and jobseekers together (facilitate expanded innovative research and development, foster new ideas) (ICTC, 2015). * Skills training needs to be embedded into curriculum in a way that is identifiable by employers (Education Design Lab, 2015). * Collaboration between PSIs and industry to develop badges (subject to external validation) that will help students highlight skill levels to potential employers – the focus should be on simple competencies, like teamwork, communication, resilience (Education Design Lab, 2015). * Compulsory employer representation on program advisory committees will help with updating/renewal of curriculum to reflect employer expectations (ICTC, 2015). * Need to shorten the school-to-work transition and improve skills alignment (Grant, 2016). * Modernize apprenticeship system to reflect current needs and integrate young people into trades (i.e. front-loading education components, central application process) (ICP, 2017) * Partnerships between business and postsecondary institutions help to generate and transfer new knowledge and technology, as well as address the skills and employment needs of students and employers” (PHSWEP, 2016)   ***Pathways:***   * Colleges attracting 15% of enrolment from university graduates seeking marketable skills (Grant, 2016). * Between 2009 and 2014, the number of university graduates enrolled in Ontario colleges increased by more than 40%, which further lengthened the school-to-work transition for these students (Grant, 2016). * Many university applicants from under-represented groups (Aboriginal, students with disabilities, first generation, low income) are college transfer students --- need to improve college transfer system to funnel these students through to desired educational path (Zhao, 2012). * Pathway opportunities also encompass access/bridging programs targeted specifically to under-represented student groups (Indigenous students, for example) to improve success rates.   *Indigenous pathways*   * Existing bridging or transition programs typically offer curriculum that includes general academic skills, Indigenous knowledge, and often discipline-specific content (Ray, 2017) * Initial postsecondary entry points (including academic upgrading) should be improved to support access to pathways (Ray, 2017). * Innovative and consistent pathways in underdeveloped disciplines (justice, environmental science, art & design, economic development) should be developed to complement those that currently exist within social services, preparatory, health and art + design (Ray, 2017) * Alternative modes of program delivery/pathways that align with lived experience (collaborative-based programming, block programming) should be explored (Ray, 2017) * Broad recruitment strategy needed that includes community engagement for students who may only enter or return to postsecondary studies years after high school or preparatory program (Ray, 2017)   *Sample/Best Practice Indigenous pathways:*  *Aboriginal Advantage Program Nipissing*   * 8-month cohort model (with workshops, orientation, tutoring, academic check-ins, wellness workshops with counsellors, sharing circles. 1:1 with Elders) pathway to undergraduate degree in arts and science or applied/professional studies for Indigenous learners (Ray, 2017)   *Helping Youth Pursue Education (HYPE) Centennial College*   * Not specifically geared towards Indigenous youth, but popular among this group * 6 weeks on-campus, tuition-free learning experience (over summer) including learning materials, transportation, meals for 17-29-year olds (reduce as many social and economic barriers to postsecondary as possible) * 3 days on coursework, 4th consists of motivational skills development workshops, 5th day optional academic preparation course, assistance in completing application for postsecondary * Successful completion of bridging program can lead to acceptance to full-time studies at Centennial with bursary (Ray, 2017)   ***Application status & IPP considerations:***  *Please see Fleming’s Summary Report companion document for more details*  Fleming Programs with the most Applications   1. Practical Nursing 2. Paramedic 3. Police Foundations( decreased growth) 4. Fish and Wildlife Technician (decreased growth) 5. Social Service Worker (decreased growth) 6. Mental Health Addiction Worker 7. Customs Border Services 8. Pre-Service Firefighter Education & Training 9. Electrical Engineering Technician 10. Child & Youth Care (decreased growth) 11. Heavy Equipment Operator   The Practical Nursing is the top program in terms of applications accounting for 7% of all applications in 2017. However the growth in applications to this program has been declining since 2013 in the fall and winter terms, particularly for students outside Fleming’s catchment area.  