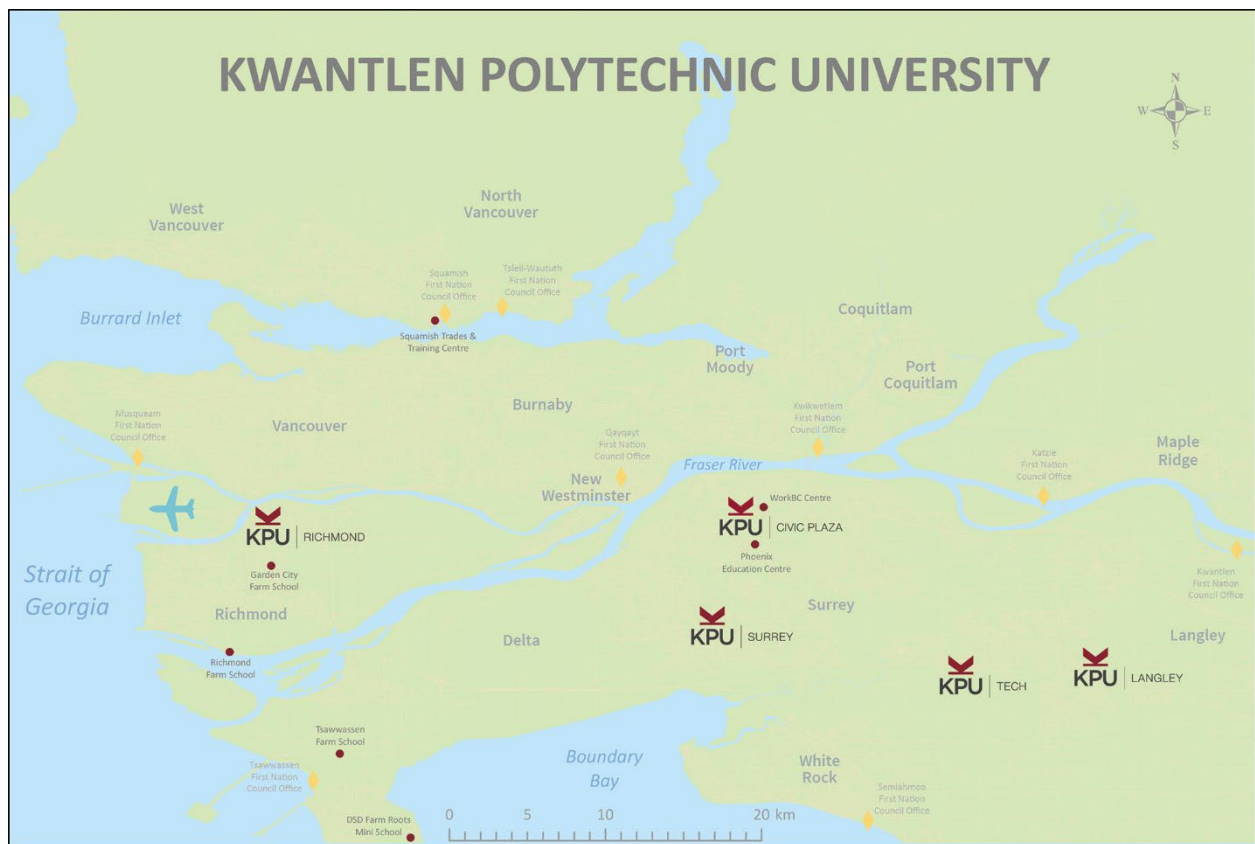# KWANTLEN POLYTECHNIC UNIVERSITY

Community Scan

A Report on Economic Development and Labour Market Trends

Prepared for the Office of the President by:
Dr. Jordan Tinney
July, 2023, Updated January 2024

Indigenous Land Acknowledgement

We at Kwantlen Polytechnic University respectfully acknowledge that we live, work and study in a region that overlaps with the unceded, traditional, and ancestral First Nations territories of the xwməθkwəy̓əm (Musqueam), q̓icə̓y̓ (Katzie), SEMYOME (Semiahmoo), scə̓waθən (Tsawwassen), kwikwəƛ̓əm (Kwikwetlem), and qiqéyt (Qayqayt); and with the lands of the qʷɑ:nƛ̓ə̓n̓ (Kwantlen First Nation), which gifted its name to this university.

In the cause of reconciliation, we recognize our commitment to address and reduce ongoing systemic colonialism, oppression and racism that Indigenous Peoples continue to experience.

Acknowledgements

This report could not have been possible without the help of numerous individuals within KPU and around the regions served by the university. Alan Davis for his constant support and vision of what he wanted to accomplish through the report, Lori McElroy for her very helpful comments and ongoing availability, and the rest of the advisory committee including Larissa Petrillo, Katie Openshaw, and Brent Elliott. Your time and input have been invaluable.

To Indigenous staff and leaders who have helped inform and guide the comments about Indigenous learners, thank you to Gayle Bedard, Stephanie Howes, Rachel Chong, Natalie Wood-Wiens, Cheryl Gabriel, June Kaminski, Charlene Seward and Melinda Bige.

Several other staff at KPU have contributed to this report. These participants have helped shape the contents, inform the evidence, and guide the questions. Thank you for your time and energy. KPU staff involved have included Adam Jaffer, Jarrett Lang, Randall Heidt, Peter Smailes, James Watkins, Sharmen Lee, and Nicole Poole.

The staff, school districts and business community of the KPU region have been most gracious with their time and expertise. Stephen Wu, Melissa Pace, Valerie Gafka, Cory Redekop, Shirley Gill, Anita Huberman, Shaena Furlong, Raj Puri and Neder Dhillon all have helped with insights, evidence and helping gather the stories behind the evidence.

This report is intending to capture the stories and guidance of all those above. Without their support, the narrative inside simply would not be possible. Thank you for your time, expertise, and honesty.

Dr. Jordan Tinney

Contents

Context and Background

In May of 2022, KPU initiated a conceptual framework for a community scan of the primary communities that it serves. The purpose of the scan was threefold:

- To support dialogue within senior leadership about the unique nature of the communities served by KPU;
- To identify the future directions of the province, surrounding regions and KPU communities with a particular focus on the emerging demographic and labour market trends; and
- To inform potential future programming needs at KPU in response to changing labour market and skills shortages.

Advisory Committee

To support the Community Scan and to identify initial priorities, initial and follow up meetings were held both individually and in groups with several KPU staff. An Advisory Committee was formed, and members of the Advisory Committee are:

- Dr Alan Davis - President
- Dr. Lori McElroy - Associate Vice President – Planning and Accountability
- Dr. Larissa Petrillo – Lead Advisor, Work-Integrated Learning, Office of the Provost & Vice-President, Academic
- Katie Openshaw – Special Advisor on Government Relations
- Brent Elliott – Interim Associate Vice-President Campus and Community Planning

Introduction

Recent History and Setting the Context

In these past five years, across the globe we see that economies have been shaken, trust in systems have been challenged and the rise of populist movements have seen a world that, at times, seems less inclusive. Some observers point to the emerging trends that began in 2014 and continued through Brexit to the 2016 United States election. The symbolism of the January 6th 2021 attack on the US Capital was the result of seeds that had been sown for years. In Canada, the 2022 Freedom Convoy is our own marker of this discontent. This unrest has a foundation in the forces of globalization and automation that has "hollowed out the working class over decades" (O'Shaughnessy, 2022). As we all bore witness to these emerging and troubling trends unfolding before our eyes, we did so through a global pandemic. The very ways in which we work, live and play and the democracies in which we govern have been dramatically challenged and altered. The landscape of 2023 has been shaped significantly by the events of the past 5 years.

The Economy

We now find ourselves, hopefully, in the wake of the pandemic and looking forward, but we do so in the face of substantially challenging economic conditions. The World Bank's Global Economics Prospects Report (January 2023) states:

> "Global growth is projected to decelerate sharply this year, to its third weakest pace in nearly three decades, overshadowed only by the 2009 and 2020 global recessions. This reflects synchronous policy tightening aimed at containing very high inflation, worsening financial conditions, and continued disruptions from the Russian Federation's invasion of Ukraine. Investment growth in emerging market and developing economies (EMDEs) is expected to remain below its average rate of the past two decades. Further adverse shocks could push the global economy into yet another recession."

The Workforce and Post Secondary Education

Clearly, we live in challenging times. What does this context mean for labour, skills and post-secondary education? As governments attempt to respond through policy, these national, provincial and local decisions will have implications for education. Part of this context is also historic shortages in labour. Statistics Canada reports that "across the five primary sectors driving total job vacancies, the ratio of new hires to vacancies has been trending downward" (2022). The unemployment to job vacancy ratio has dropped from almost 4.5 in 2016 to 1.4 in first quarter 2022.

As Canada and our provinces attempt to respond to these conditions, including a global climate crisis, we see a drive toward a new economy and attempts to inspire confidence in the public. This new economy and the response to these conditions has substantial implications for KPU. How do these policy and political changes impact British Columbia, KPU and the region that we serve? This paper will attempt to show the major trends, to consider their implications and to present items for consideration as KPU positions itself to respond to our changing and challenging context.

Figure 1 - Source Statistics Canada, Labour Force Survey and Job Vacancy and Wage Survey

Flow of the Report

This Report begins with a national perspective rooted in how the Census data inform and illustrate our patterns in demographics and in the labour force. From the national perspective, a focus will turn to British Columbia and specifically labour market shifts and trends. This provincial section of the report will largely be informed by the BC Labour Market Outlook forecast from the past three years. The report will then examine the impact that these trends and changes have on the regions that KPU serves. In looking at the KPU region and the trends and shifts in the labour market, an examination will be made of explicit areas of opportunity and how these areas may inform or guide the programming of KPU. Throughout the report, Key Findings are illustrated and highlighted as a means to draw attention to highlights. The final part of the report there are Points for Further Dialogue and Exploration as KPU looks toward the future.

The data sources for this report are primarily drawn from a combination of the 2021 Census, BC Stats, the BC Labour Market Outlook reports (2021, 2022, and 2023) online reports and resources, and interviews with faculty of KPU, community members, Indigenous leaders and business leaders. The sources come from multiple perspectives over time and are attempted to be presented in a coherent, whole, shedding light on our current context.

2021 Census: A National Portrait of Citizenship and Immigration

On October 26th 2022, Statistics Canada released the Portrait of Citizenship and Immigration from the 2021 Census. The Portrait helps shed light on the patterns and trends that have been witnessed over the past two years in the region. There are several important indicators that continue to show the trends of our population changes.

This Census reported the largest proportion of immigrants in Canada since Confederation (23%). The reason for this trend is that the replacement level of our population which includes the number of new births, will not sustain our current population. With this decrease in birth rate, and the subsequent increase in immigration, the proportion of immigrants will continue to increase. If these trends continue, it is reported that by 2041 immigration will form between 29% -34% of the Canadian population. Recent immigration is also younger than our current population and this is anticipated to continue.

The rationale behind many of the immigration policies is that with our aging population and lower birth rate, we need to be able to sustain our economy and fill the current and growing labour shortage. Between 2016 and 2021, immigrants formed 80% of the growth of our labour force in Canada. Of those who came on a work or study permit since 2016, 37% are now permanent residents.

Key Finding: With the current birthrate unable to sustain our population and workforce, aggressive immigration policies are required. In the past five years, 80% of the growth in Canada's labour force has been through immigration.

There are also changes in the patterns of the origin of immigration. Recent immigration continues to have Asia as a core region with 62% of immigration coming from Asia including the Middle East. The pattern and trends of immigration from Europe continue to decline. In 1971 immigration from Europe was 62%, in 2021 it was 10%.

A vast majority (93%) of immigrants can converse in English or French and the number of second-generation Canadians (children of immigrant parents) has risen 10% in the past 10 years. In 2021, the majority (64%) of immigrants were between 25-54 years of age and 11% were between 15-24 years of age. As we look to ease the labour force shortage in the coming years, 17% of all immigrants were younger than 15 years old.

As these new immigrants come to Canada and begin to work, there is a decline in the number of immigrants who are working in a job requiring a post-secondary degree. From 2001-2016, the percentage of university educated immigrants working in a job requiring a degree has steadily decreased and these numbers are well below those of their Canadian-born counterparts. There are policy changes underway to address this issue such as recognizing foreign credentials and removing the requirements for "Canadian experience." A report by Statistics Canada (2003) identified the lack of Canadian experience as the most significant barrier to new immigrants finding meaningful work.

In 2021, more than half of all immigrants (56%) were admitted under the economic category "based upon their potential economic contribution to meet labour market needs, or to create

economic opportunities by owning, operating or investing in a business or through self-employment" (Statistics Canada, 2022). Under the "skilled worker" category, this represented 35% of all immigrants from 2016-2021.

There are also changing patterns in immigration of refugees, in particular, from Syria. From 2011-2016, there were 27,000 refugees from Syria. In the same 5-year period from 2016-2021, that number jumped to 61,000 meaning that 28% of all refugees coming to Canada are now from Syria.

2021 Census: A National Portrait of the Labour Market

Changing Demographics

On November 30th 2022, Statistics Canada released two Census reports. The Changing Dynamics of the Canadian Labour Force and The Labour Market in Canada. Both contained helpful information and trends that shed light on trends in the labour force and specific areas that are of interest to KPU.

The reports examine the percentage of Canadians working who hold a post-secondary degree. That percentage, now 33%, is up from 2016 by 4 percentage points, a faster pace of increase than reported in the previous two censuses. Half of that increase was caused by the fact that 60% of immigrants who come to Canada between 2016 and 2021 are already holding a degree.

In the G7, which represents seven of the world's most advanced economies, Canada has the highest proportion of population who hold a two-year diploma. This is reported to be largely due to Quebec, which has a different education system where students complete grade 12 at a CEGEP, the college system in Quebec. Of those completing university degrees, at (9%), Canada lags significantly behind the G7 average of 14%.

Figure 2 - Source Statistics Canada

Examining the ratio of men to women with degrees in Canada, women remain significantly higher at 40% with men at 25%. The 5-year increase of men with degrees since 2016 (+2.2%) was larger in the past five years than in the previous ten years.

Statistics Canada (2022, November 30) states that nearly one in five who have a degree return to college or polytechnic universities to obtain credentials including diplomas that make them more employable. Ontario and British Columbia are identified as provinces that have programs that are specifically tailored to bachelor-degree holders and these programs enable them to build up their skills in a manner that is directly applicable to the labour market.
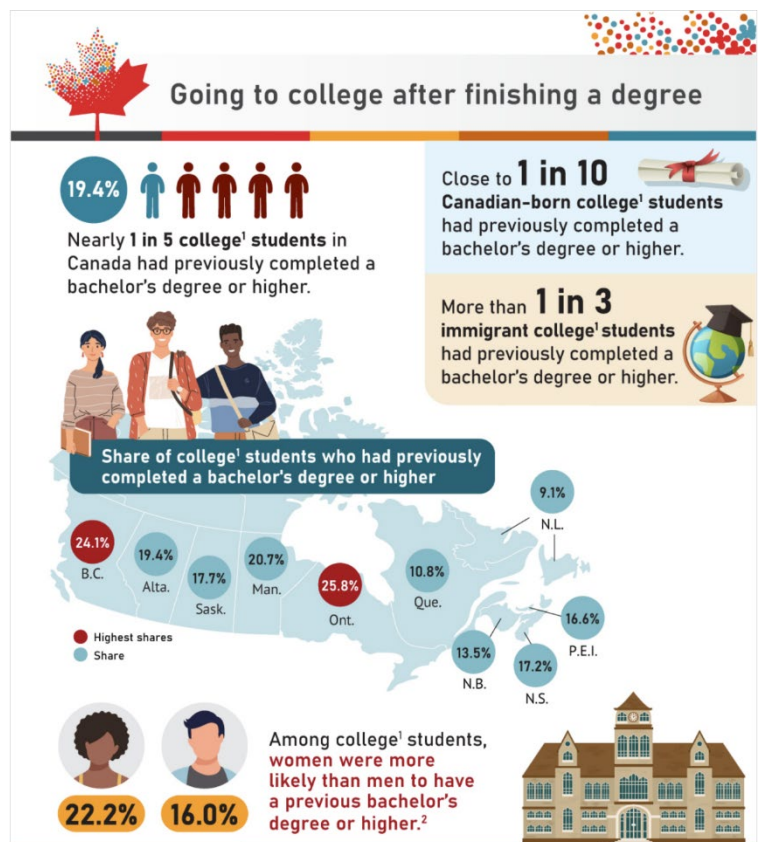
The report also finds that of the international students who are attending public colleges, 36% already have a university degree.

The Census reminds us that one of the most important labour market impacts from the pandemic was the increase of people working from home. As a result of the numbers of people working from home,

Key Finding: Canada lags significantly behind other G7 nations in the percent of our population with a university degree. A substantial percentage of people who have a degree are returning to obtain further training to help them become gainfully employed.

there has been a substantial decrease in people who are employed who commute. The 2021 Census report states that between 2016 and 2021, there were 2.8 million fewer commuters.

The additional information behind the rise in working from home and the decrease in commuting is the mobility of the workforce. As we emerge from the pandemic, for the people who are working from home, many people are also moving within and across municipalities while remaining working at home. It will come as little surprise that as of May 2021, there were 4.2 million people working from home compared to 1.3 million in 2016. What may come as a surprise is that, across Canada, 221,000 of these workers moved to a different municipality than they were in 12 months earlier. Statistics Canada reports that 15% of these 221,000 moved from a metropolitan area to a rural area.

Proportion of people who worked at home, who were living in a different municipality than 12 months earlier, May 2021

Moved from a rural area or a small town to a different rural area or a small town	6.1%
Moved from a rural area or a small town to a CMA	6.9%
Moved from a CMA to a rural area or a small town	15.0%
Moved from one CMA to another CMA (different province)	12.5%
Moved from one CMA to another CMA (same province)	21.3%
Moved within the same CMA (different municipality)	38.1%

% of Canadians working at home in May 2021

Note(s): CMA stands for census metropolitan area.
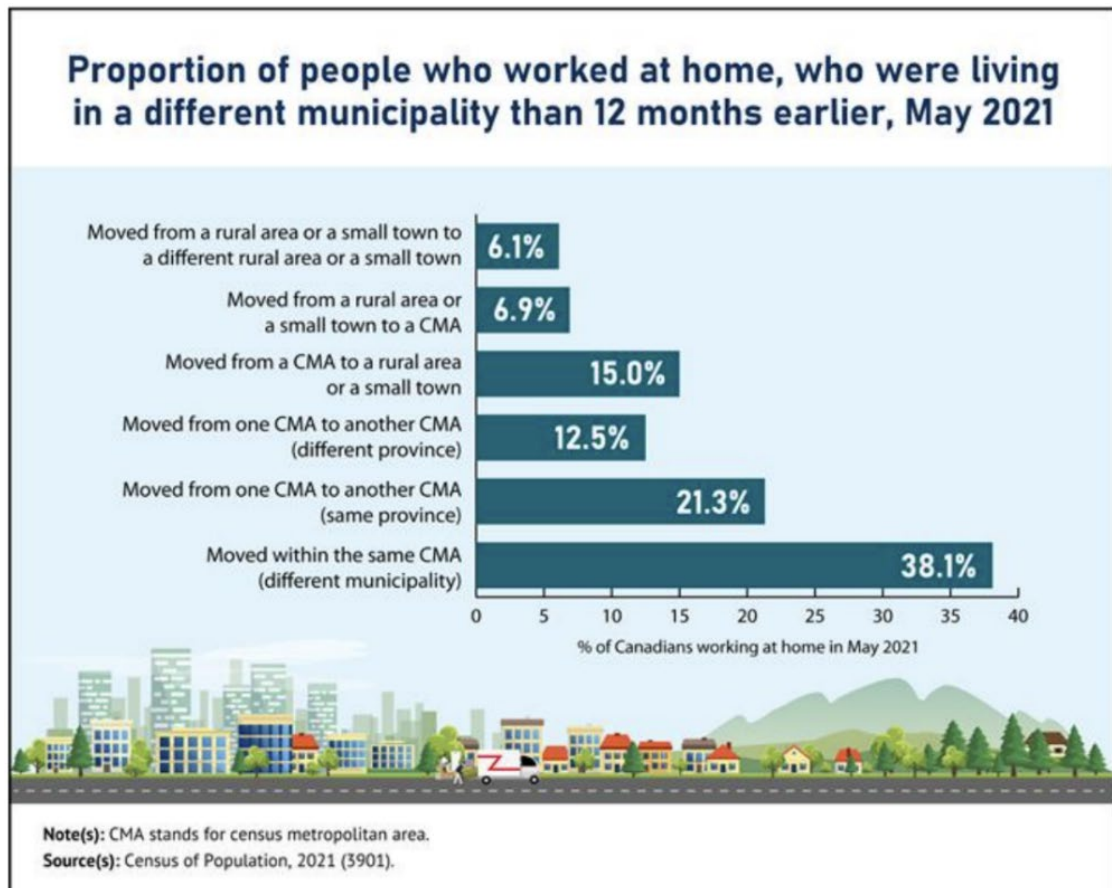**Source(s):** Census of Population, 2021 (3901).

