VANCOUVER
ECONOMIC COMMISSION

FINAL ENGAGEMENT REPORT

STAKEHOLDER ENGAGEMENT, TECHNOLOGY LMP

PREPARED FOR:
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Canada

BRITISH COLUMBIA

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TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

This Labour Market Partnership (LMP) project was undertaken in order to support the labour and talent needs of the Technology industry in British Columbia, one of the province's strongest contributors to B.C.'s GDP ($15.5 billion), growing twice as fast as B.C.'s entire economy. The industry provides jobs for more than 84,000 people, including over 9,000 established Technology companies along with some 18,750 emerging companies. The Technology industry sector pays 66% higher wages than the industrial average. In addition, the sector contributes over $23 billion to the provincial economy, with the technological innovations pioneered by this sector being of critical importance in supporting the growth of all other 'non-tech' economic sectors.

Key Technology sub-sectors participating in this Stakeholder Engagement included:

Clean Technology
Wireless & Information Communications Technology (ICT)
Health & Life Sciences
Digital Entertainment & Interactive (DE&I)
Engineering & Other Services

Leaders from across the various sub-sectors, or distinct industry segments, of Technology have identified the critical importance of high quality talent as a key factor in their success to date. In order for B.C.-based employers to compete on an international stage, the ability to attract, retain and develop high performing talent has been repeatedly reported as a critical consideration. As the sector forges ahead towards developing its own Sector Workforce Development Recommendations and Strategy a number of key issues will be explored.

A number of preliminary issues have been identified in the course of this Phase One engagement. There is a strong desire by industry to reform education curriculum, attract more youth to opportunities within Technology and develop B.C's domestic workforce to maximum capacity. Data collection and analysis is anticipated to be a key driver in systemically addressing industry development. In order to improve policy and partner with government, a formal review of the sector's growth potential, long-term labour requirements, and an examination of how to better align education and employment will be required.

The K-12, and private and public post-secondary curriculum and volume of graduates is not meeting the appetite of the Technology sector. Real life practical work experience opportunities require commitment from both employers in the private sector as well as private and public education institutions. Improving B.C's domestic pool of talent will require activities, initiatives and programs that will entice diversity and encourage women, First Nations people and youth to select Technology careers.

Recruitment and retention of skilled workers to grow the sector is a key driver to success. Linked to attraction and retention, the ability to complement and develop B.C.'s own domestic talent pool utilizing international talent was identified as a critical pain point. International workers bring specialized, valuable expertise, capabilities and skills; temporary and permanent foreign workers provide an opportunity to grow, develop and train domestic workers, ultimately assisting Canadians in accelerating their own careers.

The demand for Scientific Technology Engineering Mathematics (STEM) talent is an international phenomenon not unique to B.C. According to the U.S. Department of Commerce publication, STEM: Good Jobs Now and for the Future, "STEM workers drive our nation's innovation and competitiveness by generating new ideas, new companies and new industries. However, U.S. businesses frequently voice concerns over the supply and availability of STEM workers. Over the past 10 years, growth in STEM jobs was three times as fast as growth in non-STEM jobs."[1]

Specific sub-sectors identified some unique challenges as a result of acute labour market shortages and fast paced growth. In particular, the Digital Entertainment & Interactive (DE&I) sub-sector of Technology has some unique considerations and risks, in part due to the rapid expansion and success of the sector. As a result of immigration policies, there continues to be ongoing issues in attracting a sufficient supply of workers and risks associated with losing talent. For example, employers reported the loss of workers who had been living and working in B.C. for years, due to the policy of Cumulative Duration, whereby a work permit can not be issued when the individual has worked in Canada for one or more periods totalling four years. This policy challenge is exacerbated by the worker's experience of extensive delays in obtaining renewals of work permits and eligibility challenges related to Permanent Residency through Express Entry in particular sub-sectors. In addition, one major multinational employer reported a growing trend where Vancouver-based employees are actively requesting transfers to the United States, largely attributed to higher salaries, foreign exchange and cost of living, in particular affordable housing.