Programs that had more than 50% growth in Fall Registration 2013 – 2017   1. Project Management 2. Wireless Information Networking 3. Mental Health & Addiction Worker 4. Fish & Wildlife Technology 5. Computer Security & Investigations 6. Environmental Technology 7. Pre-Service Firefighter Education & Training 8. Electrical Techniques 9. Ecosystem Management Technology 10. Aquaculture 11. Business Administration- Marketing 12. International Business Management 13. Business – Sporting Goods 14. Culinary Skills   IPP Program Mitigation Plan Recommendations Summary (fiscal year 2014, 2015 & 2016)  The following programs were recommended as suspend, warning or watch for the years tracked.   * Cultural Heritage Conservation & Management – Haliburton (watch) * Sustain Building Design – Haliburton (suspend) * Emergency Management– Brealey (suspend- currently undergoing major revision) * Chef Training – Brealey (suspended) * Office Administration Executive – Brealey (suspended) * International Trade – Brealey (suspended) * Community Based Applied Research – Frost (suspended) * Fish & Wildlife technology – Frost (watch) * GIS Applications Specialists – Frost (warning) * Outdoor Adventure Skills – Frost (warning) * Sustainable Agriculture – Frost – Frost (suspend) * Instrumentation & Control Technical – SKTR (suspend)   See *Companion Summary Report* for more details:   * Fleming was the only medium sized college to experience an increase in applications from fall 2016 to fall 2017 with a 5 % increase. There was also a slight decline in confirmations (-1%) in this same timeframe. * 12 programs had less that a 60% retention rate from semester 1 to semester 2 in 2017. Of these 12 programs, 7 had Graduation Rates falling below 60% in the 2016/2017 reporting year * Less than a quarter of applicants and less than one third of registrations to Fleming are from students who reside WITHIN Fleming’s catchment area. This ratio has been gradually declining since 2013. * Fleming attracts applicants and registrants from the Durham, Georgian and Loyalist catchment areas. * Durham, Georgian, Loyalist and St. Lawrence receive that most applications and registrations from students who reside within Fleming’s catchment. |
| **Resources** | Education Design Lab (2015). *Are Badges College ready?* *10 things we’ve learned from the 21st Century skills badging challenge.* Retrieved from: <http://eddesignlab.org/2015/06/are-badges-college-ready/>  Frey, T. (September 29, 2013). Trimming the fat: introducing the lean micro-college model for education. Retrieved from: <http://www.futuristspeaker.com/business-trends/trimming-the-fat-introducing-the-lean-micro-college-model-for-education/>  Grant, Michael. *Aligning skills development with labour market need*. Ottawa: The Conference Board of Canada, 2016.  Henny, C. (June 1, 2016). 9 Things That Will Shape the Future of Education: What Learning Will Look Like in 20 Years? Retrieved from eLearning Industry: <https://elearningindustry.com/9-things-shape-future-of-education-learning-20-years>  Institute for Competitiveness and Prosperity, Ontario’s Panel on Economic Growth and Prosperity. (December, 2016). Collaborating for growth: opportunities for Ontario. Retrieved from: <https://www.competeprosper.ca/uploads/2016_AR15_Final.pdf>  Miller, C. (2017). *Trends that will (re)shape higher education in 2017.*  Retrieved from: <http://www.tcu.gov.on.ca/pepg/publications/APETPFramework.pdf>  Premier’s Highly Skilled Workforce Expert Panel. (June 2016). Building the workforce of tomorrow: a shared responsibility. Retrieved from <https://www.ontario.ca/page/building-workforce-tomorrow-shared-responsibility>  The future of universities. (June 28, 2014). The digital degree. *The Economist*. The staid higher-education business is about to experience a welcome earthquake. Retrieved from: <https://www.economist.com/news/briefing/21605899-staid-higher-education-business-about-experience-welcome-earthquake-digital>  The Information & Communications Technology Council (ICTC). (2015). The Smart Economy Reshaping Canada’s Workforce: Labour Market Outlook 2015-2019. Retrieved from: <http://www.digcompass.ca/wp-content/uploads/2015/07/Labour-Market-Outlook-2015-2019-FINAL.pdf>  Ray, L. (March 2017). *Indigenous program pathways inventory project: Phase one.* Canadore College. Retrieved from: <http://www.oncat.ca/files_docs/content/pdf/en/oncat_research_reports/2016-06-Final-Report-Canadore-College-Pathway-Inventory-of-Indigenous-Postsecondary-Programs.pdf>  Zhao, H. (2012). *Postsecondary Education Participation of Under-Represented Groups in Ontario: Evidence from the SLID Data.* Toronto: Higher Education Quality Council of Ontario. Retrieved from: <http://www.heqco.ca/en-ca/Research/ResPub/Pages/Postsecondary-Education-Participation-of-Under-represented-Groups-in-Ontario-Evidence-from-the-SLID-Data-.aspx> |