Figure 3 – Proportion of People working from home. Canada. Source: Statistics Canada 2021 Census

This change in the labour market and the subsequent potential shift in the location of workers may mean that people will continue to look for flexibility in their work and learning. For post-secondary institutions, this may point to a continued desire to have access to hybrid learning environments which give flexibility and choice to adult learners.

Changing Labour Market Trends

Specific to the labour market, the 2021 Census highlighted several trends from 2016-2021 that are of interest. In particular there were these changes in specific sectors:

- a 19% increase in the number of people with a bachelor's degree or higher;
- a 24% increase in degree holders in health care;
- a 46% increase in degree holders in computer and information science;
- apprenticeship certificate holders – have either stagnated or declined in the construction industry (0.6%), mechanical and repair (-8%), and precision production (-10%), as fewer younger workers replace retiring boomers;
- job vacancies in construction and fabricated metal product manufacturing reached record highs in 2022;
- health care and social assistance are recording all time high vacancies;
- construction is seeing all time high vacancies (e.g. carpenter vacancy rate is up +149% compared to Q1 2020);
- accommodation and food service employment opportunities are in decline;
- manufacturing/retail is seeing record high vacancies;
- professional/scientific and technical – no change; and
- BC saw the largest increase in vacancies across Canada at +26% (Quarter over Quarter).

The BC Labour Market: A Provincial Perspective

There is substantial information in various forms that help to inform this report. The two most important sources are the British Columbia Labour Market Outlook: 2023 Edition (BCLMO) which is a ten-year projection of the needs of the labour market, and the recently published Census report on the Canadian Labour Force. These two major sources help illuminate how national trends impact BC.

The BC Labour Market Outlook is an annual publication. Through the writing of this report, we have been able to review releases from 2021-2023 and so are able to draw comparisons over time. There was no publication in 2020 due to the pandemic and the labour market instability in the province. The 2023 BCLMO Report includes some important new additions compared to previous editions. The National Occupational Classification (NOC) has been revised and this change represents a major restructuring of how jobs are classified including new occupations and educational programs. The updated NOC also includes new ways to represent the level of Training, Education, Experience and Responsibilities (TEER) required for entry into occupations and this also is considered a substantial improvement over previous versions. The 2023 report also has been able to fully include the information from the 2021 Census which is significant as prior reports still relied on 2016 data.

The BC Labour Market: Overview and Industry Growth

Consistent with previous reports, the Province of BC projects approximately 1 million job openings (998,000) in the coming decade. As the workforce ages, almost two thirds of these vacancies represent replacements for aging workers who are permanently employed and leaving the workforce. The Report further projects over 345,000 jobs being created due to economic growth. This latest edition reports slightly more openings created due to retirements (17,000) and fewer jobs created through growth (36,000) when compared to the 2022 BCLMO Report.

There is a shift from the previous year's Reports in who is projected to fill these newly vacant positions with young people continuing to be at 47% but new Canadians moving from 35% to 46%. This increasing rate of immigration's role in filling positions in the coming decade has shifted from 25% in the past five years and reflects the increase in federal immigration levels.

The Report projects that due to new immigration levels, BC will see an additional 14,000 immigrants per year when compared to the 2022 Report. This increase in immigration is one factor that has created a more balanced labour market when compared to previous reports. This latest edition projects that the number of job seekers will match the number of job vacancies, but it also states that the number of workers available does not necessarily mean that these job seekers will have the skills that employers need.

Figure 4 - Sources of Labour Supply Change, B.C., 2023-2033. Source: BCLMO 2023

The 2023 Report's shift to a balanced labour market is significant. In the 2022 Report, it was projected that the requirement for workers would outpace population growth and that there would still be a need for 81,500 additional workers in the coming decade. The changes in projected immigration have moved from 387,000 in the 2022 Report to 470,000 in the 2023 Report which eliminates that projected gap. In addition, it is reported that economic growth has slowed in 2024 compared to strong post-pandemic growth however, for the remainder of the projected decade ahead the economy is expected to return to sustainable long-term growth.

The 2023 Report's discussion of a balanced labour market also includes a projection of positive net growth in interprovincial migration. This in-migration is projected to average 7,200 people per year. A recent report on interprovincial migration from Statistics Canada shows that for the past five quarters, BC has reported a net out-migration to other provinces. The net interprovincial migration had been positive on a quarterly basis since 2018 and the 2023 Report clearly believes that BC would return to positive in-migration from other provinces in the years ahead.

In examining the demographics of the province and workforce, there remains a substantial impact of the aging workforce as baby boomers (born between 1946 and 1965) all will be over 65 years of age. Participation rates of those aged 15-54 are increasing and one highlight of note in the Report is that recent labour market trends are showing that women, in particular those with children, are participating in the workforce more than ever.

The BC Labour Market: Post Secondary Education and Training Needs

The 2023 Report includes a substantial refresh of the education and training needs due to two factors. First, the National Occupation Classification (NOC) system now includes a new system used to identify the skills and qualification requirements for occupations. Titled Training, Education, Experience and Responsibilities (TEER), this is a substantial restructuring in looking at how the type of training and experiences lead to occupations. Second, the Report now fully uses the 2021 Census data which provides updated demographic information compared to the previous report which still used 2016 data. The NOC 2021 revision and TEER categorization system is a significant change with the last major restructuring occurring in 2011.

The 2021 revision of classification of occupations includes moving away from NOC's four "Skill Level" categories to six TEER categories which identify the amount and type of education required to enter and be successful in an occupation. The structure also considers the experience required and the complexity of the responsibilities involved in occupations.
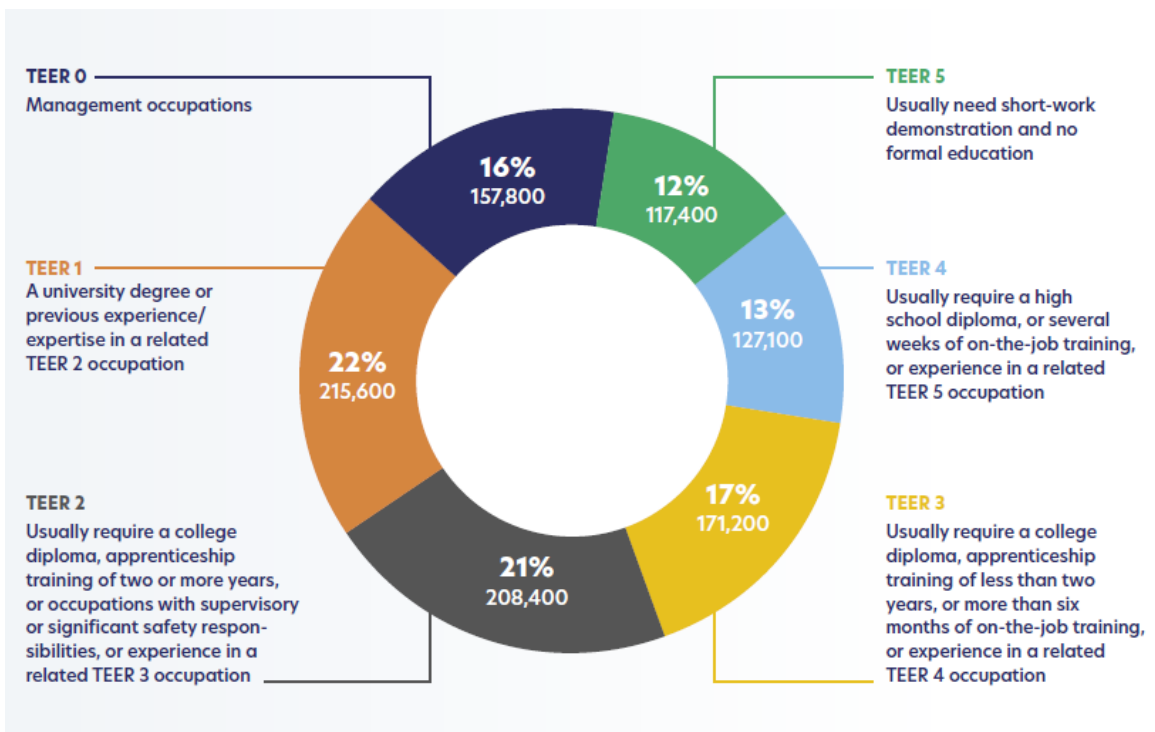
Figure 5 – Job Openings by TEER, B.C., 2023-2033, Source, BC Labour Market Outlook 2023

When combining the new TEER system with the updated Census information, there are significant differences between the 2022 and 2023 BC Labour Market Outlook Reports.

For illustrative purposes, Appendix 2 includes both graphics to allow a comparison. Most significantly, in 2022 it was reported that 31,600 jobs were projected to require "Less than High School" as qualifications, and the TEER 5 category of no formal education projects 117,400 jobs.

Overall, the 2023 Report states that 75% of all job openings between 2023-2033 will require some form of post-secondary education or training/experience. The 2022 Report projected that it was

80% of jobs that would require some form of post-secondary education. While a 5% change may not seem substantial, this still represents 50,000 jobs when the total projection is for a million openings. Both this projected reduction in requirement for post-secondary qualifications and the growing number of projected jobs requiring no formal education would require more exploration to understand the new TEER model and its implications.

The BC Labour Market: Industry Outlook

Consistent with previous BCLMO reports, the province sees five sectors accounting for over half of job openings in the coming decade:

- Health Care and Social Assistance (17%)
- Professional, scientific, and technical services (14%)
- Retail trade (10%)
- Educational Services (7%)
- Construction (7%)

In the Health Care sector, the projected number of jobs has risen from 142,900 to 166,300 in just two years which represents an increase of over 15%. The 2023 report projects a 3% decrease in the number of people leaving the health care sector compared to the 2022 report. The area of Professional, Scientific and Technical services has been growing rapidly with a projected 142,400 jobs in the coming decade. Economic growth is projected to generate 55% of the openings in this industry compared to 35% in all other occupations. Over half of all job openings in this sector will be in the Computer systems design and related services and this remains one of the fastest growing sectors in all of BC averaging 4.6% growth year over year.

The BCLMO report highlights the construction industry as one of the most substantial in BC as it has been in previous years. This year, there are specific comments that the forecast does not include the Provincial Government's recent "Homes for People" action plan which was announced in April 2023. As a result of this timing, the number of jobs in the construction industry may be underrepresented in this report.

The Clean Economy is highlighted in the 2023 report, and it lists the activities that industry sectors are undertaking to move toward reducing waste and to address climate change. The activities listed are all behavioural or policy driven and there are no mentions in the survey information provided by Statistics Canada on the specific skills and abilities that will be required for occupations in this sector.

The BC Labour Market: Occupational Outlook

Moving from industry outlook to specific occupations, close to three quarters of all job openings in British Columbia are expected to be in the top five occupational groups. The top three occupational groups will combine to fill more than half of all job openings in BC in the coming decade.

- Sales and service (23%)

- Business, finance and administration (18%)
- Trades, transport and equipment operators and related (16%)
- Education, law and social, community and government services (12%)
- Natural and applied sciences and related (11%)

These new categories have been updated to reflect the NOC 2021 categorization. A notable shift from the 2022 Report, which used the old NOC system, had 15% of all jobs being in "Management" which is now absent from the above list. These management positions may be reflected within the new groupings as opposed to being reported separately.
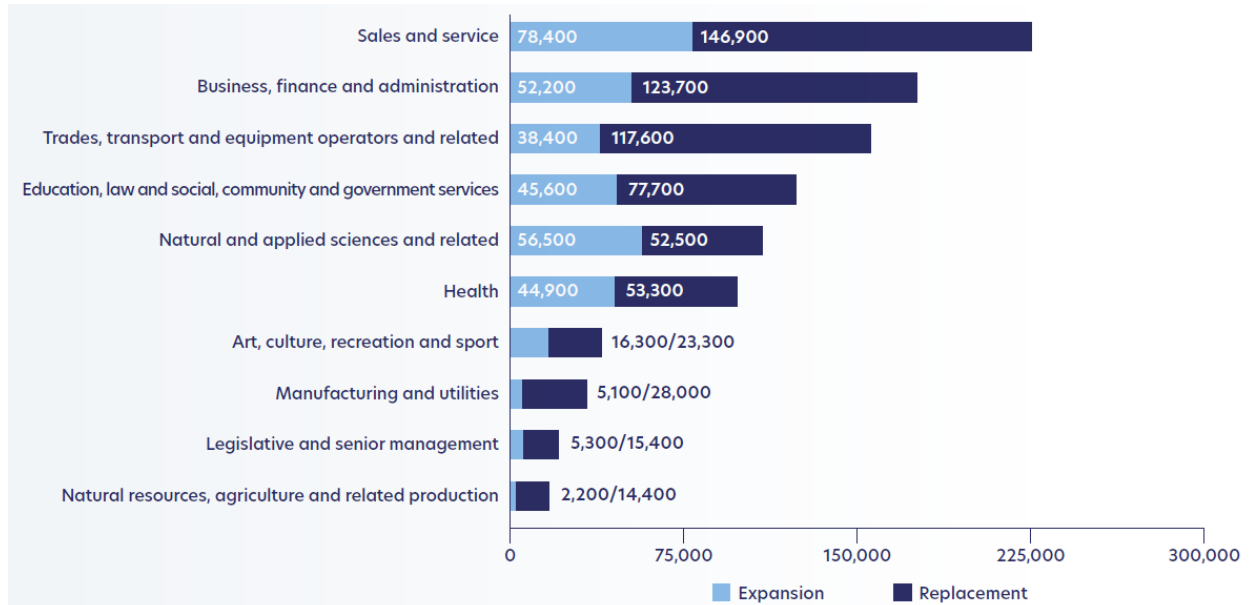

Figure 6 - Job Openings by Major Occupational Group 2023-2033. Source: BC Labour Market Outlook Report

Consistent with prior reports, replacement job openings (retirements and people leaving the workforce) will outpace openings due to expansion in almost all areas. The exception is natural and applied sciences. For natural and applied sciences, BCLMO reports that the demand will be driven by advancements in Artificial Intelligence and other technologies. Employment in the natural and applied sciences sector is expected to rise at almost double the rate of all other occupations in BC. For other occupational areas, openings due to replacement will outpace the number of openings due to expansion.

The emergence of Artificial Intelligence and the impact of automation on occupations are highlighted in the 2023 Report. This is a major revision compared to previous versions of the BCLMO Report and it is reported that there will be a need for retraining as occupations change to adopt new technologies. The Report states that the historical evidence suggests that the impact on the total number of jobs will be relatively small as any reductions will be counterbalanced by the creation of new jobs.

Automation will continue to impact jobs that are associated with lower education and experience levels, but changes in methodologies are now suggesting that occupations requiring more education will also be impacted, but that overall there will be no job loss. It is reported that only 2% (18,000) jobs have a high probability of automation but further exploration is being done on

how jobs are transformed rather than eliminated. It is stated that likely some of the tasks performed within occupations will be replaced.

Using the new TEER categories, and considering similar studies on the impact of automation on occupations in England, it is stated that 40% of all TEER 2 (College, diploma or apprenticeship) occupations have a high to medium risk of being impacted. The Reports suggests that the success of future workers, particularly in occupations that require less education and experience, will depend upon their ability to adapt to changing technologies and on their capacity to develop transferrable skills and competencies.
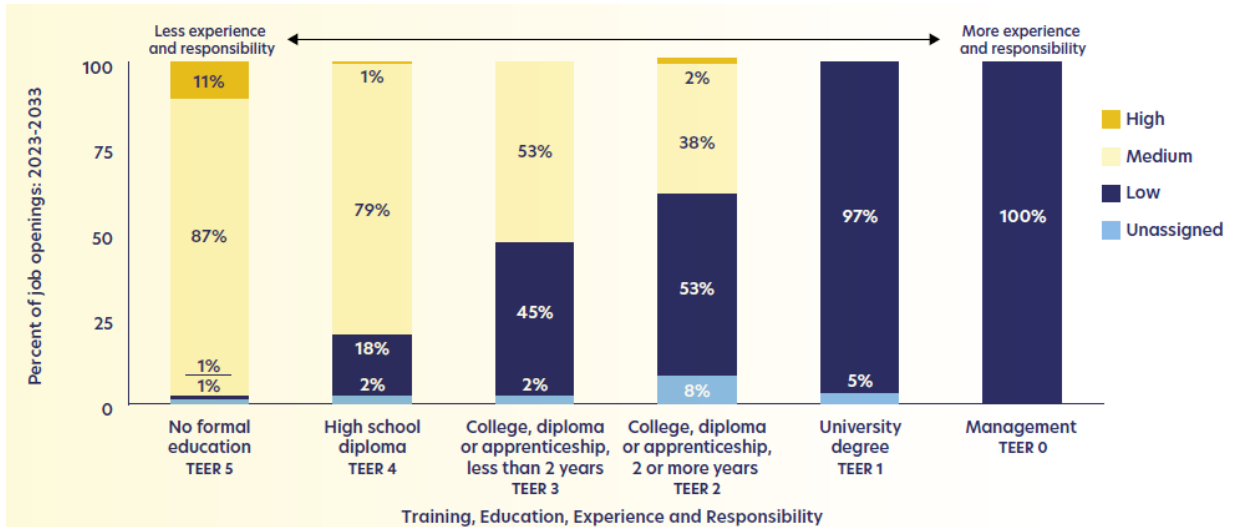
Figure 7 - Estimated Automation Impact on Future Job Openings by Training, Education, Experience and Responsibility (TEER), Source 2023 BCLMO

Separate from the specific task replacement by automation, there is also the impact of Large Language Models (LLM) such as ChatGPT. With its focus on human interaction and with the ability to assist with tasks such as coding, writing, and answering questions, these technologies have "the potential to transform the labour market in unexpected ways." The BCLMO Report suggests that the information presented in Figure 7 does not adequately capture the impact of LLM and that other occupations may be transformed. Occupations highlighted as examples of potential transformation include:

- Writers and authors
- Accountants and auditors
- Tax preparers
- Financial quantitative analysts
- Mathematicians
- Web and digital interface designers
- News analysts, reporters, journalists
- Legal secretaries and administrative assistants
- Clinical data managers

When considering the impact of emerging technologies on either replacing or transforming the workplace, surveys of BC businesses show that the technologies most likely to be adopted include

cloud computing and security software not AI or automation. Overall, it is reported that emerging technologies are likely to have "relatively modest" impacts on hiring and there are substantial differences between industries.