Overhauls to immigration programs compound the problem, with all sub-sectors reporting difficulties with the Temporary Foreign Worker Program (TFWP) and its requirements for Labour Market Impact Assessments (LMIAs), and a lack of access to the Provincial Nominee Program (PNP), with its recent pause due to an overwhelming influx of applications.

There is compatibility between the Technology sector's vision and the province's vision for knowledge-based sectors, per the B.C. Strategic Plan 2015/2016-2018/2019. "Our government's vision for the Technology sector in this province is to be a recognized leader for developing and growing innovative Technology companies, and a destination for Technology investment." One key consideration is that of not only jobs as traditionally defined within medium-large sized organizations, but the role of small businesses and entrepreneurs, who also have the ability to be large drivers of the economy.

1 http://www.esa.doc.gov/sites/default/files/reports/documents/stemfinaljuly14.pdf & http://www.stemedcoalition.org

The Sector Engagement Phase of this Technology Sector LMP resulted in a shaping of consensus and direction on governance and leadership moving forward. The Technology sector has elected to address the human capital issues identified, with five working sub-committees.

Five overarching specific groups of issues were identified:

1. Job Readiness
2. Recruitment and Retention
3. Immigration
4. Diversity and Outreach
5. Data Collection and Analysis / Labour Market Information (LMI)

The intent moving forward is for each sub-committee to come together and strategize on short, medium and long-term recommendations, in response to key themes and findings initially identified through Phase One. In addition to the four working sub-committees, a fifth sub-committee: Data Collection & Analysis / LMI, will be launched to support the working sub-committees to make data-driven recommendations. Subsequent phases of LMP, including LMI, Strategy and Implementation to improve access to talent have been formulated as next steps. The mandate of each sub-committee is available in more detail in Section Five: Technology Workforce Development Strategy Sub-Committees.

2. BACKGROUND AND PURPOSE OF THE PROJECT

The Technology Sector LMP project supported stakeholder engagement where over one hundred fifty key stakeholders from across various sub-sectors of Technology and across various regions throughout the province were interviewed and asked to share information on their human capital issues.

Extensive efforts were made to engage various regions of the province and ensure a broad representation from across various sub-sectors of Technology. As a result of this undertaking, a collaborative partnership has emerged including the establishment of governance and working sub-committees committed to moving forward. The following Phase One report details the stakeholders, engagement activities, results, and subsequent next phases of LMP collaboration.

3. HUMAN CAPITAL ISSUES

For the last several years, the Vancouver Economic Commission (VEC) has supported local businesses and the growth of the economy, considering Talent a key economic pillar to success. Talent focussed events geared towards repatriation of Canadian workers in the UK, Silicon Valley and other locations took place, while support of local, national, and international Career Fairs drew attention of career opportunities with local employers.

In 2015, in response to the 2014 Temporary Foreign Worker Overhaul, the VEC partnered with the HR Tech Group to run a survey amongst its membership, including 31 of the premium Technology companies across sub-sectors including: Clean Technology, ICT & Wireless, DE&I and Health & Life Sciences. Through this survey, internal business intelligence reports, and in meetings with business owners and many public forums, talent has consistently been identified as a significant barrier for local employers to expand their businesses and for further economic development of the sector.

KPMG's 2014 Tech Report Card confirmed the perceived low talent availability, with B.C. lagging other provinces in granting engineering and sciences degrees at both undergraduate and graduate levels, as well as being well below the OECD average in granting technical doctoral degrees.[2] The report also found that there was "a dearth of seasoned senior management, while upcoming talent is currently lacking in specific fields, such as engineering, sciences and marketing." The key recommendation to expand talent availability remains a recurring theme for B.C's Technology industry for the past several years.