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| **Technology**  Rapid technological advancements are impacting not only the type of work that is being done, but also how work is being done. It is also a driver for more flexible, online program delivery.  **Trends:**   1. **Emerging Technology** 2. **Preparing Future Workforce** 3. **Digitization of Program Delivery – see category 4** | |
| **Timing of Change** | Current and next 3 – 5 years |
| **Opportunity or Challenge** | Both an Opportunity (new technology makes new programs possible) and Challenge (if program offerings do not incorporate and keep pace with technological advancements). |
| **Rationale** | ***Emerging Technology:***  We are currently undergoing what has been called the Fourth Industrial Revolution, where changes to the fields of genetics, artificial intelligence (AI), robotics, nanotechnology, 3D printing, biotechnology, smart machines, networks and digitization are additive and fuel further changes (World Economic Forum, The Future of Jobs, as cited in Shank, 2016).  https://d2p9xuzeb0m4p4.cloudfront.net/~/media/Images/Publications/Blogs/33016/Figure%20twofw.png?la=en&hash=1DB65927BA3A3EDD4FCD1E5A0EEF9D7002399349  (cited in Shank, 2016)  Technology and automation are creating demand for workers with complex mix of skills, including technical, cognitive, interpersonal, digital and problem solving (ICP, 2017).  Latest developments of enabling technologies are driving innovation, productivity, growth (Internet of Things (IOT), Social, Mobile, Analytics, Apps, and Cloud (SMAAC) and changing skills demands across all sectors (ICTC, 2015).  “Analytics, algorithms, big data and automation will accelerate and enhance productivity and decision making, and automate and abolish tasks previously performed by humans.  This will frequently disrupt product, service and labor markets, with greater volatility in unemployment and re-employment. Organizations will migrate tasks [from people to machines](http://ww2.cfo.com/people/2014/12/smart-machines-new-human-capital/) and/or robots, mastering big data.  They will augment their capabilities beyond regular full-time employment by creating and maintaining external partnerships that manage workforce transitions without hurting their reputation as a fair and attractive place to work.  This will require exceptionally strong social and community relationships and ethics.” (Boudreau, 2015).  ***Preparing Future Workers:***  Forty-two percent (42%) of Canada’s labour force is considered highly susceptible (probability of 70% +) to automation within the next 10 – 20 years (Statistics Canada, as cited in ICP, 2017).  “Computers will soon take care of every statistical analysis, and describe and analyse data and predict future trends. Therefore, the human interpretation of these data will become a much more important part of the future curricula. Applying the theoretical knowledge to numbers, and using human reasoning to infer logic and trends from these data will become a fundamental new aspect of this literacy” (Henny, 2016).  Between 2001-2015, technology impacted Ontario Labour Market through: (ICP, 2017)   * + Job polarization     - *Routine cognitive/routine manual* 🠛(jobs that involve repetitive tasks that may be easily codified)     - *Non-routine manual* 🠙 (demand will be fueled by wage increases among middle/higher income class (i.e. cleaning, security, food service, home health care))     - *Non-routine cognitive/analytical* 🠙 (tasks complemented rather than replaced by technology, however, these types of jobs may be at risk of automation in future)   + Wage Polarization (decreasing middle class due in part to job polarization)   + Growth in Service Sector (79% in 2015) & Decline in Goods-Producing Sector (21% in 2015).     (cited in ICP, 2017)    (cited in ICP, 2017)  Forces shaping the Future:   * Exponential technological change/breakthroughs that disrupt markets/business (i.e. artificial intelligence, robots, autonomous vehicles) (Boudreau, 2015). * Social/Organizational reconfiguration that lead to more power-balanced organizations; democratization of work; more project-based relationships and less employment-based (i.e. contracts, consulting) (Boudreau, 2015). * Truly connected world through virtual collaboration; cheap mobile devices; short product development cycles with immediate feedback; cloud-based organization of workers; big data (Boudreau, 2015). * All-inclusive global talent market where work is increasingly segmented into projects, tasks, to be completed by best-suited talent (Boudreau, 2015).   