There is uncertainty and a continued shifting landscape when considering how technologies are changing the workplace. It is reported that it is unclear whether technologies will become significantly advanced to fully assume tasks normally done by people, nor is it clear how society and the workplace will accept different technologies. This uncertainty includes consideration of potential regulatory and legal requirements should LLM be adopted in the workplace. In this BCLMO careful analysis of how technology will impact jobs in BC and the future of the workplace, it is stated that "AI won't have any significant impact on job openings in the near future and that jobs will primarily be transformed, rather than created or replaced."

> *Given the current situation, this Outlook indicates that AI won't have any significant impact on job openings in the near future and that jobs will be transformed, rather than created or replaced.*
>
> *2023 BC Labour Market Outlook*

High Opportunity Occupations

The BC Labour Market Outlook report highlights occupations that will face high demand in the coming years. They refer to these as "High Opportunity Occupations" (HOO). These areas can provide insight for post-secondary and the training/education that may be required. The NOC 2021 categorizes jobs in a standard classification system which does not always clearly define how occupational groupings falling within a specific industry. The Report gives an example of construction workers who are occupied in the film industry. They may be reported as film industry and not construction. Given the growing and aging nature of our population, this BCLMO Report focuses on the substantial number of HOO jobs in what they term the "Care Economy." Occupations listed in the Care Economy grouping are:

- Registered nurses and registered psychiatric nurses
- Nurse aides, orderlies, and patient service associates
- Social and community service workers
- Elementary school and kindergarten teachers
- Early childhood educators and assistants

The current employment number in this sector is 469,100 and the BCLMO projects a further 189,900 jobs opening in the coming decade, with close to 80,000 due to expansion. When considering all occupations listed in the Report as HOO, those categorized under the Care Economy account for 36% of the entire list.

The HOO list also underscores the need for post-secondary education to meet the demand of the labour market in the coming decade. In what is an extensive list of occupations, almost 90% are in TEER 0,1, or 2 meaning that these jobs require two years or more of post-secondary education and/or management experience. Only 9% of occupations listed are TEER 3, which usually require two years of post-secondary education and only 2% of occupations are TEER 4 requiring completion of secondary school.

The BC Labour Market: Occupational Skills Clustering

Previous BC Labour Market Outlook reports have identified the difference between skills and competencies. Skills are defined as the ability to perform a task at hand based on knowledge, learning and practice. Competencies are the ability to apply those skills and knowledge to perform complex tasks including across occupations/industries. This BCLMO takes a different approach than in the past by examining how different occupations can be clustered by the types of skills that they require.

> *"Skills are defined as the ability to perform a task at hand based on knowledge, learning and practice. Competencies are the ability to apply those skills and knowledge to perform complex tasks."*
>
> *2023 BC Labour Market Outlook*

Using this approach, 11 different occupational clusters were created. In each of these clusters, the top 5 skills for each are included along with examples of occupations. The skills data used to create the clusters was based on the U.S. O*NET skills data which also was used in previous reports.

The 11 Skills-based Occupational Clusters are:

Builders	Communicators
Labourers	Sales and Administration
Researchers and Specialists	People Management
Practical Equipment Operators	Service Focused
STEM Professionals	Technical Management
Technologists	

The list of top five skills is wide ranging from "repairing" to "persuasion." It is unclear in the report how the top five skills in each cluster were identified. The 2022 BCLMO report identifies a methodology based on O*NET data which identifies how important a skill is to an occupation and then the degree to which the skill is needed to perform the occupation.

When considering the projected job openings in the coming decade, four of the 11 clusters are projected to account for over half of all job openings in BC in the coming decade. Those four clusters are:

- Service focused
- Sales and administration
- Communications
- Researchers and specialists

The top five skills identified when considering each of the 11 Skills-based Occupational cluster are listed below. The numbers in parenthesis indicate if a skill is listed in more than one cluster:

- Service orientation (2)
- Social perceptiveness

- Active listening (3)
- Speaking (3)
- Persuasion (2)
- Management of financial resources
- Negotiation
- Management of material resources
- Writing (2)
- Reading comprehension
- Active learning
- Judgement and decision making
- Science

Very often, lists are presented of the top competencies that are important in many occupations. The top items of Active Listening, Speaking, Critical Thinking, Reading and Comprehension, and Judgement and Decision Making have remained unchanged in recent times given such surveys. The discussion about the differences between skills and competencies is ongoing and the O*NET database identifies 35 work-related skills including "Basic Skills" and "Cross-Functional Skills." In many cases, the cross-functional skills are also referred to as competencies. In the above list relating to the 11 clusters from the BCLMO Report, Critical Thinking does not appear, and Judgement and Decision Making is listed as a skill only once in the entire list of top 5 skills in all 11 clusters.

What is clear from the BCLMO Report is that in the top 4 clusters of occupations with over half of all job openings in the coming decade, all of them fall into TEER 0, 1 and 2 once again reaffirming the importance of post-secondary education. In addition, an analysis is presented of the average mean employment income by occupational cluster and those occupations falling into TEER 0 and 1 have the highest average annual salary.

The creation of occupational clusters and the associated top skills in the 2023 BCLMO Report may be more helpful in aligning the needs of businesses and employers with the skills that they are seeking. In conversations with municipal and business contacts, it was repeatedly stated that businesses and organizations are looking for people with core skills to be competent and capable in the workplace, and they would be providing detailed site-specific training on site as people move into these organizations. The conversations often reflected a desire to get people who are capable with the basics, and then employers would train them on their specific needs. When asked about the specific basic skills or competencies, people pointed to critical thinking, organization, time management, communications, and the ability to work with people and in groups. These discussions often included a mix of skills and competencies again which may be more reflective of the clusters and skills in the 2023 BCLMO.

During interviews with municipal staff and with leaders of the business community, discussions were had to determine what trends employers and other businesses, either existing or prospective, are emerging in the skills and qualifications that they are looking for in future employees. These conversations fit into four broad categories:

- Transferrable vs program specific skills

- Micro-Credentialing
- Business startup skills
- Discipline/Sector specific skills

Transferrable vs Program specific skills

People interviewed stated that transferrable skills were the most important element that people were looking for in employees. Upon further questioning however, people still want to know that new employees are fully qualified and many times these qualifications sounded fairly traditional. In one conversation, as an example, the participant talked about the growing trends in Agro-Innovation but behind the hiring, people were looking for transferrable skills from a wide range of degrees. The eventual job may not be in fact in an applicant's specific degree area, but the skills learned in that degree would be applicable to the Agro-innovation industry.

An illustrative example is a posting by Agrirecruiting.com (2022) for an Innovation Specialist where the employer is looking for an education by degree in science, "such as chemistry, biology, or agronomy – or related degree." Then the employer specifically asks for a minimum of three years experience in "seed, chemical, equipment or crop consulting." The traditional degree areas are very broad, then the specific experiences are industry specific.

In another illustrative example, the career website talent.com (2022) lists a posting for a Director in the Agri-Innovation field who will lead substantial strategic oversight of agricultural policy and innovation. In this posting, they do not specify a degree beyond BA/BSc, but among other things they are seeking:

- 7 years of experience in agricultural production, agri-food or agri-business, agriculturally focused conservation, or equivalent combination of education and experience;
- Experience in climate related challenges and opportunities in agricultural production and supply chains;
- Experience communicating clearly via written, oral and graphical means in English and other relevant languages; and
- Experience developing practical applications of scientific concepts and technical innovations to meet conservation objectives.

This pattern is seen repeatedly in job postings where there is a bar initially set in a broad range of degree areas, but then highly specific experiences are sought out as employers seek qualified applicants.

Beyond these examples, there is the ongoing need for "soft" skills, the qualities that employers are looking for in applicants. When surveyed on the skills and competencies that were in high demand in the coming decade, the results of this very broad survey out of the US Department of Labour will seem familiar to many. There are others who are trying to be clearer about what skills are

Key Finding: While job postings continue to list a broad range of degrees, employers continually are seeking highly specific experience in their related field of practice. The need for sector specific experience remains in high demand.

"transferable." The Conference Board of Canada references a report by the Royal Bank of Canada (RBC, 2018) titled "Humans Wanted." In this report, RBC presents six broad categories of:

- Doers – emphasis on basic skills
- Crafters – medium technical skills, low management skills
- Technicians – high technical skills
- Facilitators – emphasis on emotional intelligence
- Providers - high in analytical skills
- Solvers – management and critical thinking skills

In these broad categories, this RBC report projected that 45% of all working Canadians will belong to the Solvers and Providers category by 2021. A further report from Ontario asserted that there will be 1.3 million job openings in Ontario between 2017 and 2021 and of those "the majority are for positions requiring reading comprehension, critical thinking, analytical skills and emotional intelligence" (Greenspon et. al, 2019).

These skills have been researched, surveyed and well documented for years. The ongoing conversation needs to resolve around how educational institutions can teach, validate, and document these skills in a way that translates to the workplace and life beyond.

Once again, it's important to highlight that the above information was for BC and for Canada as a whole. The information is drawn from a number of sources. As this report moves specifically to the emerging markets in the KPU region, a further examination of skills and attributes will continue in those regional emerging sectors.

Micro-Credentialing

As we explored the concept of the high demand for sector specific experience, questions were asked about micro-credentialing and whether this was something that employers were seeking.

No person interviewed stated that micro-credentials formed part of any applications process or specific qualifications. Micro-credentials were seen as something that employers would give employees for seeking specific on the job training or upskilling once they were in the workplace.

In the scan of job postings across multiple sectors and various regions, there was no mention of micro-credentials. The impression given is that it is routine for employers to train employees on specific skills and there may be numerous internal mechanisms of how they acknowledge or reward those skills, but this is done outside of any formal micro-credentialling by post-secondary institutions.

Business Startup Skills

Several people interviewed talked about the need for business start up skills. When asked what these start up skills were, people mentioned what they see as the very basics beginning with relationships. Do people know how to engage with the public and how to provide basic customer service? Beyond the relationships, people need to have skills in time management, organization, accounting and marketing. When pushed further, the identified "business start up skills" started to fall into traditional buckets of creativity, innovation, communication and self-discipline.

In the 2021 Census, it was reported that over one half of all immigrants (56%) granted permission to come to Canada did so under the umbrella of their ability to create jobs or to be self-employed. These new immigrants will be looking for business startup skills as well.

"What I hear time and time again is give me people with basic office skills. There are big gaps in soft business and communications skills – working with people.
We can give people the technical skills, but give me someone who is a critical thinker, independent, problem solvers who can communicate with others."

Cory Redekop, Chief Executive Officer
Greater Langley Chamber of Commerce

While people talked about basic startup skills, it was rare to hear people talk about innovation or entrepreneurship. Perhaps it was inherent in the concept of the skills to run a business, but far more often than not, the skills identified were again rooted in what we would likely see as traditional small business skills. The most common topic mentioned was customer service or a basic ability to form relations and work proactively and productively with the public or any future client.

Exploring this topic further, others commented that business startup skills were far more than just starting a business. To begin a business includes the hard skills, accounting, marketing and managing, but then there are the skills related to your vision for a business, identifying a gap in opportunity, mobilizing resources and scaling up to grow and expand. These complex skills, including social interactions and engagement with customers are equally important and rarely identified in the core set of business skills. Gathering people around a vision and mobilizing them to work together to meet a demand is also about innovation, creatively and collaboration.

Sector Specific Skills

The most common areas of interest from business leaders across the KPU region and from municipal contacts in labour and business were the trends to the looming automation of jobs along with the increased specialization.

"Business is a team sport…things that people think about are very complex. How do you unpack the complexity of social interaction and engagement?"

Brad Anderson, Chair Entrepreneurial Leadership, KPU

During the interviews, people across the region talked of highly specific sectors, and it was difficult to determine if those sectors required specific newly emerging skills or whether the sector

was quickly working to provide experience and training to traditionally qualified employees or future employees. Let's look at an example in Hydrogen as an emerging industry in the KPU region.

Hydrogen has long been used in oil refining and the production of substances like ammonia and methanol. With moves to clean energy, hydrogen is seen as a replacement for coal and it is moving to be an emerging energy source in the production of steel and concrete as well as fuel for homes and transportation. British Columbia's Hydrogen Strategy (2022) states that hydrogen "will play a critical role in hard-to-decarbonize sectors where direct electrification is not practical, such as heating and power, transportation and industrial processes."

An examination of the jobs related to the hydrogen industry shows what types of discipline specific skills may be required. A posting from BC Hydro for a Gas Systems Fabrication Technologist – Hydrogen Stations, asks for applicants to have completed a Diploma in Technology in a Mechanical Discipline AND over 8 years related experience OR, completion of a Certificate of Technology in a Mechanical trade plus completion of a Millwright trades certification with over 8 years of relevant experience.

Another posting from BC Hydro is looking for a Senior Controls Engineer – Hydrogen Stations. The qualifications include a degree in Electrical Engineering and eight years experience in the field. Other postings are similar in their seeking of qualifications and there is again a supplemental connection to micro credentialing where long lists of experiences and skills are listed as attractive, but the term micro-credential is not used. For example, a Hydrogen Prototype Fabricator for Ekona Power Inc. in Burnaby is hoped to bring:

- 5+ years of work experience in mechanical fabrication, design and/or assembly.
- Education such as a trades' certificate, or a technology or engineering related degree or diploma
- Experience with hands-on mechanical assembly and process plant piping builds.
- Experience with diverse fabrication techniques: welding, machining, lathe, etc.
- Experience with CAD drawing creation and/or interpretation is an asset (CREO or AutoCAD + Plant 3D/Electric preferred).
- instrumentation, wiring and lab control systems.
- Proficiency in MS Office products.
- Hands-on experience with high-pressure piping and fittings; fabrication; and high pressure, high-temperature systems.
- Strong communication abilities both written and verbal.

It is anticipated that similar patterns would emerge from other identified sectors. The pattern being that as these "new" industries emerge, employers are looking for traditional degree, diploma and certification qualifications and then to build on a range of experiences that are field specific. In addition, through the research to date, employers are not looking for a micro-credential in a specific technical area such as proficiency with MS Office above, they simply state that these are skills that are desirable however they are obtained and demonstrated.
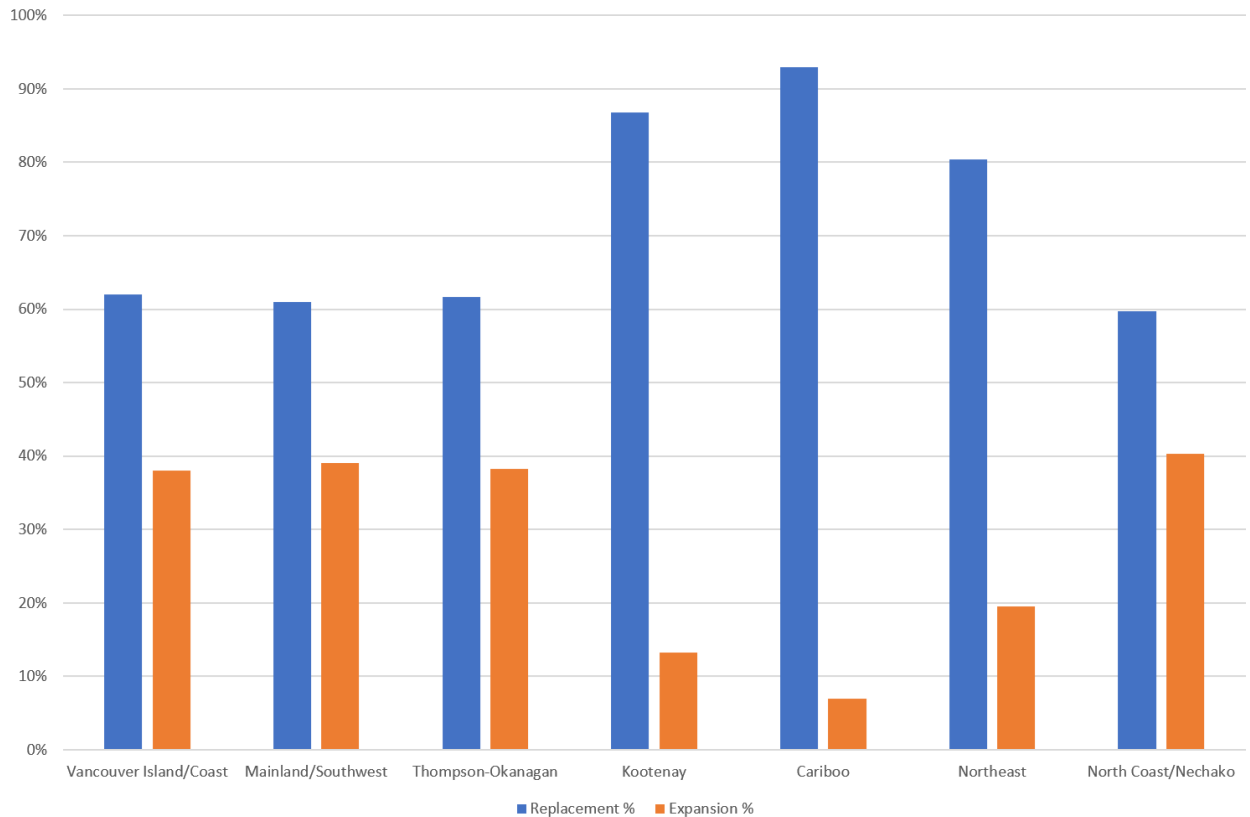
Figure 8 – 10 Year Projected Job Openings, B.C., 2022-2032. Source, BC Labour Market Report 2022

As the landscape in BC shifts and new trends emerge, it's important to consider how these trends inform the southwest of British Columbia and the regions served by KPU. While the occupations listed in demand in BC, there are great variances across the seven economic regions. When comparing the proportion of expansion (new jobs) versus replacement (jobs emerging due to retirement or leaving the workforce), the regional variations are dramatic as shown in Figure 8 above.

When a looking at actual job numbers, the overwhelming impact of the mainland/southwest of BC is evident. The 93% of jobs created due to replacement in the Cariboo translates to 17,200 jobs. The much smaller 61% due to replacement in the Mainland/Southwest translates to 399,000 jobs. The Mainland/Southwest accounts for 64% of all employment growth in BC in the coming decade.

There are also substantial differences in the types of job openings across economic regions. The reported top 5 occupations across BC requiring degree qualifications are:

1. Registered nurses and registered psychiatric nurses
2. Information systems analysts and consultants
3. Computer programmers and interactive media developers
4. Financial auditors and accountant
5. Software engineers and designers

In the Mainland/Southwest, these top 5 remain the top 5 and there are no regional differences in comparison with the province. When you move to jobs requiring diploma/certificate excluding apprenticeship, regional differences emerge.