This data is consistent with the KMPG 2012 Tech Report Card, where it was noted at that time the "Shallow Talent Pools – The number of Technology-related graduate degrees granted in BC ranks near the bottom on a per capita basis in a comparison with other Canadian and international jurisdictions, ranking 33 out of 38 jurisdictions examined."[3]

One of the unique challenges in the region is that "talent needed to fill senior roles, is typically cultivated organically as firms grow in size to medium and large enterprises. With relatively few medium and large enterprises in B.C., the available pool of senior management is noticeably constrained. At the staff level, companies are increasingly challenged to fill roles locally."[4]

2 http://www.vancouvereconomic.com/wp-content/uploads/2015/06/KPMG-Tech-Report-Card-20141.pdf

3 https://www.kpmg.com/Ca/en/IssuesAndInsights/ArticlesPublications/Documents/British-Columbia-Technology-Report-Card-2012.pdf

4 http://www.ictc-ctic.ca/wp-content/uploads/2012/06/ICTC_IEP_SA_BC_EN_03-12.pdf

According to KMPG and validated through this LMP stakeholder consultation, compounding the issue is that more recently, competition for available resources has increased due to a constrained talent pool and with this, compensation levels have risen. Recently, several large US-based multinationals have opened offices in B.C. and are offering significant premiums over the average compensation levels leading to ongoing challenges for smaller B.C. companies. The trickle down effect of this has caused some B.C. companies to expand or establish operations in other provinces where talent is more widely available and less expensive.[5]

There are unique factors and considerations for the Technology industry, including the transferability of skills and movement across sub-sectors, provinces and countries. In dealing with the above talent challenges, industry stakeholders are now facing the question, "How do we develop a cross-sector, industry-wide pool of talent that will meet present day needs and ensure the health and development of the sector into the future?".

4. STAKEHOLDER ENGAGEMENT

The stakeholder engagement phase achieved extensive outreach through large-scale meetings, one-on-one interviews and roundtables held across the province. The goal of the stakeholder engagement was to bring various sub-sectors to the table to identify common challenges, opportunities and themes across various Technology segments. This phase proved successful in encouraging the collaboration and consensus of common interests and goals between the sub-sectors and various regions. Following the stakeholder engagement, many industry associations have shared the goals of the Workforce Development group/s within their respective constituencies.

THE STAKEHOLDERS

The initial Workforce Development Committee was composed of industry stakeholders inclusive of employers, industry associations, educators, and representatives from the VEC. Ex-officio representatives of the Ministry of Jobs, Tourism and Skills Training were also included. Committee Members include representatives from various associations and organizations, including the British Columbia Technology Association, the Premier's Technology Council, the HR Tech Group and many others; detailed in the Appendix #1: Tables 4.1 - 4.5. (Detailed in Master Stakeholder Excel Spreadsheet).

5 http://www.vancouvereconomic.com/wp-content/uploads/2015/06/KPMG-Tech-Report-Card-20141.pdf

HOW THE SECTOR WAS ENGAGED:

The VEC made significant efforts to strive for cross-sector and cross-regional outreach, engaging over one hundred stakeholders within the Technology community across the province. Challenges in covering such a large geographic area were combatted by travel to key regions, outside of Vancouver. Significant efforts were undertaken to ensure broad engagement and representation. Where the base of Technology stakeholders was small in areas like Fernie, Rossland and the Kootneys, various conference calls and Skype meetings ensued. One-on-one meetings held by the Project Manager began by utilizing an open-ended launch question, "What is your organization's most significant human capital pain point (what are you hearing from your stakeholders)?'

Key Technology Sector Labour Market Partnership Program Roundtables

Nov 2nd, 2015: Inaugural Launch Meeting held at Dentons in Vancouver
Nov 6th, 2015: Technology Stakeholder Roundtable held at Accelerate Okanagan in Kelowna
Nov 30th, 2015: Second Large Scale Meeting held at Dentons in Vancouver
Dec 9th, 2015: Technology Stakeholder Roundtable held at Viatec: Victoria Industry Association Technology in Victoria
Dec 10th, 2015: Technology Stakeholder Roundtable held at Innovation Island Technology Association in Nanaimo