An Oxford University study found that 45% of all current jobs will disappear in the next 10 years (due to full automation or technological advancements that will results in requiring only a portion of the workforce) (as cited in Anton, 2017).  **Jobs that are anticipated to disappear within 10 years include (as cited in Anton, 2017):**   * Drivers (will be automated and replaced by autonomous/self-driving vehicles) * Traditional Farmers (10 companies control every large food/beverage brand in world) * Printers/Publishers (traditional media being replaced by Internet/social media) * Cashiers (self-checkout, purchases automatically deducted from credit card when you leave store -i.e. Amazon Go – AI cashiers can work without breaks) * Travel Agents (no need for 3rd person to book trips anymore – booking.com and Airbnb disrupting whole hotel business) * Manufacturers (automation has and will continue to replace humans) * Dispatchers (algorithms are close to replacing the coordination of field operators) * Wait Staff/Bartenders (will not be completely eliminated due to need for social interaction, many will be replaced by iPad and algorithms) * Bank Tellers (only specialized banking services require human interactions – daily interactions replaced by ATMs and online banking) * Military Pilots/Soldiers (drones more accurate than humans and safer) * Fast-food Workers (easy to automate, may be phased out quicker with rising minimum wage) * Telemarketer (replaced by targeted Internet ads that are smart, learn from you) * Accountants/Tax Preparers (algorithms take over scanning and organization of raw data) * Stock Traders (in 2015, only 10% of daily stock trades made by actual humans – the rest by bots) * Construction Workers (as technology becomes more efficient, fewer construction workers needed, usually with specialized skills) * Movie Stars (CG replacing humans)  1. **jobs every company will be hiring for by 2020 (Thompson, 2016)** 2. Data Analyst 3. Computer & Mathematical occupations 4. Architects & Engineers 5. Specialized sales people (to explain tech advancements) 6. Senior Managers 7. Product Designers 8. Human Resources & Organizational Development 9. Regulatory & Government Relations Experts   **“Many of the jobs that are going to exist in five years haven’t been invented yet” (Wiart, 2016**) Most of thesewill be related to or be off-shoots of the following:   1. Simulationist 2. Medical tattooing for cancer patients 3. 3D Printing 4. Cybersecurity 5. Architectural technologists 6. Sales programs 7. Medical marijuana 8. Women in trades 9. Indigenous health geography 10. Indigenous community and social development 11. Utility arborist 12. Ship’s cook 13. Autonomous vehicles support staff & technicians (drones) 14. Indoor farmers/rooftop farmers 15. Conversational interfaces   **Canada’s 10 hottest job industries (Hayashi, 2017)**   1. Financial manager & accountants 2. Skilled trades people 3. Software and mobile developers 4. Registered nurse 5. Psychologists, social workers and counselors 6. Medical technologists or technicians 7. Human resource specialists or managers 8. Pharmacists 9. Audiologists, speech therapists and physiotherapists 10. Construction managers |
| **Resources** | Anton, E. (October 5, 2017). 15 Jobs That Will Disappear in the Next 20 Years. Retrieved from <https://www.alux.com/jobs-gone-automation-ai/>  Boudreau, J. (2015, August 20). *Workplace 2025: Five Forces, Six New Roles and a Challenge to HR*. Retrieved from Visier.com: <https://www.visier.com/hr-leadership/workplace-2025-five-forces-six-new-roles-and-a-challenge-to-hr/>  Government of Canada. (2018) National Occupational Classifications. (HRSDC)  http://noc.esdc.gc.ca/English/noc/welcome.aspx?ver=11  Henny, C. (June 1, 2016). 9 Things That Will Shape the Future of Education: What Learning Will Look Like in 20 Years? Retrieved from eLearning Industry: <https://elearningindustry.com/9-things-shape-future-of-education-learning-20-years>  Institute for Competitiveness and Prosperity. (September, 2017). Labour market shift: training a highly skilled and resilient workforce in Ontario. Retrieved from:  <https://www.competeprosper.ca/uploads/The_labour_market_shift_in_Ontario_Sept_2017.pdf>  Shank, P. (2016, March 30). *2025: How Will We Work? How Will Your Job Change?* . Retrieved from Association for Talent Development: <https://www.td.org/Publications/Blogs/Learning-Executive-Blog/2016/03/2025-How-Will-We-Work-How-Will-Your-Job-ChangeP>  The Information & Communications Technology Council (ICTC). (2015). The Smart Economy  Reshaping Canada’s Workforce: Labour Market Outlook 2015-2019.  Thompson, C. (2016, January 22). *8 jobs every company will be hiring for by 2020*. Retrieved from World Economic Forum: https://www.weforum.org/agenda/2016/01/8-jobs-every-company-will-be-hiring-for-by-2020/  Retrieved from: <http://www.digcompass.ca/wp-content/uploads/2015/07/Labour-Market-Outlook-2015-2019-FINAL.pdf>  Wiart, N. (2016, October). Body of work. *Maclean’s 2017 College & University Program Guide: How to get the career you want: The essential Canadian resource.* p. 43 |