	BC	Mainland/Southwest
1	Retail and wholesale trade managers	Retail and wholesale trade managers
2	Administrative officers	Administrative officers
3	Nurse aides, orderlies and patient service associates	Nurse aides, orderlies and patient service associates
4	Early childhood educators and assistants	General Office Support Workers
5	Home building and renovation managers	Sales and account representatives – wholesale and trade (non-technical)

Figure 9 - Greatest projected growth: Diploma/Certificate excluding apprenticeship, B.C. 2022-2032. Source: BCLMO 2022

When comparing the list of openings requiring an apprenticeship, the BC list again does not match the regional list for the Mainland/Southwest. For KPU, attention will have to be focused not only on the broader BC trends, but the regional trends which still create the vast majority of jobs in BC.

	BC	Mainland/Southwest
1	Automotive service technicians, truck and bus mechanics and mechanical repairers	Cooks
2	Hairstylist and barbers	Automotive service technicians, truck and bus mechanics and mechanical repairers
3	Contractors and supervisors, heavy equipment operator crews	Hairstylist and barbers
4	Contractors and supervisors, mechanic trades	Carpenters
5	Motorcycle, all-terrain vehicle and other related mechanics	Contractors and supervisors, other construction trades, installers, repairers and servicers

Figure 10 - Greatest projected growth: Apprenticeship, B.C. 2022-2032. Source: BCLMO 2022

The BC Labour Market: Indigenous Labour Market

One of the considerations in this report was to collaborate with and explore opportunities for Indigenous communities and students. The BCLMO identifies that for the province, there is a lack of data on "Indigenous peoples' experience in the labour market and their contribution to it" (WorkBC, 2023). The participation rates on Census is low and it is stated that the data "was not designed, collected or delivered with full participation from Indigenous communities" (WorkBC, 2023).

It is important to create partnerships and conversations with local Indigenous communities to determine how to best serve and support their involvement in exploring options for the labour market. It is likely that, while the above are province-wide comments, the local Indigenous communities vary widely in their specific needs and the supports required.

The BC Labour Market: Trends from 2022 Report

The 2022 BCLMO report has additional sections that were not included in the 2021 report. There are additional sections on the construction industry, clean economy, and the care economy.

The construction industry is B.C.'s fourth largest industry, employing over 200,000 workers in 2021 (WorkBC, 2022). It is projected that there will be an additional 72,700 job openings in the coming decade with the majority being created by replacement (78% of the total).

The total employment is broken down into four sub-industries.

Total employment: 215,900

56%
Specialty trade contractors
(121,300)

26%
Residential building
construction **(56,800)**

13%
Heavy and civil
engineering construction
(27,200)

5%
Non-residential building
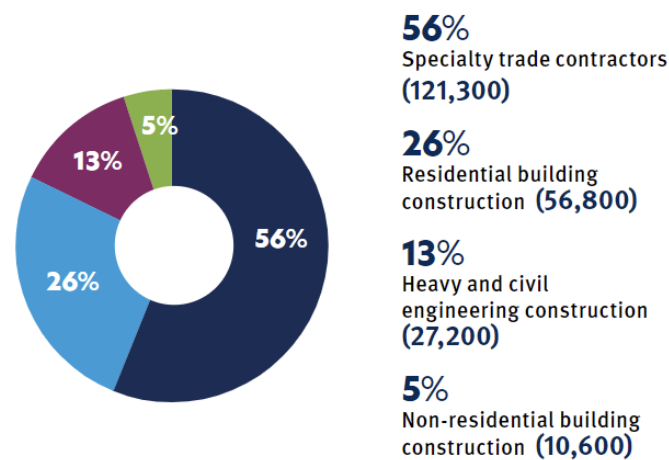construction **(10,600)**

Figure 11 – Composition of Construction Employment in 2021, B.C. Source: BCLMO 2022

Overall, the construction industry is projected to grow at a rate of less than 1% per year for the coming decade. The top five reported occupations are:

- Home Building and Renovation Managers
- Construction Managers
- Construction trades helpers and labourers
- Carpenters
- Painters and decorators (except interior decorators)

Clean economy is a new section in the BCLMO report. It is anticipated that this industry will have a significant impact on emerging economies and labour markets. It is acknowledged that these industries and occupations are only in the emergent stages and more data collection will need to occur. Regardless of this early work, there are reports that attempt to project the numbers of jobs emerging. ECO Canada (Dec. 2020) reports that there are over 620,000 people working in an environmental role in Canada in 2019. They further project over 230,000 new jobs across Canada by 2029.

For the provincial impact, B.C. currently reports 72,100 clean jobs in 5 areas as illustrated in Figure 12 below. The majority of projected jobs will come from replacement workers in four major occupational groups identified.

Clean jobs in 2022: 72,100
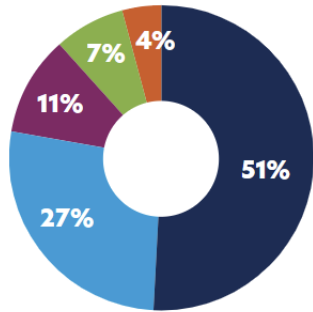
51%
Natural and applied science and related **(36,600)**

27%
Management **(19,500)**

11%
Education, law and social, community and government services **(7,600)**

7%
Business, finance and administration **(5,300)**

4%
Other **(3,000)**

Figure 12: Environmental workers in core environmental occupations by major occupational group. 2022. Source: BCLMO 2022

Care economy is described as the interrelated occupations that include childcare, eldercare, education, and health and social assistance. There is a direct correlation made between the province's ability to provide childcare and the links to a sustainable and growing economy by supplying a labour force. As the population grows, so does the need for both the elderly and childcare. Exacerbated by the age of the workforce in this area, the BCLMO (2022) report states "Given these factors, recruiting and retaining workers will continue to require sustained efforts for some time to come."

These occupations are currently, and will remain, in high demand. At their heart, these are the social networks and structures that care for and educate our society. As the province grows, so will the demand and need.

Figure 13 below identifies the top care economy occupations both currently and in the decade ahead. This categorization is helpful as these broad organizers demonstrate the very substantial impact on our labour market in the province and in our social infrastructure.

NOC	Occupation Title	Job Openings 2022-2032	Employment Growth Rate 2022-2032
3012	Registered nurses and registered psychiatric nurses	22,080	1.4%
3413	Nurse aides, orderlies and patient service associates	18,320	2.0%
4214	Early childhood educators and assistants	12,420	2.6%
4032	Elementary school and kindergarten teachers	12,260	0.8%
4212	Social and community service workers	11,460	1.4%
4031	Secondary school teachers	7,980	0.8%
4412	Home support workers, housekeepers and related occupations	6,880	1.5%
4413	Elementary and secondary school teacher assistants	5,500	0.5%
4021	College and other vocational instructors	5,300	1.3%
3233	Licensed practical nurses	4,740	1.8%

Figure 13 – Top Ten Care Economy Occupations, B.C., 2022-2032. Source: BCLMO 2022

The national landscape is illustrated and informed by the Census. The provincial labour market and demographics are documented through provincial labour market surveys, to the regional analysis in the BC Labour Market Report and several other documents. The provincial data includes regional information, but that regional information can be explored more in depth through additional tools including local interviews of KPU staff, and regional business and community leaders.

The next section of this report will turn specifically to the KPU region and what we can learn about these distinct but closely connected municipalities and school districts.

The KPU Region: Demographics

The communities served directly by KPU includes Delta, Langley (including the Township), Richmond and Surrey (including White Rock). While each municipality is different, it has been suggested that the boundaries for the regional school districts are a simpler mechanism to describe the KPU communities. These school districts include 35 (Langley), 36 (Surrey), 37 (Delta), and 38 (Richmond). The reason for choosing school districts is that they capture the smaller communities (e.g. White Rock) within these district boundaries.

In brief, each of the communities served by school districts are distinct and growing in their own manner. The exact demographics and more details of KPU student enrolment can be found in the Annual Accountability Plan and Report. All areas that KPU serves show substantial growth.

Age trends from the 2016 to 2021 census are shown in Figure 14. While there is growth in most age groups, some age groups are in decline. For KPU, the most important demographic that is expected to decline in the coming 5 to 10 years is the 20-24 age group. In the KPU region, there is projected to be a 15% decline in the 20-24 age group in the next 5 years due to the existing smaller number of 10-19-yea-olds as revealed through Census data and as these younger people age into the next demographic grouping.

The age pyramid in Figure 14, shows the much smaller numbers of residents aged 0-19 compared to the ages of 20-44. As this younger wave moves through in the coming years, it is projected to impact the 20-44 age range.
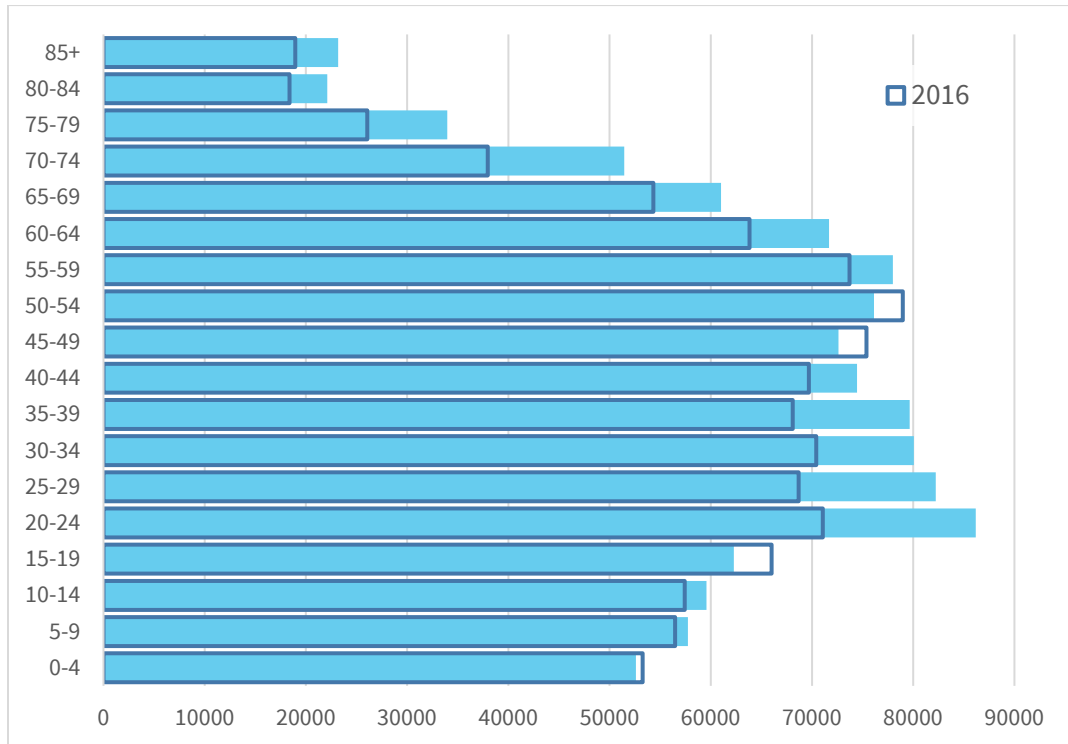

Figure 14 – KPU Region Population by Age. Source BC Stats

As demonstrated by the figure, the current population, based on birth rate and immigration is not sufficient to sustain our population. This is why the need for expanded immigration specifically in the working age. In Canada, a major target demographic for immigration is these middle-aged years. The 2021 Census reports that the majority (64%) of immigrants were 25-54 years old.

In considering these factors, most importantly immigration and the existing large number of 20-24-year-olds, the most significant growth in the coming years is projected to be in the combined 25-29 and 30-34 age ranges. Figure 15 illustrates the growth projections for BC and the KPU region.

Region	Ages 20-24	Ages 25-29	Ages 30-34
All of BC	-9%	6%	10%
KPU Region	-15%	20%	23%
Surrey School District	-19%	25%	24%
Richmond School District	-16%	0%	21%
Langley School District	4%	20%	9%
Delta School District	-9%	35%	41%

Figure 15 – Projected Change in Population from 2021-2026 Source: BCSTATS fFrom KPU Office of Planning & Accountability).

Figure 14 highlights the much smaller number of 10-19-year-olds compared to 20-29-year-olds. To illustrate that fact with the current demographics, in the KPU region in 2021, BC Stats reports 62,276 people aged 15-19 compared to 86,185 aged 20-24. In Surrey alone, the gap between these two age ranges in 2021 was 16,851 residents. As this smaller wave of younger residents ages, the projected 10-year growth in Surrey for 15-19-year-olds will still be over 11,000 people short of the current number of 20-24-year-olds (Figure 16).
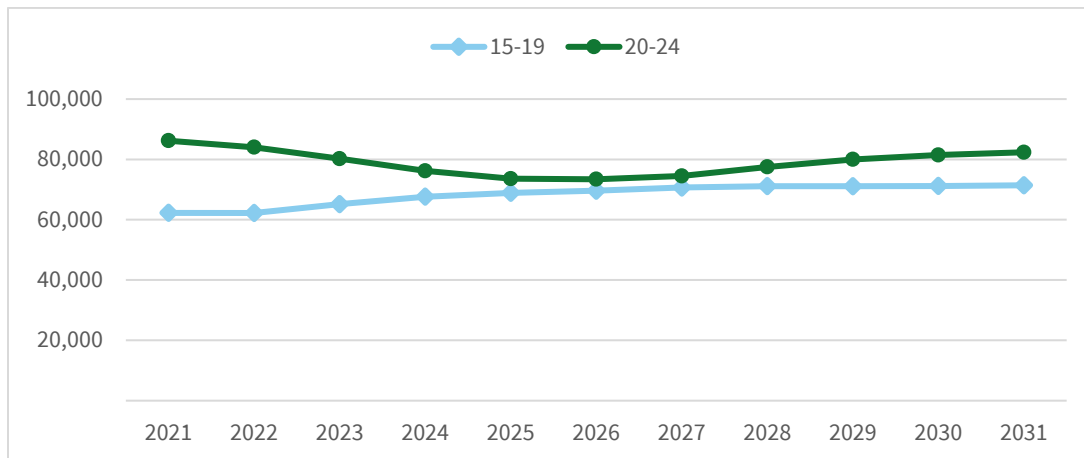
Figure 16 – Ten-year trend in the KPU Region: ages 15-19 and 20-24. Source: BC Stats

However, likely bolstered by immigration, there is projected to be a substantial growth in the higher ages, particularly in the number of 25-29 and 30-34-year-olds. As a result, despite the smaller number of K-12 school aged children, the overall demographics in the broader age range of 20-34 is shown to grow substantially in the coming decade as illustrated in Figure 17. This

ongoing and substantial growth is the overall combination of larger immigration numbers and the high numbers of 20–24-year-olds.
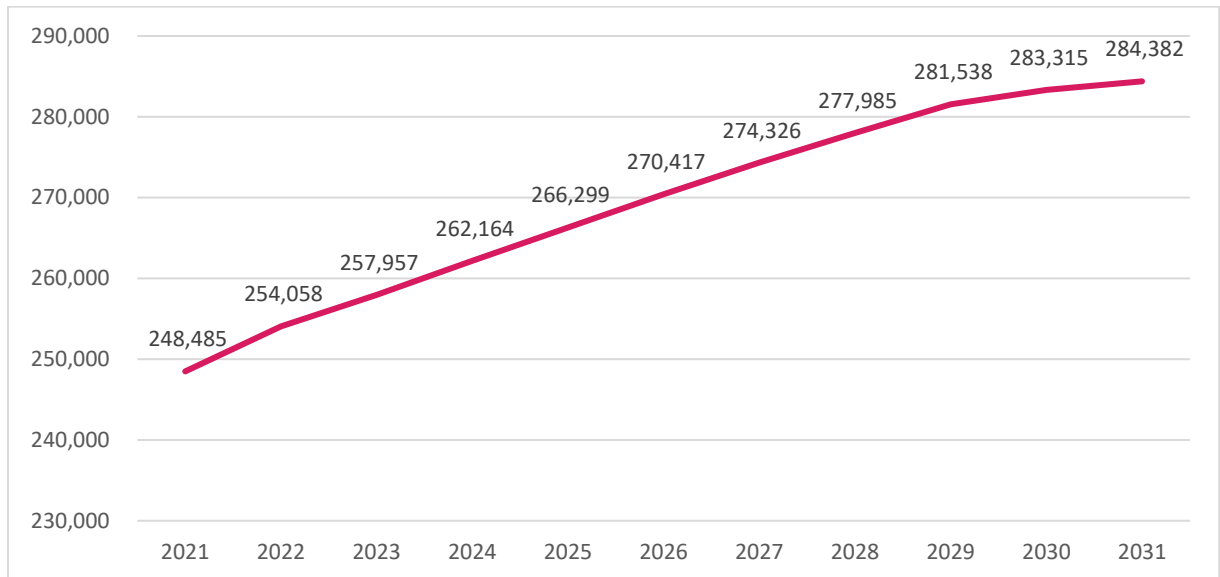

Figure 17 – Ten-year Projections for 20-34-Year-Olds in the KPU Region: Delta, Langley, Richmond, Surrey. Source: BC Stats

There are additional dynamics at play as the pause in longstanding immigration practices during the pandemic has ended, and immigration numbers are increasing beyond pre-pandemic numbers. School districts in the region saw dramatic growth in the 2022-23 school year. Districts are currently working to understand this growth which was across the Metro Vancouver region. The main question about this growth surrounds immigration patterns and whether this growth is a one-time release of a backlog of immigration, or a new pattern and ongoing trend. From conversations with school district staff, it appears that these new trends in growth are likely to continue.

To give a sense of the size of growth, Surrey School District projected just over 800 students in growth for the 2022-23 school year, they received over 2400 new students. Langley School District projected a growth of 237 students and subsequently grew by 917. These districts are used to growth, but this growth is unlike any seen for some time. Surrey has not seen numbers like this in over 20 years. The implications of this growth, if it continues, are that the current projections used by school districts may be substantially inaccurate and this may also have implications for BC Stats.

There is one common software provider who does enrolment projections for School Districts, Baragar Systems. This long-standing trusted provider does not use Census data, but uses a combination of multiple variables, including the birth registry and BC Stats, but most importantly the actual student enrolment from school district student information systems. Using this methodology, Baragar can track the actual student capture rate grade over grade and year over year.

In conversations with Baragar, they have seen unprecedented changes in enrolment in the 2022-23 school year. This growth was seen across multiple school districts in the metropolitan Vancouver region. They attribute the growth to aggressive immigration policy and that it will remain difficult to predict the numbers in the coming years, but they anticipate the pattern of growth will continue. (C. Curtis, Vice President Baragar Systems. Personal communications, November 2022, March 2023).

In early analysis, what appears is not only a substantial increase in immigration numbers, but also a change in immigration demographics with more families and these families having significantly more children.

The Welcome Centre in Surrey is a unique facility that is a central registration location for immigrants prior to enrolment in school. In conversations with leadership at the Welcome Centre, they report a dramatic increase in the number of immigrants and again, a dramatic increase in the number of children. The traditional immigration paths from India have been strongly supplemented by Afghanistan and Ukraine. The additional comments made were that the patterns of the Canadian acceptance criteria appear to have changed. The Welcome Centre reports that this increase of families also appear to have come from backgrounds with fewer supports and more social and emotional as well as academic needs. As the net widens to capture more immigrants, criteria may also have been changed. More analysis will need to be done to adequately analyze the new trends and subsequent needs.

Key Finding: School district demographics and growth are indicating that Immigration demographics are changing. Larger numbers of families coming and those families having more children.

Key Finding: As immigration policies change, and numbers increase, the incoming children are coming from more diverse backgrounds and will require more social and emotional supports.