Chart 4.1 Timeline of Technology Sector Staekholder Engagement Meetings

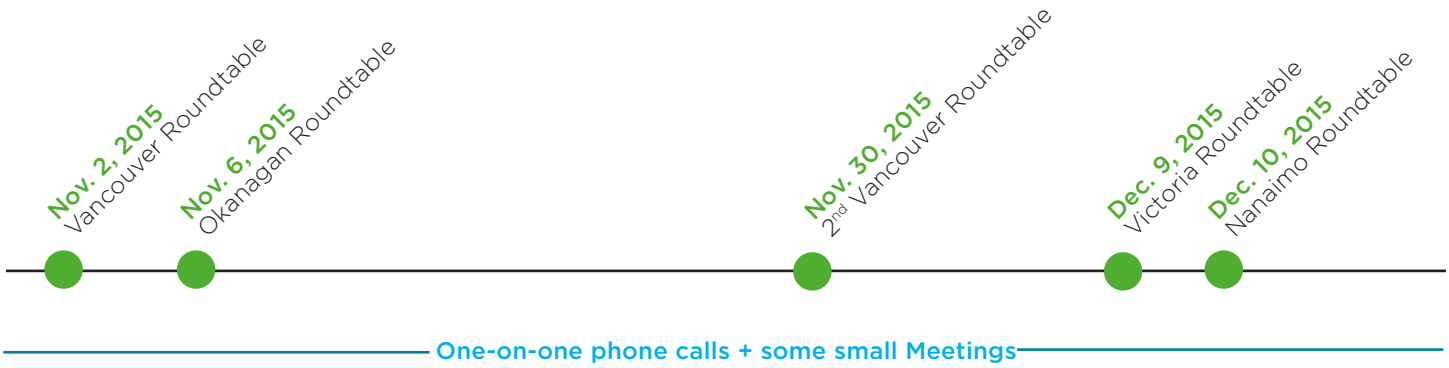


Table 4.1 Target Vs. Devlivered Stakeholders

	TARGET	DELIVERED
Regional & sector-based associations and key stakeholder groups	12	32
Companies & post-secondary institutions	20	96

GOAL #1: Understand Issues and Measure Interest

Understand labour market issues facing the sector. Establish interest in participating on an on-going sector advisory committee and/or workforce development sub-committees."

Deliverable 1: List of Issues - Met

- Extraordinary engagement, alignment and concern from Technology stakeholders to address their human capital pain points
- Remarkable similarities across regions and sub-sectors on the labour force issues identified
- Consistent story identified

Deliverable 2: Level of Commitment - Met

- Five workforce development sub-committees were identified
- Stakeholders committing their time and expertise to develop short, medium and long-term recommendations towards improving the Technology workforce situation
- Interest and commitment in engaging on subsequent LMP Phases such as LMI, Strategy & Implementation confirmed

GOAL #2: Identify Committed Representatives

Engage sub-sector representatives from Clean Technology, ICT & Wireless, Health & Life Sciences, Digital Entertainment & Interactive and Engineering and other services, to obtain their perspective and establish interest in participating."

Deliverable 1: Committee Meeting - Met

- Conduct an inaugural advisory committee meeting with interested stakeholders
- Goal of clarifying Technology sector labour market issues and priorities to be addressed in subsequent phases of the Sector LMP Program
- On Nov 2, 2015 an inaugural advisory committee meeting was launched with 22 Technology participants from across sub-sectors and was held at Dentons in Vancouver
- Several overarching themes were established and later validated with various other regions Stakeholders from across the Province

Deliverable 2: Committee Structure - Met

- On November 30, 32 participants from across the Province participated in a second advisory committee meeting with a goal of validating the findings to date
- Endorse the strategic direction and governance structure by key industry stakeholders moving forward