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| **Global Context/Comparators**  The labour market trends and technological impacts being experienced in Ontario and Canada are being similarly experienced in the U.S. and E.U.  **Trends:**   1. **United States:**  * **Rising tuition costs with declining domestic enrolment** * **Immigration controls**  1. **Europe:**  * **Cross-Industry workforce needs/training** | |
| **Timing of Change** | Within next 5 to 6 years (10 year trends to 2024) |
| **Opportunity or Challenge** | Both a treat and an opportunity. Value of education & benefit of College education |
| **Rationale** | ***United States:***  According to the U.S. Bureau of Labor Statistics (BLS) (December, 2015) the U.S. will experience an overall projected job growth of 6.5% (9.7 million) from 2014 to 2024.  The highest projected growth in U.S. will occur within the following occupations (U.S. BLS, 2015):   * Health related occupations, such as Personal Care Aides, Registered Nurses, Home Health Aides, Nursing Assistants * Retail Salespersons, Customer Service Representatives * Cooks, Food Preparation/Serving workers (incl. fast food) * General and Operations Managers * Construction Labourers   The largest projected declines in U.S. will occur within the following occupations (U.S. BLS, 2015):   * Bookkeeping/Accounting/Audit Clerks * Cooks (fast food) * Postal Service Workers/Carriers * Executive Secretaries/Executive Admin Assistants * Farmworkers/Labourers (Crop, Nursery, Greenhouse) * Sewing Machine Operators; Cutting, punching and press machine setters, operators;   Switchboard Operators   * Tellers * Employer reported US Talent Shortages of 46% in 2016, due to: * 2008/09 recession that created record levels of unemployment * Changes in economy (technological growth/advancement, shifting demographics, increasing customer sophistication, rise of individual choice) (ManpowerGroup, 2017). * Top 10 areas of talent shortages in US (ManpowerGroup, 2017):   (due to lack of applicants, experience, and hard skills/technical competencies)   * + Skilled Trades   + Drivers   + Sales Representatives   + Teachers   + Restaurant/Hotel Staff   + Accounting/Finance Staff   + Nurses   + Labourers   + Engineers   + Technicians * One way that employers are attempting to address talent shortages is by upskilling existing staff through training/development (ManpowerGroup, 2017).   Some American postsecondary education trends are similar to those we are currently experiencing in Ontario (from Miller, 2017):   * Funding caps/decreases fueling tuition cost increases * Declining number of high school graduates to enrol in postsecondary, in favour of “non-traditional” students * Institutions are experiencing pressure to take responsibility for academic quality and outcomes * Programs are changing in response to student/consumer demands (i.e. demand for health-related education driven by aging baby-boomers) * College viability depends on ability to continuously evaluate/improve services   Recent immigration controls that have been introduced in the U.S. will impact current/future international student enrollment in U.S. and could push these students into the Canadian PSE market  (Miller, 2017).  ***Europe:***  *Cross – Industry workforce needs/training -* **Soft Skill Requirements**  ***European Union (E.U.) (from European Centre for the Development of Vocational Training):***  *Primary Sector/Utilities*   * Declining, but technological advancements lined to sustainability, will lead to more jobs for professionals, technicians, associate professionals (high replacement demand through retirements will provide jobs for medium/low level qualifications)   *Manufacturing*   * Declining, will still provide 12% of all jobs in Europe by 2025 * Rise in motor vehicle/machinery production, fall in textiles, clothing, metal * Craft and related trades workers are core of manufacturing (1/3 jobs by 2025) * 2/3 job openings will be for professionals, technicians, associate professionals * By 2025, nearly ½ of jobs will