This sudden surge does not seem to be a backlog, but a combination of catching up and yet aggressively moving to welcome more immigration to meet the demands of Canada's labour shortages. An August press release by the Canadian government identifies the hiring of 1250 new workers to service immigration needs (Immigration, Refugees and Citizenship Canada, 2022). The government states that this helps in the processing of 349,000 new work permits from January 1 to July 31 in 2022 compared to 112,000 issued in the same time period in 2021. "These include over 220,000 open work permits, which allow permit holders to work anywhere in Canada in almost any occupation. These work permits mean up to 1,700 new people every day are able to come work in Canada and help grow our economy.

Whatever the combination of reasons, all indicators point to a continued surge of immigration, and it will be important to watch the region and, in particular, school district enrolment in the coming two to three years to see if these trends continue. Figure 16 shows the important comparison between the ongoing growth for 15-19 year olds and short term decline for 20-24 year olds which is projected to end in 2026. The main point of the current immigration trends seen by school districts is that the current 12% growth projection for the entire KPU region may

not capture this new trend. These projections may need to be substantially revised in the coming year or two and this new surge in school age children may offset the projected decline in 20-24 year olds in the coming 5 years. As the spring projections emerge from school districts it will be interesting to capture these to see if Districts continue to project increased growth beyond their traditional patterns. If those trends continue, then the projection methodologies will have to account for these larger numbers of school-aged children. Regardless, with long term growth already projected for KPU in the overall 20-34 year-old age range, if the growth in school age children continues to be dramatic, KPU may have to adjust its long range projections as well to account for this additional growth.

The KPU Region: Indigenous Communities and Learners

The regions served by KPU have a substantial Indigenous population and the name of the University is but one example of its commitment to supporting Indigenous learners. In dialogue with Indigenous leaders of the community and KPU, several themes were identified as important as the University continues to attract and support Indigenous learners.

Indigenous leaders who were interviewed (listed in Appendix 1) were very clear that what works for all learners works for Indigenous learners. The skills, abilities, and qualities that Indigenous learners need to be successful in life are no different than the skills and qualities that anyone would need. "Our students need to move forward with courage, bravery and resilience" (Cheryl Gabriel, Kwantlen Elder and KPU Education Coordinator, personal communications, January 30, 2023). Students need to feel welcomed, to build a sense of purpose and move forward in a way that eventually has them giving back to society.

There are existing models at KPU which have served learners well. In particular, participants interviewed referenced the power of cohort models where Indigenous learners were with peers of similar ancestry. Cohorts allow for stronger personal connections, and they are a place where a clearer sense of belonging in a post-secondary world can be fostered. The specific supports for Indigenous learners that could be targeted as part of a cohort model were seen as important. There was acknowledgement that there is still a great deal of healing to happen and there are still ongoing colonial barriers to overcome on the path to feeling fully welcomed and empowered.

As students move beyond the life at KPU, they will face a world that is still dominated by colonial ways and structures. They need to find a way to be able to navigate in a world that contains power structures, hierarchies, and competitive processes that represent the very traditional ways of settlers. "We are faced with micro-aggressions, systemic racism…how do you thrive in a colonial system because that is what it is when you go out into the workplace" (Rachel Chong, KPU Indigenous Engagement Liaison, personal communications, January 30, 2023). While progress is being made, there were continued references to the long road ahead.

Participants interviewed talked of the importance of speaking with students about the necessary supports needed to be successful and consider how KPU can be responsive to those needs. They talked of the importance for students to access staff who are compassionate, kind, and able to build effective and trusting relationships. Students need to have equitable access to programming and be active participants in their journey to that future. As they underscored the importance of an ongoing dialogue, they also posed the question wondering if all people at KPU possess the skills to provide the supports that Indigenous students require.

Structures and opportunities need to be built in to provide learners with a place of community, comfort and safety. The post-COVID era has put fear and uncertainty into the minds of many in Indigenous communities. As they rebuild, and as students move forward, they continue to look for ways for their students to believe in themselves and to thrive.

Participants recognize the ongoing work of Truth and Reconciliation, and they reference the path ahead. "We're all racing to decolonization, but who's doing the heavy lifting? It's Indigenous learners and leaders" (Melinda Bige, KPU Chair of Indigenous Studies, personal communications,

January 30, 2023). As KPU continues to explore how to best serve and support Indigenous learners, they will need to consider how to provide ongoing opportunities to explore the experiences of Indigenous learners at KPU and how to adjust so that the necessary supports are in place. When we consider an equity lens, it is once again important to remember that while equity is the goal, not all learners are at the same place on this path.

There are additional steps underway including examining different models that would fit KPU. There are also conversations underway to a create a credited course for first-year Indigenous students that would provide support and build confidence. The course is intended to explore Indigenous historical and contemporary issues.

KPU has support structures in place that include elders, knowledge keepers, peer mentors, alumni and access to gathering spaces. There is also the Open Doors, Open Minds sessions that are offered annually to welcome Indigenous high school students.

There are other ways to articulate the importance of the contribution of Indigenous people to Canada's labour force and to provide direct support. The Centre for Study of Living Standards (CCLS, 2023) and Indspire's Research and Impact Unit highlighted several steps that can be taken over three levels, Public Policy, Education and Training, and a Wholistic Approach.

CCSL and Indspire suggest that new policies need to be created that foster greater participation of Indigenous people in the labour force. These new policies need to begin with consultation with Indigenous communities to learn about best practices for support. The target of the policy changes should be education and job training. There needs to be an investment in Indigenous education as a way to address financial challenges and to eliminate barriers to access.

Finally, the CCSL report highlights that policies and funding are but one part of the puzzle. The support of Indigenous people making a successful transition to the labour force and to building up the participation rate to become on par with that of the non-Indigenous population requires a wholistic approach. For post-secondary institutions, there is a call for culturally competent environments that focus on building on individual's strengths and gifts. Career counselors, advisors, mentors all can play a substantial role in encouraging and supporting Indigenous learners as they move beyond post-secondary to the labour force.

If we are able to move toward a greater participation of Indigenous people in the labour force, it requires changes at multiple levels. Beginning with conversations with Indigenous communities, seeking policy changes that increase funding and job training, and then intentionally designing supportive transitions to work are all part of the equation. Immigration is one way to tackle the shortage of workers in the coming decade, but careful attention should be paid to the growing Indigenous population and their traditional low participation rate in the labour force. Not only will such an increase help with the labour shortage, but it will build bridges to more sustainable communities.

The KPU Region: Labour Market Outlook

City of Delta

The business sector in the City of Delta is rooted in agriculture, manufacturing, transportation, construction, retail and warehousing. The industrial lands at Tilbury and Annacis Island represent the largest industrial areas in Metro Vancouver and the industrial areas in Delta are seeing substantial growth. South Delta is home to Canada's largest container port and North America's largest coal terminal as well as the Tsawwassen Ferry Terminal linking Vancouver Island to the mainland. Another key feature of Delta is the Boundary Bay Regional Airport which, in 2020 saw the most take-offs and landings in Canada at 185,431 overtaking Toronto Pearson for the first time since 1983 (Ballah, 2021). Boundary Bay Airport is positioned as a hub for storage, care and maintenance of private and corporate aircraft, and a centre for flight training and helicopter maintenance. Much of the business and economic growth in Delta is driven by these major structures.

Business development plans in Delta are far less documented than the other regions of Richmond, Langley and Surrey. Delta does not have a readily available and widely published economic development or labour plan for the City. These economic outlook and labour market reports were easily accessible in Richmond, Surrey and Langley. The business and employment statistics for the region speak to their main sectors in the area. Comparing the list of BC key employment sectors with the surrounding region provides another window into the profile of business and employment in Delta. Trade and Invest British Columbia is a resource which provides information from the Statistics Canada Business registry that shows employment data by sector. The key sectors identified in the Southwest Region of BC are:

- Advanced Manufacturing –applying advanced technologies to improve the speed and efficiency of the manufacturing sector including robotics, digitally connected machinery, data capturing equipment and artificial intelligence (Hasenfratz, 2019);
- Aerospace – including aircraft manufacturing, advanced materials, maintenance, aerial firefighting, and aerospace education and simulation;
- Agrifood and seafood - the development and application of technology and innovation to the farm, food, and fish sectors to improve production, profitability, and sustainability;
- Clean Technology - water and waste management, carbon capture, use and sequestration, clean transportation, energy management, efficiency and storage, fuel cells and hydrogen;
- Digital media and entertainment - digital media firms as well as film, television, visual effects, animation, and post-production companies;
- Information and Communication Technology- enterprise software, Software-as-a-Service (SaaS), cloud computing, information communications technology systems, Internet of Things (IoT), e-commerce, telecommunications, wireless devices, electronics manufacturing, and semi conductors; and

- Life Sciences - biotechnology and pharmaceuticals, medical devices, and medical technology.

From the Trade and Invest BC resource, the total employment numbers by sector across the Southwest Region (SW) of BC, and specifically for Delta, in 2022 are:

- Advanced Manufacturing   (SW:124,825   Delta:11,199)
- Aerospace   (SW:1,333   Delta:516)
- Agrifood and seafood   (SW:72,042   Delta:7,031)
- Clean Technology   (SW:4,613   Delta:27)
- Digital media and entertainment   (SW:22,870   Delta:34)
- Information and Communication Technology   (SW:69,920   Delta:350)
- Life Sciences   (SW:30,923   Delta:545)

The business profile of Delta speaks to their advantageous location as a place of connection, through the port, rail and airport, to their large investment and footprint in industrial lands. The City of Delta, in comparison to their neighbours of Surrey and Richmond, appears to be far more focused on building the sense of community through parks, greenspace and transportation infrastructure rather than positioning itself as hub of innovation and business entrepreneurship. It is likely that the majority of people who live in Delta and work in businesses, commute to other municipalities for work.

With a large agriculture footprint, it would be likely that there would be plans afoot to update and respond to the changes coming to agriculture. There is a document and research project titled "Delta Agricultural Plan" located on the City's website. The project is sponsored by the Invest Agriculture Foundation, and the governments of BC and Canada. As part of phase one, the report was written in 2011. They currently state that they are in phase two of public consultation with a community survey. Phase three includes coming back to City council and that work has yet to begin.

Township of Langley/City of Langley
KPU Langley Campus

As context for examining Langley, it's first important to understand the difference between the Township and the City of Langley. Combined, the City of Langley and the Township of Langley have a population of 165,000 people with 140,000 residing in the Township. The City of Langley is approximately 10 km^2 compared to 316 km^2 for the Township. For the purposes of this report, when the term Langley is used it is in reference to both the Township and City.

One of the key sectors identified for Langley is agriculture. Nearly half the farms in the Metro Vancouver region are in Langley and annual farm gross farm receipts are reported to be $340M in 2016 with over $2.9B in total farm capital. Most

of the land parcels are small (75% are smaller than 10 acres), which encourages intensive operations rather than large scale operations.

Langley is deeply invested in agriculture and also have existing partnerships with post-secondary institutions KPU, UBC, UFV and BCIT. In the agriculture sector, both government and businesses also promote agritourism with wineries, equestrian activities and one-of-a-kind farm experiences.

According to Langley staff, another area of substantial business explorations is the film industry. Langley reports that they are second only to Vancouver in terms of total activity. They actively promote filming in their community and go to lengths to encourage residents to participate and acknowledge the important part that filming plays in their economy. The Township reports that in 2019 they logged over 1600 days of filming on 185 separate productions. They have benefitted from a recent realignment of the provincial film tax credit program boundaries which now include the full jurisdiction of the Township.

For sector specific skills, Langley staff reports that there are critical shortages in the skills related to film production from construction of sets to lighting and grips. Staff report that they have studios who are looking to partner with post-secondary institutions to provide skills training and cited one recent example with North Island College.

> "Our film and creative industry is substantial. We're second only to Vancouver. There is a huge lack of skills from construction to lights and grips. We have studios who are in partnerships. They are building and growing and looking for on-campus skills and training programs."
>
> Valerie Gafka, Senior Manager Economic Investment and Development, Township of Langley

Other key sectors identified through interviews are:

- Aviation and Aerospace
- RCMP
- Helicopters
- Advanced Manufacturing
- Hydrogen

The regional business data and key sectors identified during interviews are in parallel with the provincial key sectors as identified below with the exception of the RCMP. From the Trade and Invest BC resource, the total employment numbers by sector across the Southwest Region (SW) of BC, and specifically for Langley, in 2022 are:

The Langley specific employment data (2022) shows the following:

- Advanced Manufacturing   (SW:124,825   Langley:11,074)
- Aerospace   (SW:1,333   Langley:422)
- Agrifood and seafood   (SW:72,042   Langley:9,447)
- Clean Technology   (SW:4,613   Langley:62)
- Digital media and entertainment   (SW:22,870   Langley:79)
- Information and Communication Technology (SW:69,920   Langley:728)
- Life Sciences   (SW:30,923   Langley:534)

In looking at the above evidence, and with the large focus on the film industry in Langley, it seems that the number of jobs does not align with the activity in the sector as heard through interviews and as profiled on the websites of the municipalities. It would require a deeper examination to determine just how employment and opportunities unfold for the film industry or other reasons for the seemingly low numbers for employment in Digital Media and Entertainment in Langley given its strong profile in the municipalities. On the Township of Langley website, they identify motion picture and sound recording as a hotspot and state that Langley is "one of the most film friendly municipalities in BC's Lower Mainland." They also highlight that the film industry generated $3.4B to the BC economy in 2017-18 to underscore the size of this industry. Again, given this large profile, 79 jobs in this sector seems low and would require further examination. One possible explanation is that while the filming is on location in Langley, the production companies and crews may still refer to Vancouver as their business location. Of the 22,870 jobs identified in this sector, 22,815 are located in Vancouver.

Langley is also promoting opportunities for new and emerging markets. In partnership with BC Tech, the City of Richmond, and the City of Surrey, they have created a DEMO (de-risking emerging market opportunities) that are designed to support the advanced manufacturing sector and sectors such as eCommerce, digital marketing and online sales.

The DEMO toolkit identifies that 70% of all manufacturing in BC is located in Langley, Richmond and Surrey. The toolkit is targeted to existing BC manufacturers with the hope that it will support and enable BC companies to assess opportunities, adopt technological solutions and grow their businesses.

City of Richmond
KPU Richmond Campus

Richmond has a wide range of sectors in its municipality, and positions itself through its strategic location as a gateway to BC and Canada. They host Canada's second largest airport serving 26 million passengers annually and the infrastructure surrounding the airport is substantial including a $9B expansion currently underway.

The Port of Vancouver is Canada's largest port including moving over $200B in trade annually. The Richmond Auto Terminal is a major part of the Port and they list over 6,000 jobs in Richmond linked to this terminal. The City's website also lists four other major projects in Richmond:

- Fraser River Improvement Initiative;
- Area IV Site Preparation (east of the Vancouver Airport Fuel Facility);
- Portside Blundell Road Improvements Project; and
- Habitat enhancement projects at McDonald tidal marsh, Finn Slough and South Arm Jetty tidal marsh.

This is how Richmond positions itself: "As the premier multi-modal distribution hub of Canada's West Coast, Richmond can deliver on every aspect of your supply chain whether your business exports products and services globally or brings in goods for distribution throughout North America."

Under the shadow of transportation of goods lies Richmond's focus on food and agriculture. Steveston is home to Canada's largest small craft fishing harbour and Richmond's unique soil structure is home to substantial cranberry and blueberry crops. Richmond reports that their cranberry sector provide 30% of all cranberries in BC, exports $3.5B in annually, with $12B in revenue and 55,000 jobs.

Richmond lists the following areas of focus in their Key Sectors of Economic Development:

- Agri-foods
- Aviation
- Cleantech
- Filming
- Health

- Logistics
- Manufacturing
- Retail
- Technology
- Tourism

The Trade and Invest BC highlights for Richmond include the following (numbers are current employment):

- Advanced Manufacturing   (SW:124,825   Richmond:16,680)
- Aerospace   (SW:1,333   Richmond:160)
- Agrifood and seafood   (SW:72,042   Richmond:8,175)
- Clean Technology   (SW:4,613   Richmond:81)
- Digital media and entertainment   (SW:22,870   Richmond:447)
- Information and Communication Technology   (SW:69,920   Richmond:7,848)
- Life Sciences   (SW:30,923   Richmond:1,841)

City of Surrey
Surrey, Civic Plaza and KPU Tech campuses

Surrey highlights its growth and focus on innovation as it looks to become the largest city in BC by 2041. This growth and its focus are based upon a set of key strategic directions. Specifically, Surrey reports that it has one of the lowest municipal tax rates for businesses in Metro Vancouver, the population is young and growing very rapidly, and they are branding their future on research and education highlighting "mechatronics, engineering, computing science, business, health, and interactive arts and technology." As examples, they point to the over 120 UBC faculty of Medicine students who train at Surrey Memorial Hospital along with the hospital's dedicated research and innovation partners. The City's stated goal is to transform to a national centre for innovation in the coming decade.

To support this vision, the City of Surrey highlights three overarching priorities in their Economic Strategy Overview:

1. Attracting Investment to Transform Surrey;
2. Growing Surrey's Innovation Economy; and
3. Building Distinct & Competitive Business Communities.

To pursue these objectives, they further identify five priority areas to advance their objectives. The priority areas are:

1. Advanced Manufacturing
2. Clean Technology
3. Agri-Innovation
4. Health Technology
5. Creative Economy

Within these five priority areas, they also see technology and digitization trends, real estate trends, and demographic trends creating a "sweet spot" for investment in Surrey. It is unclear from those additional three areas what economic priorities emerge although the continued investment in Innovation Boulevard remains a high priority.

This high priority on Innovation Boulevard has produced tangible results including the identification of a Health and Technology District across from Surrey Memorial Hospital. The University of British Columbia has acquired a 135,000 sq. ft. property to expand its physical therapy program. Life Sciences British Columbia (2021) identified a shortage of space for wet-lab research space and, in response, there is a plan to develop one million sq. ft. of wet-lab space in the Health and Technology District. The City of Surrey's Urban Technology Test Lab promotes investment in innovation and recently launched a four-wheel delivery robot onto Surrey's streets. The City also highlights the fact that it is outside of restricted air space of Boundary Bay and Vancouver International Airport so testing of drones and other flight vehicles is permitted.

These innovations are creating jobs and the City's Economic Strategy Overview states that Surrey looks to create over 36,000 jobs in these five priority sectors and they specifically highlight clean technology and health technology. It is important to note that this Economic Strategy Overview from Surrey is now five years old and there is a new Mayor and Council as of the fall, 2022. There is, however, little doubt that these priorities have significant internal momentum in addition to likely numerous commitments already made in both short and long-term investments in Surrey's infrastructure to support these goals.

Separate from the long-range planning of the City of Surrey, the Surrey Board of Trade's Labour Market Report (Nov. 2022) identifies the status of the labour market and identifies the largest employment sectors in Surrey and number of people employed as:

1. Wholesale and retail trade (48,711)
2. Health care and social assistance (39,177)
3. Construction (31,642)
4. Manufacturing (27,433)
5. Transportation and warehousing (26,098)
6. Professional, scientific and technical (22,544)

It is interesting to note the differences between the City's planning and the actual employment activity on the ground as reported by the Board of Trade. For example, Surrey Board of Trade's report identifies a very significant growth in Agriculture, Forestry, Fishing, Mining, Quarrying, Oil & Gas with over 50% more jobs from February to October 2022. These sectors are relatively small for Surrey and as a result, this growth represents only 1681 new jobs. When examining these employment reports, it is important to go beyond the percentage increases to the actual job numbers in specific sectors. While there was a 50% growth in Agriculture, Forestry and fishing, that represents just over 1600 jobs, a smaller percentage growth of less than 15% in Health Care and Social Assistance but represents more then 5000 jobs. These comparisons are important as we look to the total number of employees that the region will require to fulfil these needs.