require high-level qualifications due to technology   *Construction*   * Relatively stable (6% of labour force) * More than ½ of jobs will be for craft and related trades workers by 2025 * Increasing skills demand due to “green”/energy efficient buildings * High-level qualifications forecasted for 1/3 jobs by 2025   *Distribution/Transport*   * Slight expansion, employ 25% of all EU workforce by 2025 * Job growth particularly in wholesale, retail, accommodation, catering * High levels of interaction with people, less routine, less vulnerable to automation * Demand for higher qualifications (with climate change, new technologies   *Business/Other Services*   * Driver of most job growth (95% of new jobs in EU to 2025; 30% of all jobs) * Legal, Accounting, Consulting, Administrative, Support Services * Technology will impact clerical jobs * ½ jobs will require high-level qualifications   *Non-marketed Services (Public Sector)*   * Will employ 25% of EU workforce by 2025 * Growth in health and education, declines in public administration/defense * Technological innovation, cross-border mobility of health workers, aging teachers changing nature of these jobs and skills needed * By 2025, over half of these jobs will require high-level qualifications   *(CEDEFOP, 2016).*  Cross industry jobs in demand by 2020  From January 2016 World Economic Forum (WEF) report, *The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution* (cited in Thompson, 2016)   * Data Analysts (to make sense of data generated by technology) * Computer Programmers, Software Developers, Information Security Analysts, etc. * Architects, Engineers (biochemical, nanotechnology, robotics, materials) * Specialized Sales Representatives (i.e. mobile advertising) * Senior Managers (media, entertainment, information - lead through transformations) * Product Designers (commercial, industrial - creative jobs require human) * HR/Organizational Development Specialists (hiring AND reskilling of workers) * Regulatory/Government Relations Experts (deal with emerging technologies) * Jobs are becoming more flexible and complex which is in turn driving the demand for employees who can manage complex information, think independently, be creative/efficient with resources and communicate effectively (Eurostat, 2017). * Across EU-28 in 2015, almost 1/3 of students in higher education were studying social sciences, journalism, information, business administration, or law; followed by engineering, construction, manufacturing (15.8%) and heath/welfare fields (13.1%) (Eurostat, 2017). * The EU has set a target of 40% of people aged 30 – 34 in EU to have higher education qualification by 2020 (Eurostat, 2017). |
| **Resources** | European Centre for the Development of Vocational Training (CEDEFOP) (May, 2016). European sectoral trends: the next decade. Retrieved from: <http://www.cedefop.europa.eu/files/8093_en_0.pdf>  Eurostat. (2017). Tertiary education statistics. Retrieved from: <http://ec.europa.eu/eurostat/statistics-explained/index.php/Tertiary_education_statistics>  ManpowerGroup. (2017). Manpower Group’s Talent Shortage Survey 2016/17. Retrieved from: <http://www.manpowergroup.us/campaigns/talent-shortage>  Miller, C. (2017). *Trends that will (re)shape higher education in 2017.*  Retrieved from: <https://evolllution.com/attracting-students/todays_learner/trends-that-will-reshape-higher-education-in-2017/>  Thompson, C. (2016, January 22). *8 jobs every company will be hiring for by 2020*. Retrieved from World Economic Forum: <https://www.weforum.org/agenda/2016/01/8-jobs-every-company-will-be-hiring-for-by-2020/>  U.S. Bureau of Labor Statistics. (December, 2015). *Projections of occupational employment, 2014–24.* Retrieved from: <https://www.bls.gov/careeroutlook/2015/article/projections-occupation.htm> |

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| **Student Population Trends/Under-represented Student Groups**  With a continuous decline in domestic student populations, PSIs will need to attract students from historically under-represented groups (i.e. adult learners, indigenous, newcomers) in addition to those from traditional student markets (i.e. direct entrant from high school). *Please see Fleming’s Summary Report companion document for more details*  **Trends:**   1. **Declining domestic enrolment** 2. **Adult learners, Indigenous, Rural, Low income, newcomers/Immigrants** 3. **International: See companion resource *Summary Report* and Internationalization Plan** | |
| **Timing of Change** | Current |
| **Opportunity or Challenge** | Both an Opportunity (to develop programs and pathways for specific student populations) and Challenge (if the college cannot attract students from new target markets to bolster shrinking domestic student enrolment) |
| **Rationale** | ***Declining Domestic Enrolment***: See companion document *Summary Report: Enrolment, Competitor Data*  **Fall** – enrolment increased from 2008 to 2011 and then started a downward trend to present,  currently sitting at 5192 students.  There was a 22% increase in enrolment at Haliburton campus from Fall 2016 to Fall 2017  There was a 12% decline in domestic registrations from Fall 2011 to Fall 2017 (5907 vs. 5192)  o Frost enrolment decreased by 241 students  o Halliburton enrolment decreased by 5 students  o Sutherland enrolment decreased by 487 students  **Winter** – there was an 18% decline in enrolment from Winter 2012 to Winter 2018 (5772 vs. 4735). This is a loss of 1037 students and Sutherland accounts for 65%.  o Frost enrolment decreased by 375 students  o Halliburton enrolment increased by 14 students  o Sutherland enrolment decreased by 671 students  The provincial government of Ontario has committed to finding a place for every qualified Ontarian who wants to pursue postsecondary education (college/university/apprenticeship) through the Ontario Student Access Guarantee (Government of Ontario, 2011). This will assist with the overall goal of raising the province’s postsecondary educational attainment rate to 70% by the year 2020 (Government of Ontario, 2011).   * Postsecondary enrolment among 19-year-olds rose in all provinces from 2001 to 2014 (+21.3%) (Frenette, 2017).   ***Adult Learners:***   * New reality that impacts both labour market and postsecondary institutions: workers are “always going back to school” to keep skills up-to-date and relevant (ICP, 2017). * In the current knowledge-based economy, with advancements in technology/rapidly changing skill requirements, learning must take place throughout the lifetime (Kerr, 2011). * Adult learners are heterogeneous group with different needs/motivations in seeking further education, which include completing OSSD requirements to pursue PSE, obtain or improve employment, improve literacy or numeracy skills for workplace success and/or retraining to upgrade or learn new skills (Kerr, 2011). * Approximately 50% of Canadian adults participated in further education courses annually (informal learning related to paid work, housework, general interest) (Livingstone & Raykov, 2013). * Older and working class have lower rates of participation in further education courses, but not informal learning (Livingstone & Raykov, 2013). * Further education barriers include high cost, inconvenient times/places of courses (Livingstone & Raykov, 2013). * With higher levels of postsecondary completion, more middle-aged people are opting for further education (Livingstone & Raykov, 2013).   ***Indigenous:***   * Aboriginal population is growing at a much faster rate than non-Aboriginal – nearly 6 times faster between 1996 and 2006 (Government of Ontario, 2011). * Aboriginal participation in PSE lower than non-aboriginal (58% vs. 78% --- more likely to be underrepresented in Ontario universities, NOT colleges) (Zhao, 2012). * The Ontario government is working with Aboriginal leaders/organizations to improve educational outcomes among Aboriginal learners by improving educational achievements and closing educational attainment gaps between Aboriginal and non-Aboriginal learners (Government of Ontario, 2011). * Challenges include: * Gaps in enrolment/retention of Aboriginal learners, Aboriginal staff (teaching and non) within publicly assisted institutions, employment rates, income * Barriers of poverty, academic preparedness, discrimination, institutional insensitivity, relocation, entering as adult learners (Government of Ontario, 2011).   **Aboriginal Postsecondary Education and Training Policy Framework: Goals, Strategic Directions, and Performance Measures**    *(Government of Ontario, 2011)*  ***Rural:***   * Rural youth (42.1%) are more likely to attend an Ontario college compared to urban youth (25.3%) (Zhao, 2012).   ***Low income:***   * Within rising postsecondary attainment rates for 19-year-olds from 2001 to 2014, there was a greater increase for those from families who were at the bottom of the income distribution (+24.9% vs. +21.3%) (Frenette, 2017). * Income is a significant factor for PSE participation, but is less relevant for college than for university participation (Zhao, 2012).   ***Newcomers/Immigrants:***   * Projections indicate that **all** population growth in the working age population over next 25 years will come from immigration (Ontario Ministry of Finance. Ontario’s Long-Term Report on the Economy. April 2, 2014. http://www.fin.gov.on.ca/en/economy/ ltr/2014/ch1.html#ch1\_s4 as cited in PHSWEP, 2016). * Immigrants (16%) are less likely to attend Ontario College than non-immigrants (29%) (Zhao, 2012).   ***International:***  Enrolment increased 108% from 2017 – 2018 for the International student with 90% of the student from India. Wireless Information Networking and Project Management have the highest enrolment of these students. |