"In October 2022, the Surrey economic recovery from the COVID-19 pandemic continues to be driven by a two-pronged strength: knowledge-based industries and resource industries.

Some goods and services sectors in Surrey remain impacted and below February 2020 employment levels. Health care, public administration, tech (including information, culture and recreation) and natural resources sectors are leading Surrey's jobs recovery. The single largest percentage growth in terms of occupational categories has been in natural resources positions (28.4% and 971 jobs)."

Surrey Labour Market Report: Surrey Board of Trade 2022

With the long-range push to promote and sustain Surrey as an innovation hub and the largest city in BC, the City of Surrey sees an ongoing need for:

- Engineering – with a move to robotics and automation;
- High voltage expertise – with a focus on clean energy;
- Software and hardware integration – as manufacturing continues to shift with software overtaking hardware; and
- Data analytics

In Surrey's evolution, it will be interesting to see how the long-range plans of Innovation Boulevard and a focus on technology and creativity/innovation will grow to support the close to 150,000 existing jobs in retail, health care and social assistance, construction and manufacturing as identified by the Surrey Board of Trade. Whether the labour growth of Innovation Boulevard will come close to these already large numbers in traditional sectors will remain to be seen.

One thing seems certain, that if they are to attract the businesses and opportunities to which they aspire, then they will need the talent pool to ensure that these companies can deliver on their own mandates.

As the City moves to attract and retain innovative businesses, they continue to work with companies who want to invest in Surrey to ensure that the labour force is present to grow and sustain their businesses.

"It isn't before they get permits but before they even consider moving to any jurisdiction. They want to be assured they can get the money from their boards to approve the project. This usually means ensuring they are confident they can succeed with talent hiring. 90% of the deals we see are a talent play. Companies especially from the US know they're getting a 30% discount on costs just based on the exchange rate so it rarely about money but about who they can hire to advance their business.

Usually, the largest cost driver besides the building asset is staffing costs so investing in the building doesn't make sense without this due diligence on their ability to hire the right talent."

Stephen Wu, Manager, Economic Development, City of Surrey. Personal Communications. Nov. 2022

A scan of the Trade and Invest BC highlights for Surrey include the following areas of key focus and the current employment. The numbers quoted are for the Southwest of BC Region, and then specifically for Surrey:

- Advanced Manufacturing   (SW:124,825   Surrey:17,804)
- Aerospace   (SW:1,333   Surrey:98)
- Agrifood and seafood   (SW:72,042   Surrey:11,601)
- Clean Technology   (SW:4,613   Surrey:110)
- Digital media and entertainment   (SW:22,870   Surrey:125)
- Information and Communications Technology   (SW:69,920   Surrey:1,891)
- Life Sciences   (SW:30,923   Surrey:1,470)

The KPU Region: A Comparison of Key and Traditional Sectors

The Trade and Investment data, when supplemented by the Statistics Canada Business Registry (2022) shows the number of employees per "establishment" in identified key sectors. A vast number of registered businesses listed have between 0-4 employees. In the identified sectors in the southwest region of BC, small businesses appear to be overwhelmingly dominant. For example, there are a reported 22,870 employees in Digital Media and Entertainment. There are 4,416 businesses that have between 0 and 4 employees, 16 businesses between 200-499 employees, and 4 businesses with over 500 employees. The focus on small business is interesting to note as a driver for local economies.

The Small Business Profile from the Government of BC (2020) identifies that small businesses account for 43% of all workers and 31.5% of all payrolls in the province. In total, small businesses employ over 1.1 million people.

The employment data reported does not draw a complete picture of employment in the region served by KPU. There are many more sectors with substantial employment in these areas.

The top employment sectors in the lower mainland/southwest of BC and the subsequent number of people employed as reported by Statistics Canada (2022) are:

- Health Care and Social Assistance   186,305
- Retail Trade   183,675
- Professional, Scientific and Technical Services   172,820
- Construction; and   139,020
- Educational Services.   124,495

It is important to keep these overall numbers in perspective when considering the emerging business markets.

In the mainland/southwest of BC, and specifically the municipalities served by KPU, the number of registered businesses in key and emerging employment sectors help demonstrate a regional comparison. For purposes of illustration of the areas served by KPU, the following graphs are shown to put these employment opportunities and scale in perspective.
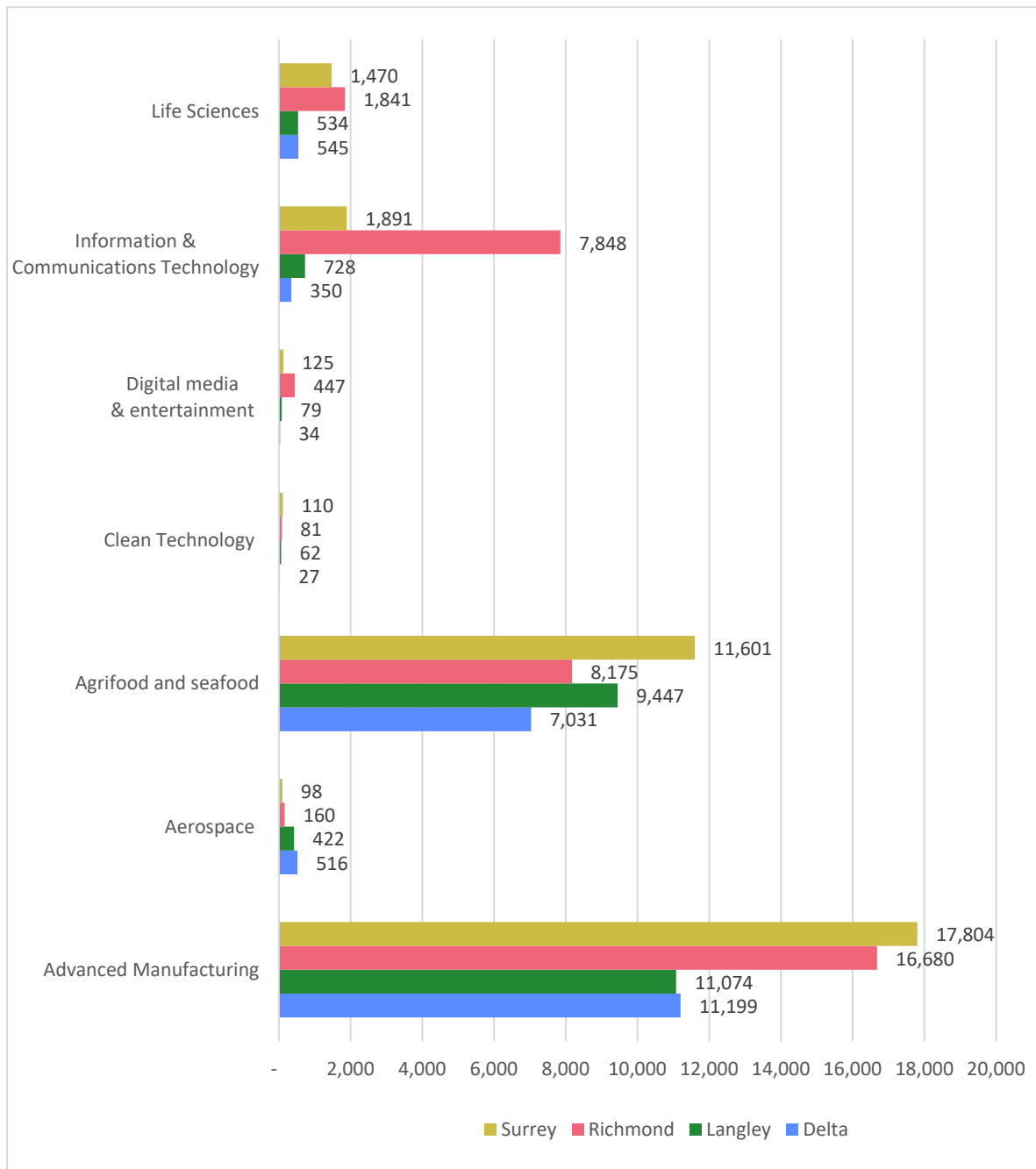
Figure 18 –Number of Jobs by Sector, Delta, Langley, Richmond, Surrey. Source: Trade and Investment BC 2022

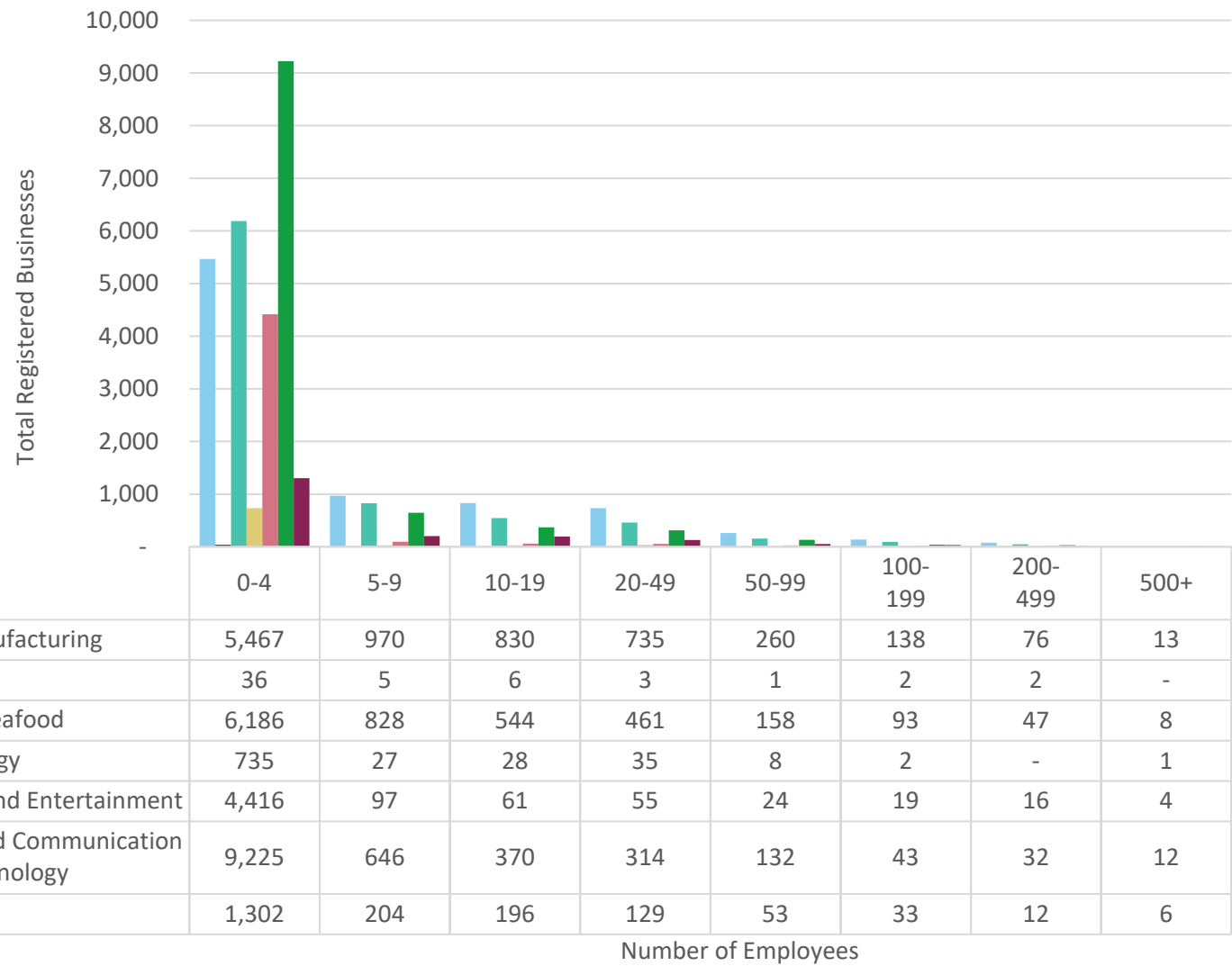|	0-4	5-9	10-19	20-49	50-99	100-199	200-499	500+
■ Advanced Manufacturing	5,467	970	830	735	260	138	76	13
■ Aerospace	36	5	6	3	1	2	2	-
■ Agrifood and Seafood	6,186	828	544	461	158	93	47	8
■ Clean Technology	735	27	28	35	8	2	-	1
■ Digital Media and Entertainment	4,416	97	61	55	24	19	16	4
■ Information and Communication Technology	9,225	646	370	314	132	43	32	12
■ Life Sciences	1,302	204	196	129	53	33	12	6

Figure 19 –Number of Registered Businesses by Number of Employees in Lower Mainland: Trade and Investment BC 2022

Considering the existing large employment industries, and the key emerging sectors, it is important to examine which industries, whether emerging or traditional, are seeing substantial growth in terms of job creation or openings. From the BCLMO 2022, the 10 industries with the largest projected growth in terms of employment in the southwest region of BC and the subsequent number of job openings from 2022-32 are:

Computer systems design and related services	60,520
Other retail trade (excluding cars, online shopping and personal care)	50,950
Hospitals	29,010
Legal, accounting, design, research and advertising services	28,820
Ambulatory health care services	28,630
Food services and drinking places	26,480
Wholesale trade	23,980
Personal, non-automotive repair and non-profit services	23,470
Elementary and secondary schools	22,650
Specialty trade contractors	20,030

The descriptors for innovative and emerging sectors in the region supported by KPU show that despite a significant profile, the numbers of jobs remain very small in comparison to the large traditional sectors of heath, education, retail and manufacturing.

There is an international standard system for the categorization of these sectors to enable consistency over reporting periods and across regions. The NAICS, or North American Industry Classification System allows such comparisons. In Canada, we use a similar National Occupation Classification (NOC) structure. This means that for any area, such as Registered Nurses (NOC 3012), researchers can explore detailed analysis such as the number of businesses that exist, how many employees, financial performance, wages, and Gross Domestic Product.

For the purposes of this report and supporting the examination of potential programming information for KPU, this means that these sectors can be broken down to actual types of activities and potential employment, skills and qualifications. As an example, the NOC for Registered Nurses (3012) is a subset of Professional Occupations in Nursing (301) which again is a subset of Health Occupations (3). The reason for pointing this out is that on the above list of fastest growing industry areas, when broken down from industries to actual occupations, four of the top ten occupations identified for growth in the southwest of BC are in the domain of Computers and Information Systems. They are:

- Computer programmers and interactive media developers;
- Information systems analysts and consultants;
- Software engineers and designers; and
- Computer and information systems managers.

In addition to this priority on information systems, the requirements for nurses and teachers remains high. In transitioning from the industry to the occupation, registered nurses combined with elementary and secondary school teachers take up an additional three of the top ten occupations. Overall, of the top 10 occupations that require a university degree and are projected for growth in the coming decade, these two areas, computers and information systems, and teachers account for 77% of all projected job openings in the coming decade.

Key Finding: Computer and Information systems, nursing and elementary school teachers will combine for over three quarters of all occupations requiring a university degree in the coming decade.

The Future of Work: Emerging Sectors in Innovation

A key research point in this report is to explore how emerging sectors are represented in the employment numbers and what skills and qualifications are needed to fulfil and sustain these industries. Establishing a baseline of labour market information in these areas encounters some fundamental challenges related to how the sectors are described and categorized.

The earlier discussed North American Industry Classification System has yet to establish clear standards for emerging sectors. When searching the NAICS, "Hydrogen" does not appear with a classification nor does Clean Technology. As a result, research needs to unearth reports that are beginning to provide clarity on how these industry definitions fit within NAICS.

As one example, Innovation, Science and Economic Development Canada recently published a report titled SME Profile: Clean Technology in Canada (Huang, 2020). The report shows the work underway to identify these emerging sectors and how they apply to Small and Medium Enterprises (SMEs). "These newly developed statistics offer, for the first time, a picture of the characteristics, financing, growth activities and ownership demographics of clean tech SMEs in Canada."

There are similar challenges with areas such as Artificial Intelligence. Tipping and Marley (2021) use this one sector to highlight some of the complexity and importance of gathering system-wide evidence of employment trends in emerging sectors.

> *Think about just one important trend that's impacting every industry: artificial intelligence. AI-enabled and -enabling technologies are baselining the economic architecture of the future. But within the NAICS system, there's no way to classify AI businesses and jobs, so we have no data to measure progress in this area.*
>
> *This is also important when it comes to bringing in the best foreign talent to work for Canadian AI companies. Because there's no "AI" industry or occupation code, it's challenging to obtain immigration work visas for people with essential skills in machine learning, neural network design and so on.*

Science and Innovation Canada is tackling these challenges, but the rate of change is upon us. Launching a Clean Technology Data Strategy through a Clean Growth Hub in 2018, it appears that much of the information about actual job numbers in emerging sectors is in its infancy. In a preliminary analysis, despite listing the numbers of employers (492) and employees (25,701) in British Columbia, there appeared to be no way to go beyond these provincial numbers in comparison to overall employment. As an example, the over 25,000 total employees in BC in the Clean Tech industry, should be referenced against the 2.7M reported total BC employment.

In essence, and as mentioned in the section on sector specific skills, if a robust analysis is to be completed on these emerging and evolving sectors, this will need to be done in the context of a close examination of existing sectors and to explore down to the occupation level including the specific skills and qualifications that are required to fill these occupations.

It may be, in these early stages, that it is very difficult to separate out Clean Energy from the existing sector of Mining, Oil and Gas Extraction. Similarly, it may be impossible to remove Artificial

Intelligence from Professional, Scientific and Technical Services or at the very least create a sub-category for further exploration.

What is clear is that the regions served by KPU have a bold vision for their municipalities and these visions present these emerging sectors as a high priority. What will be interesting to watch and explore is just how these emerging sectors eventually blend with, or supersede, some of these traditional employment sectors and whether or not there are any substantive changes to qualifications that employers are seeking.

Artificial Intelligence: Labour Implications and Post-Secondary Applications

Through the writing of this report which began in the fall of 2022, the evolution of Artificial Intelligence (AI) has taken a significant step forward. On November 30th, 2022 ChatGPT was released and the world began to see a whole new realm of possibilities. ChatGPT is just one tool in what is called Generative Artificial Intelligence. Generative AI can generate text, images or other media in response to a series of questions or prompts. Generative AI is one form of machine learning, and it is through this learning that machines can "learn" patterns and can respond with limited human interaction (McKinsey, 2023). The manner in which the learning patterns and capabilities unfold represents a substantial change in how technology can supplement and enhance human capabilities.

Since its release, ChatGPT and other tools have demonstrated remarkable capabilities. These tools can write essays, pass high school and law school exams and ChatGPT has scored in the top 88th percentile on the LSAT college exam. In the standard SAT exam, ChatGPT scored in the 93rd percentile (Cointelegraph, 2023). With its ability to scan texts and massive amounts of information and to generate human-like responses, what does this tool and its successors mean for the future of work?

Although just in its infancy, current uses of AI give a glimpse into its capabilities. For one simple example of an application, AI is quickly merging into hiring and recruitment practices and job market matching. AI is being used to write job descriptions, source applicants, analyze resumes, generate questions for interviews and analyze responses including shortlisting applicants (OECD, 2020). There are thoughts about the potential for AI to reduce or mitigate human bias in the hiring process. As examples such as this come forward, people will be wondering what skills and abilities will be needed for the future and what does AI mean for the labour market?

In the past, when the term "automation" has been used for technology's impact on the labour market and workforce, it has largely been through the outsourcing of mechanical tasks. Assembly lines and manufacturing processes have given way to automated systems of robotics. It has long been thought that the physical jobs will be the first to be considered for loss to automation with assembly lines as a classic example. The impact of technology on the workplace and speculation as to the extent of the impact is not a new story.

In 2013, Oxford University published a study which stated that nearly half of all jobs in the United States would be susceptible to computerization in the next two decades. In that study, they pointed to the need for creative and social skills.

> "Our findings imply that as technology races ahead, low-skilled workers will move to tasks that are not susceptible to computerisation — i.e., tasks that required creative and social intelligence….For workers to win the race, however, they will have to acquire creative and social skills (Frey and Osbourne, 2013)."

A recent study from the University of Pennsylvania (2023) found that while 80% of jobs in the United States are likely to see up to 10% of their tasks altered by AI, they also found that 20% of jobs will see at least 50% of their tasks altered. A further study by Goldman Sachs states that 300 million jobs will be lost specifically to generative AI (Kelly, 2023).

While the news of job loss may seem grim, these reports also point to a resurgence of new jobs fueled by these technologies. From 2021 to the first quarter of 2023, it is reported that AI has generated $94 billion in new investments in the United States. To support this growth and the economy, three factors are identified which may result in substantial growth. The factors are a lowering of labour costs due to automation, new job creation, and an increase in productivity for non-displaced workers who are now supported by new technologies. Kelly (2023) calls this a "labor productivity boom, like those that followed the emergence of earlier general-purpose technologies like the electric motor and personal computer."

There is, however, a darker side to the new technologies and their impact on the labour market and that is the potential for increasing the divide in wealth. Acemoglu and Retrepo (2021) found that "between 50% and 70% of changes in the US wage structure over the last four decades are accounted for by the relative wage declines of worker groups specialized in routine tasks in industries experiencing rapid automation." If we are to embrace and prosper with new technologies such as AI, then how do we work to ensure that these advances do not only apply to those who are already advantaged?

The pandemic had many impacts on our world, including the acceleration of the exploration into AI. With people not being able to work, research accelerated into how technology and AI could be targeted to replace humans in the workforce. The World Economic Forum (2018) has stated that "A new generation of smart machines, fueled by rapid advances in AI and robotics, could potentially replace a large proportion of existing human jobs." Robotics and AI will cause a serious "double-disruption," as the pandemic pushed companies to fast-track the deployment of new technologies to slash costs, enhance productivity and be less reliant on real-life people.

There is little debate that generative AI will create substantial disruption in the workforce. The extent and nature of the disruption is difficult to grasp but is the focus of substantial ongoing research. The OECD (2020) is examining the human capabilities that are too difficult for AI and robotics to reproduce in the coming years and what education and training will be needed to allow must people to develop those capabilities that are projected to be beyond the capabilities of AI and robotics. The project is intended to identify how robotics and AI will "transform skill demand and educational requirements." This project, and others like it, are still in the phase of exploration and defining methodologies to explore and answer the question of which human skills can be outsourced to technologies. One of the challenges facing these research reports is that they also must also attempt to predict the jobs that don't currently exist but will emerge in the years ahead as society and technology progresses.

The World Economic Forum's Future of Jobs Report (2023) says that 60% of workers will require additional training by 2027, with the biggest priority being analytical thinking. Similar to the OECD study, this research is also examining which tasks in any given occupation can be replaced by machine learning and which tasks still require a human. An example of this research from the World Economic Forum illustrates the work of radiologists. While the scanning, reading and analysis of images including potential diagnosis can be done by AI, the consultation with patients and the coordination with doctors cannot. This type of analysis was applied to 950 different occupations and in no occupation did this research find that machine learning could do all tasks of an occupation.

Once this type of task analysis is performed on occupations, what also emerges is that with some targeted training, people can transition to occupations not normally related to their core career

choice. Erik Brynjolfsson, from the Stanford Institute for Human-Centred AI captures it this way, "Believe it or not, if you take a forensic accountant and teach them some cyber, they can become a cybersecurity expert (World Economic Forum, 2023).

This type of research and the outcomes cause us to consider that perhaps it isn't about AI replacing your job, it's about how employees and employers are incorporating AI to be more efficient and to be more creative. Perhaps through the industrial age and into the information age, maybe we've been asking humans still to be too robotic in their work. We are still doing a great deal of manual tasks and for many jobs, perhaps AI may elevate the nature of work as the manual tasks, or even some cognitive tasks, are replaced by technologies.

As organizations consider how AI will influence the nature of work, policy makers and employers are also trying to grapple with the changes and are working to adapt. The US Chamber of Commerce's Commission on AI (2023) offers the following suggestions for employers and policy makers:

- Use an Evidence-Based Approach. Policymakers must take action to understand the potential impact of AI on the workforce by leveraging new data sources and advanced analytics to understand the evolving impact of AI and machine learning on the labour market.
- Educate the Future Workforce. We need education around AI in both the K-12 and higher education systems by encouraging policymakers to reform curriculum to better prepare students for developing AI and machine learning systems.
- Train and Reskill. The public and private sectors must invest in training and reskilling the future workforce. These investments should be targeted toward programs that help ease worker transitions and improve incentives for businesses to invest in retraining. Policymakers should also leverage post-secondary institutions to train workers to perform jobs alongside AI-enabled systems.
- Attract High-Skilled Talent. In areas where a worker shortage cannot be addressed through education, training, and reskilling, we must act to increase the AI talent pool through targeted refinements to immigration processes to encourage high skilled immigration to our country. These refinements should pave the way to attract those with specific skills in Artificial Intelligence and Machine Learning.

The themes above resonate with what we have learned in Canada through labour market reports and through the Census.

While there is an enormous amount of research going on as we all try to grapple exactly how AI will impact the workforce and the skills required for future employment, there are also implications for organizations in the post-secondary world.

Post-secondary institutions are highlighting the following uses of AI as they deliver programming for students (Ellingboe, 2023).

- Administrative support: How might institutions consider embracing AI for admissions, recruitment, and retention. How might AI be used to assess the workforce, productivity and performance?
- Instructional support: How might AI tools be used to provide adaptive and automated assessments? How might it create opportunities for additional practice and preparation for

exams and assignments? How might it provide personalized tutoring including feedback and content recommendations? While plagiarism has been one concern raised, AI itself might be used to detect plagiarism.

- Support for learners: Student services and supports are using AI tools to provide self-service chat bots, to identify at-risk students, and even to predict student performance.
- Tools to enhance research: evaluating and analyzing large data sets to identify patterns, build models and to make recommendations for relevant articles to support research or even to prepare manuscripts.

When considered as a whole, the list above includes the potential to impact everything from admissions and student support to instruction and research. How might institutions then consider how to evaluate where to place their attention and efforts?

If AI is to live up to its initial hype and the continued stream of new applications, post-secondary institutions should also be preparing themselves by talking not only about the applications, but about the ethics and issues such as privacy. Suggestions for topics to begin conversations include:

- Impact of AI on administrative, teaching and research practices;
- How to build faculty understanding of AI's potential impact on teaching, learning and assessment including how to integrate AI applications into the curriculum;
- The promises and limitations of AI including conversations about intellectual property, privacy, security, and ethical governance as outlined by organizations such as the Rome Call for Ethics which promotes the ethical use of AI to ensure that digital innovations are centred on improving teaching and learning and furthering the needs of humanity;
- An examination of how AI will impact the labour market in the future, specifically at the occupation level including an examination of pathways prepare students for a "hybrid labour market" where human ingenuity and creativity are empowered by machine learning; and
- Examining the social, ethical and pedagogical challenges associated with AI. "It is imperative that universities take the lead on the lead in identifying and understanding the complexities and challenges that AI will bring to the academic landscape. Moreover, universities should collaborate with industry and the public sector to create integrated, transparent and impartial AI programs while equipping students with lifelong learning skills to make our soon-to-be AI-driven society both better and more just (Smith, 2023)."

There is little doubt that the landscape of the labour market is changing rapidly, and new technologies will play an increasingly disruptive role. It may be that this disruption is simply the next evolution of tools that have been constantly changing the workplace in this past century. In 2018 McKinsey Global Institute looked at what history has taught us about technology and the workplace. Specifically, they examined the coming emergence of AI to ask if anything is different from the past? In their analysis, they point to a continued cycle of increases in productivity, demand for consumption and investment, and income distribution. In an analysis of the inception of the computer, they identify 3.5 million jobs that were eliminated since 1980 and then identified over 19 million jobs that have been created for a net gain of 15.8 million jobs.

If we believe that there will not be a massive elimination of jobs, then the role of post-secondary institutions remains in the preparation for people who move into the workforce after their K-12 school years in a rapidly transforming society. In that move, what appears to be likely is that these coming technologies will empower and extend the capabilities of people and, more than ever, we will rely on the very human skills of creativity, innovation, relationships, collaboration, and communications with each other that are so essential to any productive workplace.

Summary

The intention of this section of the report is to provide a high-level summary of key points in the report. This is not intended to be an exhaustive list or summary, but to point out some key aspects of the report.

- 2021 Census: Portrait of Citizenship and Immigration
    - The birth rate in Canada cannot sustain our population and our population therefore is also aging. To fill this gap and to address both a current and long-term labour shortages, immigration numbers are intended to increase substantially.
    - There has been both a relaxing of entrance requirements and an expansion of workforce in Immigration as an attempt to fill a backlog from the pandemic and ongoing larger numbers of applicants.
    - School districts, particularly Surrey, may already be seeing the impact of this growth in their current enrolment numbers. Watching these trends over the next two years will be important as indicators of the future.
    - Although a high percentage of immigrants are coming with degrees, there remain barriers to working in their area of training and policies are being addressed to alleviate these barriers.
    - Over half of all immigrants were admitted under the economic category in the hopes of either being self-employed, or by employing others.
    - Reports from school districts are that the incoming immigrants have received fewer supports in their home countries than in the past so this may place additional pressure on local services.

- 2021 Census: Education and the Labour Market
    - Changing Demographics
        - While the percentage of Canadians holding a degree is up, that is largely fueled by the 60% of immigrants who arrive with a degree.
        - Canada lags significantly behind our G7 counterparts in the percent of population with a degree.
        - Many people who arrive with a degree, or hold a degree, are returning for further education to gain the skills needed for employment.
        - A substantial number of people are no longer commuting, potentially representing a larger number of people working from home.

    - Labour Market Trends
        - The number of degree holders are up significantly in health care and computer and information sciences.
        - There are all-time high vacancy levels in construction, metal fabrication, health care, social assistance, construction, and manufacturing/retail.
        - BC saw the largest increase in job vacancies (quarter over quarter) in all of Canada.

- The BC Outlook: Labour Market
    - Provincial Labour Market Outlook (2022 Edition): Overview and Industry Growth

- Of the expected shortfall of workers in the coming decade, the province looks to fill vacant positions by increasing the workforce through immigration and by creating efficiencies through automation.
- The Role of Post-Secondary: Education and Training Needs
  - The bulk of new employees will come from youth entering the workforce;
  - The 2022 BC Labour Market Outlook was published shortly after much of the 2021 Census data was released. A significant portion of the 2022 BCLMO report still relies on 2016 Census data, so some of these trends may shift in the 2023 edition which can fully include the 2021 Census.

- Employment Sector Outlook
  - Five sectors account for over half of all job openings in BC.
  - The health sector includes 15% of all jobs with 60% of openings due to people leaving the workforce and 40% due to expansion.
  - Within the high growth areas, and across the province, close to three quarters of all jobs will be in the following areas:
    - Sales and service (21%)
    - Business, finance and administration (16%)
    - Management (15%)
    - Trades, transport and equipment operators (12%)
    - Education, law and social, community and government services (11%)
  - Our aging population and retirements will have a large impact in the coming years. In the occupational group of management, 70% of all job openings in the next decade are projected to result from replacement of those leaving the workforce.
  - Occupations in high demand in the coming years are listed by qualification requirements. These lists can provide insight for programming at KPU with a heavy emphasis on Health and Social Services, Management, and Information and Computing Technologies.

- The KPU Region: The Communities We Serve
  - There are significantly fewer 15-19 year olds than 20-24 year olds in the KPU region. As these youth age, BC Stats reports this to present a 15% decline in the number of 20-24 year olds within the next five years.
  - This gap between the numbers of 15-19 year olds and the number of 20-24 year olds will narrow significantly within 5 years as we are seeing significant growth in school aged children coming into the region. School districts in the region are reporting record levels of growth, and with the newly projected increase in 15-19 year olds, this will soften the decline. In addition, due to increases in immigration, there is anticipated to be larger than historical numbers of incoming young adults. The overall impact for the KPU region is long term steady growth in the range of adult learners between 20-34 years-old.
  - More research needs to be done with school districts to determine the cause of the growth and projection modelling may need to be revised to fully articulate the patterns of growth and whether these large numbers are a one-time phenomenon or a new pattern. At the

time of writing of this report, all indicators point to new trends and larger waves of immigration. These immigrants will largely land in urban centres.

- Indigenous Communities and Learners
  - Indigenous learners continue to seek a sense of belonging and equity. Structures at KPU such as cohorts and surrounding supports present a positive model for enabling Indigenous learners.
  - The skills, attributes and qualities that are hoped to be developed for Indigenous learners are no different from those we would want for all learners.
  - There is a call for ongoing outreach to students and to Indigenous communities to keep the dialogue open and to continue to explore supportive structures.
  - The topics of authentic Truth and Reconciliation and developing courage and strength in Indigenous learners remain a high priority.
  - The participation rate of Indigenous people in the labour market is below the participation rate of non-Indigenous people. Specific strategies of policy changes, targeted funding for education and job training, and having a wholistic approach to support may enhance the participation rate and help fill labour supply needs.

- The KPU Region: Reports from the Interviews

  - Trends in Skills and Qualifications
    - Employers continue to look for program specific skills in addition to extensive experience particularly at the higher level.
    - There remains a substantial body of research and anecdotal evidence that the soft skills are in high demand. These soft skills are seen as transferable as industries and sectors shift.

  - Transferrable vs Program Specific Skills
    - Business leaders and contacts continue to look for people who have core skills in critical thinking, organization, time management, communications, and the ability to work with people and in groups.
    - The transferable skills remain with reading comprehension, critical thinking and emotional intelligence high on the list. The question for post-secondary institutions is how do you teach and refine these skills in traditional academic settings?
    - As jobs are moved to automation and as workforce shortages continue to be exacerbated by an aging population, a substantial number of managers will retire or leave the workforce, these higher-level skills will be in enormous demand.

  - Micro-Credentialing
    - There appears to be no formal requirements for micro-credentialling in any of the observed job postings or in any of the reports read about skills and qualifications needed for the upcoming labour shortage.

- o Business Start Up Skills
    - The 2021 Census reported that over half of all immigrants granted permission into Canada did so under the umbrella of their ability to create jobs or to be self-employed. There may be an opportunity for post-secondary institutions to consider basic business skills for adults and to be able to deliver those programs to incoming immigrants.

- o Discipline/Sector Specific Skills
    - Several explorations were made to determine discipline or sector specific skills particularly in emerging markets. Many of these emerging markets are identified as key sectors by the municipalities. Sectors such as Hydrogen production, Clean Energy, Advanced Manufacturing, and Agri-Innovation are commonly mentioned on the economic or labour market platforms of the region. Trying to define the workplace skills and qualifications required in these sectors is challenging.
    - Further research would be required in this area to adequately understand these emerging markets, what occupations and qualifications are emerging and how these industries will begin to show a substantial footprint in the KPU region.

- The KPU Region: Labour Market

    - o City of Delta
        - Delta's vision for the future of the economy and labour market is far less refined and published than that of the other KPU regional counterparts. With a very large industrial base, the impression given is that much of Delta relies on commuting to other areas for employment although this is not easy to verify. There would be, without question, substantial employment in health care and education similar to other jurisdictions.
        - Key sectors with significant employment in Delta are Advanced Manufacturing (11,199) and agrifood-seafood (7,031). No other key sector employs more than 600 employees.

    - o Township of Langley/City of Langley
        - Langley as a region has a profile similar to Delta, with Advanced Manufacturing and Agri-food/seafood as a substantial source of employment. Langley has a well articulated economic plan.
        - As a vision for where the region is focusing, they have a substantial footprint in film and media although the employment statistics appear to be low. It would require further exploration, but it may be that the reported very low employment numbers (79) in this sector, are not adequately captured in the traditional sector numbers or that the employers are reportingin other municipalities such as Vancouver. Conversations with city staff and business leaders point to the film industry having a substantial footprint in their region and they are actively seeking post-secondary partnerships.
        - Agri-food and Seafood is clearly a very large part of Langley. As a regional comparison in this industry, Langley employs far more people per capita than the other cities. Compared to Surrey and Richmond, Langley respectively employs 150% and 300% more people per capita in this sector.

- City of Richmond
  - The most significant difference in these regional comparisons of key sectors comes with Richmond and its footprint in Information and Computing Technology. As an indicator of the magnitude of difference within the region served by KPU, Richmond employs 250% more employees in this sector than Delta, Langley and Surrey combined.
  - The second area of significance for Richmond is Life Sciences. As a regional comparison, Richmond employs 125% more people than Surrey and 170% more than Delta and Langley combined in this industry.

- City of Surrey
  - Given its size in the region, according to the evidence in these six key sectors (Aerospace, agrifood and seafood, clean technology, digital media and entertainment, ICT, and life sciences), Surrey is not performing as well as its regional counterparts. The City employs more people in 3 of the 6 sectors (Advanced manufacturing, Agrifood and seafood, and clean technology) but the numbers are much smaller as a ratio to population comparison.
  - In Aerospace (98), Digital Media (125) and Life Sciences 1470), they lag behind their comparators in overall employment.
  - The much larger numbers of employment in Surrey may lie in the traditional sectors of a rapidly expanding metropolitan centre. In retail construction, manufacturing and warehousing, they employ over 130,000 people. In health care, they employ a further 40,000.
  - The City is trying to brand itself as a hub of innovation and research. As this vision solidifies, the numbers of employees in sectors that include these categories may also grow.

- Key and Traditional Sectors: A Regional Comparison
  - The analysis of labour market trends highlighted the importance and scale of small business. As a KPU regional percentage, data from the 2021 Census shows that between 17% of all employees report as self-employed.
  - Separate from self-employment, what is clear is the very large number of registered business that have fewer than 5 employees. To put it in perspective, there are over 9,000 registered businesses in Information and Computer Technology in the southwest region of British Columbia who fall into this category.
  - In addition to the unearthed scale of small business, the recent immigration patterns in Canada saw over one half of all immigrants coming under the umbrella of either being able to be self-employed or to create jobs themselves.
  - The traditional and fast-growing sectors in BC remain rooted in social, health services and education.
  - Elementary and secondary schools are identified as the 3rd fastest growing sector in BC.
  - In the list of the top 10 growing sectors, health care and health services are represented by 7 of the 10 occupations listed.

- The Future of Work: Emerging Sectors in Innovation
  - While emerging sectors that look at future skills are front and centre in the visions and strategic planning of the cities served by KPU, these emerging sectors are not well defined. It is difficult to explore careers, specific qualifications, and the exact nature of candidates that employers are seeking.
  - There are helpful developments across the country as employers and governments attempt to classify and categorize specific careers in these emerging sectors.
  - At this time, it appears that while job titles and descriptions are changing as employers move to fill technical and leadership positions in these sectors, the core qualifications remain highly traditional.
  - In addition to these traditional qualifications (degree, diploma), employers appear to be seeking extensive experiences in the field in these specific sectors.