| **Resources** | Frenette, M. (2017). *Postsecondary enrolment by parental Income: recent national and provincial trends.* Statistics Canada. Retrieved from: <http://www.statcan.gc.ca/pub/11-626-x/11-626-x2017070-eng.htm>  Government of Ontario. (2011). Aboriginal postsecondary education and training policy framework. Retrieved from: <http://www.tcu.gov.on.ca/pepg/publications/APETPFramework.pdf>  Kerr, A. (July 20, 2011). Adult learners in Ontario postsecondary institutions. Toronto: Higher Education  Quality Council of Ontario. Retrieved from:  <http://www.heqco.ca/SiteCollectionDocuments/At-Issue-Adult-Learners-ENG.pdf>  Livingstone, D.W. & Raykov, M. (2013). *Adult learning trends in Canada.* Toronto: University of Toronto.  Retrieved from <http://www.wallnetwork.ca/Adult-Learning-Trends-in-Canada-2013.pdf>  Premier’s Highly Skilled Workforce Expert Panel. (June 2016). Building the workforce of tomorrow: a shared responsibility. Retrieved from <https://www.ontario.ca/page/building-workforce-tomorrow-shared-responsibility>  Zhao, H. (2012). *Postsecondary Education Participation of Under-Represented Groups in Ontario:*  *Evidence from the SLID Data.* Toronto: Higher Education Quality Council of Ontario.  Retrieved from: <http://www.heqco.ca/en-ca/Research/ResPub/Pages/Postsecondary-Education-Participation-of-Under-represented-Groups-in-Ontario-Evidence-from-the-SLID-Data-.aspx> |

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| **Regional Demographics**  **Trends:**   1. **Population Growth** 2. **Employment Sector** 3. **Regional Areas of Development** | |
| **Timing of Change** | immediate |
| **Opportunity or Challenge** | Opportunity to address |
| **Rationale** | According to the Community Labour Market Plan 18/19, WDB, Local Employment Planning Council. Jennifer Lamantia CEO   * “With the release of the 2016 Census data, our population has increased by 3.3% since 2011, while our total labour force for the region was down 3% from 2011 * Our region experienced a huge increase in people aged 65 and over with a growth of over 200% (53,040 people) * The region’s average individual employment income is 22% below the provincial average and retail sales is a major source of employment as well as topping the list for projected occupational growth. * Oral and written communication is are the top skills needs by employers advertising jobs across the board. * Common sector areas that are intended for development include agriculture, manufacturing, and tourism. * Student focus groups indicated the need for experiential learning opportunities as a priorities as well as identified the duel-credit courses as being beneficial in preparing students for the workforce.   According to the Situational Analysis: Peterborough & the Kawarthas, Feb. 2018. Geospatial Data Analysis Group.   * The population of Peterborough & the Kawarthas is expected to grow between 154,000 and 162,300 people by 2041. * BY 2014, there would be around 68,300 employed residents in the region. That is not the same as residents employed in the region * The largest employment for residents of Peterborough & the Kawarthas is within the healthcare and social assistance sector followed by retail trade. * The share of employment in manufacturing has decreased from 11.5% to 7.6% while the share in construction has increased from 4.1% to 8.3% * Relative to the province and country, Peterborough & the Kawarthas has a great concentration of employees working in :   + Health occupations   + Trades, transport and equipment operators and related occupations   + Occupations in education, law and social, community and gov. services &   + Sales and services occupations. |
| **Resources** | Workforce Development Board, Local Employment Planning Council. (February 2018) *Community Labour Market Plan 18/19*  Geospatial Data Analysis Group. Canadian Centre for Economic Analysis (February 2018). *Situational Analysis: Peterborough & the Kawarthas* |

1. Medium-sized colleges: Cambrian, Conestoga, Durham, Fleming, Georgian, Niagara, St. Clair, St. Lawrence [↑](#footnote-ref-1)
2. Kaufman, A., Jonker, L. & Hick, M. (2018). *Differentiation within the Ontario College System: Options and Opportunities*. Toronto: Higher Education Quality Council of Ontario. [↑](#footnote-ref-2)