References

Acemoglu, D., & Restrepo, P. (2021). The impact of artificial intelligence on economic growth (No. w28920). Retrieved from National Bureau of Economic Research website: https://www.nber.org/papers/w28920

Agriculture and Agri-Food Canada. (ND). Types of careers at Agriculture and Agri-Food Canada. https://agriculture.canada.ca/en/about-our-department/careers/types-careers-agriculture-and-agri-food-canada-0

Agrirecruiting.com (2022). Innovation Specialist. https://agrirecruiting.com/help/innovation-specialist/
Ballah, Brett. (2021). Toronto was not the busiest airport in Canada in 2020. Western Aviation News. https://westernaviationnews.com/toronto-not-busiest-airport-canada-2020/

BC Chamber of Commerce. (2022) Support For The Development of Microcredential Programs. https://bcchamber.org/wp-content/uploads/2022/07/AEST_SUPPORT-FOR-THE-DEVELOPMENT-OF-MICROCREDENTIAL-PROGRAMS_2022.pdf

BC Federation of Labour. (2020, February). Automation and Labour in British Columbia. https://bcfed.ca/sites/default/files/attachments/BCFED%20-%20Automation%20and%20Labour%20in%20BC%20%28SF%29.pdf

BestColleges.com. (n.d.). 5 ways AI will transform higher education. Retrieved from https://www.bestcolleges.com/news/analysis/5-ways-ai-will-transform-higher-education/

BHER. (2023). Skills Working Group Report [PDF file]. Retrieved from https://bher.ca/sites/default/files/2023-03/Skills%20Working%20Group%20Report.pdf

Broecke, S. (2023). Artificial intelligence and labour market matching. OECD Social, Employment and Migration Working Papers, No. 284. OECD Publishing, Paris. https://doi.org/10.1787/2b440821-en

Cointelegraph. (2023, March 15). ChatGPT V4 aces the BarSATs and can identify exploits in ETH contracts. Retrieved from https://cointelegraph.com/news/chatgpt-v4-aces-the-bar-sats-and-can-identify-exploits-in-eth-contracts

CSLS, 2023. *"The Contribution of Indigenous People to Future Labour Force Growth in Canada: An Update"*, Centre for the Study of Living Standards. Canada. Retrieved from https://canadacommons.ca/artifacts/4311748/the-contribution-of-indigenous-people-to-future-labour-force-growth-in-canada/5122147/

ECO Canada (Dec. 2020) Environmental Labour Market Challenges and Opportunities in the Decade Ahead. https://eco.ca/new-reports/environmental-labour-demand-outlook/

ECO Canada. (2022). Environment Careers Organization Canada: The Steward of the Canadian Environmental Workforce. https://eco.ca/

Ellingboe, B. (2023, March 22). How AI is shaping the future of higher education [Opinion]. Inside Higher Ed. Retrieved from https://www.insidehighered.com/views/2023/03/22/how-ai-shaping-future-higher-ed-opinion

eTalent Canada. (n.d.). Locations in British Columbia. Retrieved March 28, 2023, from https://etalentcanada.ca/locations/british-columbia

Frey, C. B., & Osborne, M. A. (2013). The future of employment: How susceptible are jobs to computerization? Retrieved from Oxford Martin School, University of Oxford website: https://www.oxfordmartin.ox.ac.uk/downloads/academic/future-of-employment.pdf

Government of British Columbia. (2020). Small Business Profile 2020 [PDF]. Employment, Business and Economic Development. https://www2.gov.bc.ca/assets/gov/employment-business-and-economic-development/business-management/small-business/sb_profile.pdf

Government of British Columbia. (2022). B.C. Hydrogen Strategy: A sustainable pathway for B.C.'s energy transition. https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/electricity/bc-hydro-review/bc_hydrogen_strategy_final.pdf#page=5

Government of British Columbia. (ND) Trade and Invest British Columbia: Lower Mainland and Southwest. https://www.britishcolumbia.ca/about-british-columbia-canada/regions/lower-mainland-southwest/

Greenspon, Jacob & Campbell, Margaret & Ahmed, Weseem & Mack, Chris & So, Dorinda & Steeve, Jamison. (2019). Teaching for Tomorrow: Building the necessary skills today.

Hasenfratz, L. (2019) Advancing Manufacturing: Better, faster, lower cost, and more competitive products. The Future Economy.ca. https://thefutureeconomy.ca/interviews/linda-hasenfratz/

Huang, Lyming. (2020, February). SME Profile: Clean Technology in Canada. Report prepared for Small Business Branch, Research and Analysis Directorate, Innovation, Science and Economic Development Canada. https://www.ic.gc.ca/eic/site/061.nsf/vwapj/SME-profile_Clean-technology-Canada_2-eng.pdf/$FILE/SME-profile_Clean-technology-Canada_2-eng.pdf

Immigration, Refugees and Citizenship Canada. (2022, August 22) Tackling immigration backlogs to help Canadian Businesses grow [Press release]. https://www.canada.ca/en/immigration-refugees-citizenship/news/2022/08/tackling-immigration-backlogs-to-help-canadian-businesses-grow.html

Invest Surrey and Partners, City of Surrey (ND). Building the Next Metropolitan Centre: The City of Surrey Economic Strategy Overview 2017-2027. https://www.surrey.ca/sites/default/files/media/documents/EconomicStrategyOverview.pdf

Kelly, J. (2023, March 31). Goldman Sachs predicts 300 million jobs will be lost or degraded by artificial intelligence. Forbes. Retrieved from https://www.forbes.com/sites/jackkelly/2023/03/31/goldman-sachs-predicts-300-million-jobs-will-be-lost-or-degraded-by-artificial-intelligence/?sh=253396f0782b

Korn, M. J., & Silva, M. (2019, February 1). The data colleges collect on applicants. The Wall Street Journal. Retrieved from https://www.wsj.com/articles/the-data-colleges-collect-on-applicants-11548507602

Kwantlen Polytechnic University. (ND) Backgrounder: Growth in Micro-Credentials in BC and Canada. https://sppublic.kpu.ca/board/Board/2021%20Agendas%20and%20Minutes/09%20September%2029,%202021/08.2_4%20Draft%20AC15%20Micro-credentials%20at%20KPU_%20Backgrounder%20&%20FAQs.pdf

Lamb & Lo. (2017, June). Automation Across the Nation: Understanding the potential impacts of technological trends across Canada. Report Prepared for The Brookfield Institute. https://brookfieldinstitute.ca/wp-content/uploads/RP_BrookfieldInstitute_Automation-Across-the-Nation-1.pdf

LifeSciences BC. (2021). Life Sciences Report 2021: British Columbia's Biotech and Life Sciences Industry. Retrieved from https://lifesciencesbc.ca/wp-content/uploads/2021/05/Life-Sciences-Reprot-2021_GVBOT_Final-1.pdf

McCallum, A., Brynjolfsson, E., & Yang, A. (2023). Generative AI models and the potential for unintended consequences. arXiv preprint arXiv:2303.10130. Retrieved from https://arxiv.org/pdf/2303.10130.pdf

McKean, Matthew. (2018). *Are Canada's Business Schools Teaching Social and Emotional Skills?* Ottawa: The Conference Board of Canada.

McKinsey & Company. (2018, February 16). What can history teach us about technology and jobs. McKinsey & Company. Retrieved from https://www.mckinsey.com/featured-insights/future-of-work/what-can-history-teach-us-about-technology-and-jobs

McKinsey & Company. (2023, January 19). What is generative AI? McKinsey & Company. Retrieved from https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-generative-ai

Muro, M., Maxim, R., Whiton, J., & Whiton, M. (2018, September 20). Is artificial intelligence replacing jobs? The truth. World Economic Forum. Retrieved from https://www.weforum.org/agenda/2018/09/is-artificial-intelligence-replacing-jobs-truth/

O'Shaughnessy, Brendan. (2022, January 28). The Rise of Populism. Keough School of Global Affairs. University of Notre Dame. https://keough.nd.edu/the-rise-of-populism/

OECD. (2020). OECD Employment Outlook 2020: Worker Security and the COVID-19 Crisis. Retrieved from OECD iLibrary website: https://www.oecd-ilibrary.org/sites/5ee71f34-en/1/3/1/1/index.html?itemId=/content/publication/5ee71f34-en&_csp_=2b9642db8814362c43dd772ad664e20c&itemIGO=oecd&itemContentType=book

Ontario Human Rights Commission (2013). Policy on Removing "Canadian Experience" barrier. https://www.ohrc.on.ca/en/policy-removing-%E2%80%9Ccanadian-experience%E2%80%9D-barrier

Richmond: Economic Development (n.d.). https://businessinrichmond.ca/why-richmond/#locations-logistics

Royal Bank of Canada (2018). Humans Wanted: How Canadian Youth Can Thrive in the Age of Disruption. https://www.rbc.com/dms/enterprise/futurelaunch/_assets-custom/pdf/RBC-Future-Skills-Report-FINAL-Singles.pdf

Smith, J. (2023, March 22). How AI is shaping the future of higher ed. Inside Higher Ed. Retrieved from https://www.insidehighered.com/views/2023/03/22/how-ai-shaping-future-higher-ed-opinion

Statistics Canada (2003). "Longitudinal Survey of Immigrants to Canada: Process, Progress, and Prospects," www.statcan.gc.ca/pub/89-611-x/89-611-x2003001-eng.pdf (date retrieved: January 31, 2023)
Statistics Canada (2022). Jobs in Canada: Navigating Changing Local Labour Markets. https://www150.statcan.gc.ca/n1/daily-quotidien/221130/dq221130b-eng.htm

Statistics Canada (2022). Labour Shortage Trends in Canada. https://www.statcan.gc.ca/sites/default/files/labour-shortage-trends-canada-eng.pdf

Statistics Canada. (2022, November 23). Study: Does taking short postsecondary programs or independent credits benefit recently displaced workers? [Press release]. https://www150.statcan.gc.ca/n1/daily-quotidien/221123/dq221123b-eng.htm

Statistics Canada. (2022, November 30). Canada leads the G7 for the most educated workforce, thanks to immigrants, young adults and a strong college sector, but is experiencing significant losses in apprenticeship certificate holders in key trades.

Statistics Canada. (2022, November 30). Going to college after finishing a degree. [Press release]. https://www150.statcan.gc.ca/n1/pub/11-627-m/11-627-m2022083-eng.htm

Statistics Canada. (2022, November 9). A portrait of citizenship in Canada from the 2021 Census. [Press release]. https://www12.statcan.gc.ca/census-recensement/2021/as-sa/98-200-X/2021008/98-200-X2021008-eng.cfm

Statistics Canada. (2022, October 26) Immigrants make up the largest share of the population in over 150 years and continue to shape who we are as Canadians. [Press release]. https://www150.statcan.gc.ca/n1/daily-quotidien/221026/dq221026a-eng.htm

Surrey Board of Trade. (Sept. 2022). Surrey Labour Market Report. https://businessinsurrey.com/wp-content/uploads/2022/09/SurreyLMIReport_September2020.pdf

Talent.com (2022). Agriculture Strategy Director, Nature United. https://ca.talent.com/view?id=fed5a0d51f6e&source=api&utm_medium=88fa65cd&ost=true&context=api&ib=true&context=bulkForwardTraffic

Tipping & Marley. (2021, July 12). Opinion: Canada needs better economic data to inform 21st-Century decision-making. BC Business. https://www.bcbusiness.ca/Opinion-Canada-needs-better-economic-data-to-inform-21st-century-decision-making

Tucker, L. R. (2022, July 8). The role of artificial intelligence in education. McGraw Hill Education Canada Blog. Retrieved from https://www.mheducation.ca/blog/the-role-of-artificial-intelligence-in-education

US Chamber of Commerce Technology Engagement Center. (2023). Artificial intelligence commission report. Retrieved from https://www.uschamber.com/technology/artificial-intelligence-commission-report

Work BC. (2022). British Columbia Labour Market Outlook: 2021 Edition. 2021-2031 Forecast. https://www.workbc.ca/sites/default/files/BC_Labour_Market_Outlook_2021_9MB.pdf

Work BC. (2023). British Columbia Labour Market Outlook: 2022 Edition. 2022-2032 Forecast. https://www.workbc.ca/sites/default/files/2023-02/LMO-2022-Report.pdf

WorkBC. (ND) High Opportunity Occupations. https://www.workbc.ca/Labour-Market-Industry/High-Opportunity-Occupations.aspx

World Bank Group. (2023, January). Global Economic Prospects. World Bank Publications. https://openknowledge.worldbank.org/bitstream/handle/10986/38030/GEP-January-2023.pdf?sequence=34&isAllowed=y

World Economic Forum. (2018, September 20). Is artificial intelligence replacing jobs? The truth. Retrieved from https://www.weforum.org/agenda/2018/09/is-artificial-intelligence-replacing-jobs-truth/

World Economic Forum. (2023). Future of Jobs 2023. Retrieved from https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf

World Economic Forum. (2023, May 30). 3 ways higher education can prepare for the generative AI revolution. Retrieved from https://www.weforum.org/agenda/2023/05/3-ways-higher-education-can-prepare-for-generative-ai-revolution/

World Economic Forum. (2023, May 30). AI skills gaps: How to prepare for future jobs. Retrieved from https://www.weforum.org/agenda/2023/05/ai-skills-gaps-future-jobs/

Appendix 1: People Interviewed

Laura McDonald - Dean, Faculty of Trades and Technology
Brad Anderson - Chair of the Entrepreneurial Leadership
Randall Heidt – Vice President, External Affairs
David Burns – Associate Vice President, Academic
Lori McElroy – Associate Vice President, Planning and Accountability
Jaret Lang – Associate Vice President Campus and Community Planning
Brent Elliott – Interim Associate Vice President Campus and Community Planning
Adam Jaffer – Special Advisor to the President, Strategic Initiatives
Gayle Bedard – Associate Vice-President, Indigenous Leadership
Alan Davis – President and Vice Chancellor
James Watkins – Research Analyst, Office of Planning and Accountability
Peter Smailes (KPU – Vice-President, Administration)
Sharmen Lee – Dean, Faculty of Health
Nicole Poole – Coordinator, Career Services
Katie Oppenshaw - Special Advisor on Government Relations
Larissa Petrillo - Lead Advisor, Work-Integrated Learning, Office of the Provost & Vice-President, Academic
Lekeyten Antone – Elder in Residence
Rachel Chong – Indigenous Engagement and Subject Liaison Librarian
Natalie Wood-Wiens – Manager, Indigenous Services
Lisa Monchalin - Faculty, Arts
Jennifer Anaquod – Faculty,
June Kaminski – Faculty, Health
Melinda Bige – Chair, Indigenous Studies
Charlene Seward – Indigenous Engagement Facilitator, Institute for Sustainable Food Studies
Jennifer Lamont – Coordinator, Indigenous Student Transition and Engagement
Stephanie Howes – Vice President Students
Samantha Jack – Elder in Residence
Lyn Joshi – Metis Nation British Columbia
Stephen Wu – City of Surrey, Manager Economic Development
Shirley Jill – City of Richmond, Manager Economic Development
Val Gafka – Township of Langley, Senior Manager Economic Investment and Development
Anita Huberman – CEO, Surrey Board of Trade
Shaena Furlong – CEO, Richmond Chamber of Commerce
Melissa Pace – Director, BC Chamber of Commerce
Cory Redekop – CEO, Langley Chamber of Commerce
Neder Dhillon – Surrey Schools, Assistant Superintendent
Raj Puri – Surrey Schools, District Principal, Welcome Centre
Jacob Sol – Surrey Schools, Assistant Superintendent

Appendix 2: Comparison of Job Openings and TEER Categories 2022 to 2023

Job Openings based on BCLMO 2022 Edition

Job openings: 1,017,000
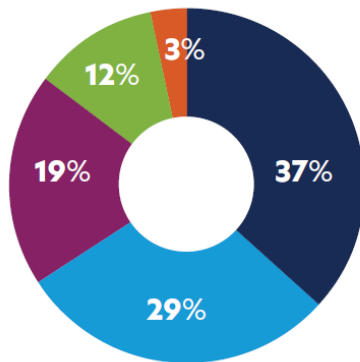
37%
Bachelor's, graduate or first professional degree
(373,100)

29%
Diploma/certificate excluding apprenticeship
(297,700)
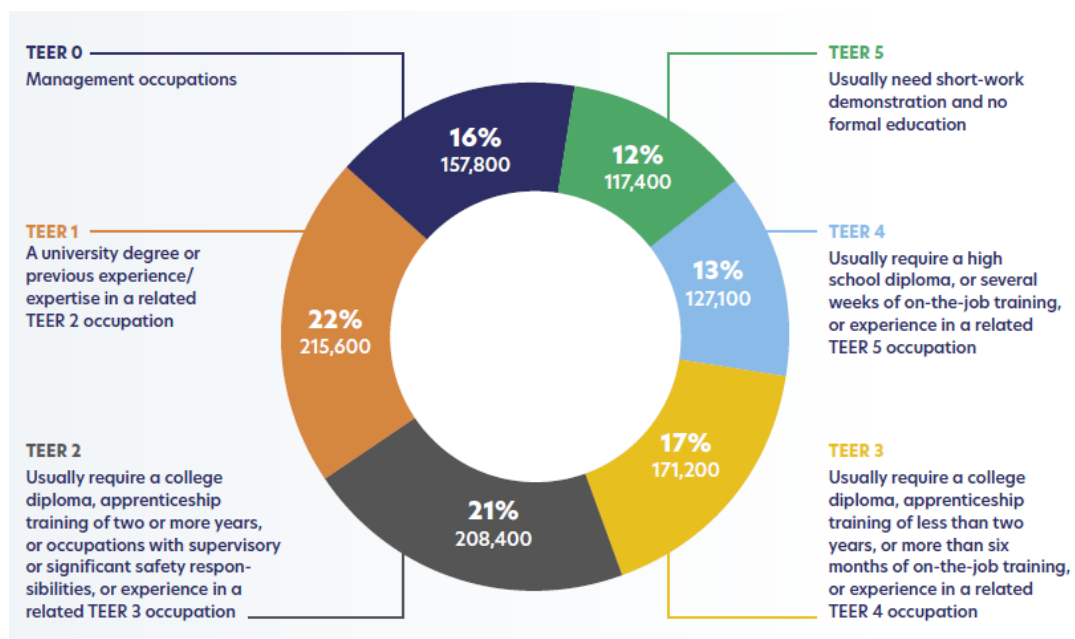
19%
High school and/or occupation-specific training
(196,600)

12%
Apprenticeship certificate
(117,800)

3%
Less than high school
(31,600)

Sources: Census 2016; LMO 2022 Edition

BCLMO 2022 Edition, Job Openings by Type 2022-2032

TEER Categories based on BCLMO 2023 Edition

TEER 0
Management occupations

TEER 1
A university degree or previous experience/expertise in a related TEER 2 occupation

TEER 2
Usually require a college diploma, apprenticeship training of two or more years, or occupations with supervisory or significant safety responsibilities, or experience in a related TEER 3 occupation

TEER 5
Usually need short-work demonstration and no formal education

TEER 4
Usually require a high school diploma, or several weeks of on-the-job training, or experience in a related TEER 5 occupation

TEER 3
Usually require a college diploma, apprenticeship training of less than two years, or more than six months of on-the-job training, or experience in a related TEER 4 occupation

16% 157,800
12% 117,400
13% 127,100
17% 171,200
21% 208,400
22% 215,600

BCLMO 2023 Edition, Job Openings by TEER, 2023-2033