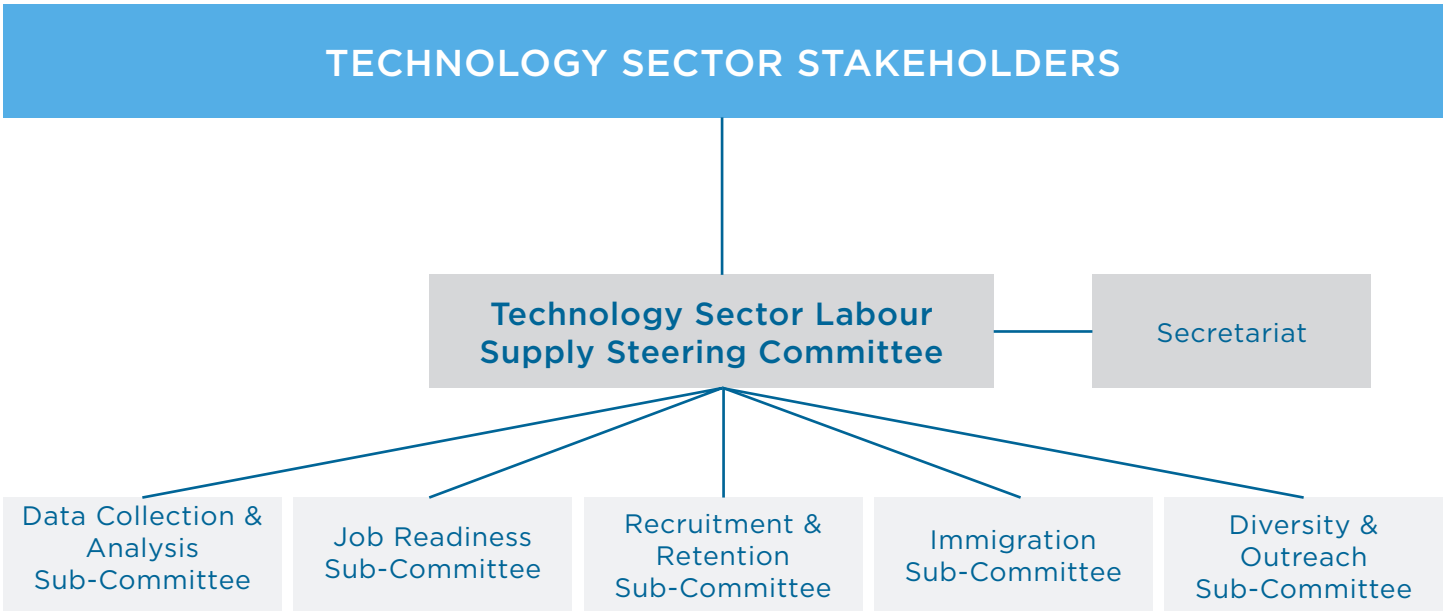
TECHNOLOGY WORKFORCE DEVELOPMENT STRATEGY SUB-COMMITTEES

Throughout Phase One of this LMP, a broad spectrum of HR issues were identified and aggregated in an effort to deal with them as efficiently and effectively as possible. Key labour issues were grouped into overarching themes. These themes included "Job Readiness," "Recruitment and Retention," "Immigration," and "Diversity and Outreach." The Technology Sector felt that the formation of sub-committees devoted to these themes would be the best way to prioritize and deal with key issues. In order to properly address each theme, several workforce development sub-committees have been formed to oversee next steps. A fifth sub-committee, "Data Collection and Analysis/LMI" will be established to collaborate with the other four committees on what data needs to be collected and communicated back to the committees. The "Data Collection and Analysis/LMI" sub-committee will establish key milestones to deliver intelligence to the four other sub-committees. Simultaneously, the Strategy Working Sub-Committees of "Job Readiness," "Recruitment and Retention," "Immigration," and "Diversity and Outreach," will work towards recommendations and strategies for Workforce Development of the Technology Sector. These sub-committees will be formally referred to as "Technology WFD (Workforce Development) Strategy Working Sub-Committees."

To date, the five Working Sub-Committees are:

1. Data Collection and Analysis/LMI
2. Job Readiness
3. Recruitment and Retention
4. Immigration
5. Diversity and Outreach

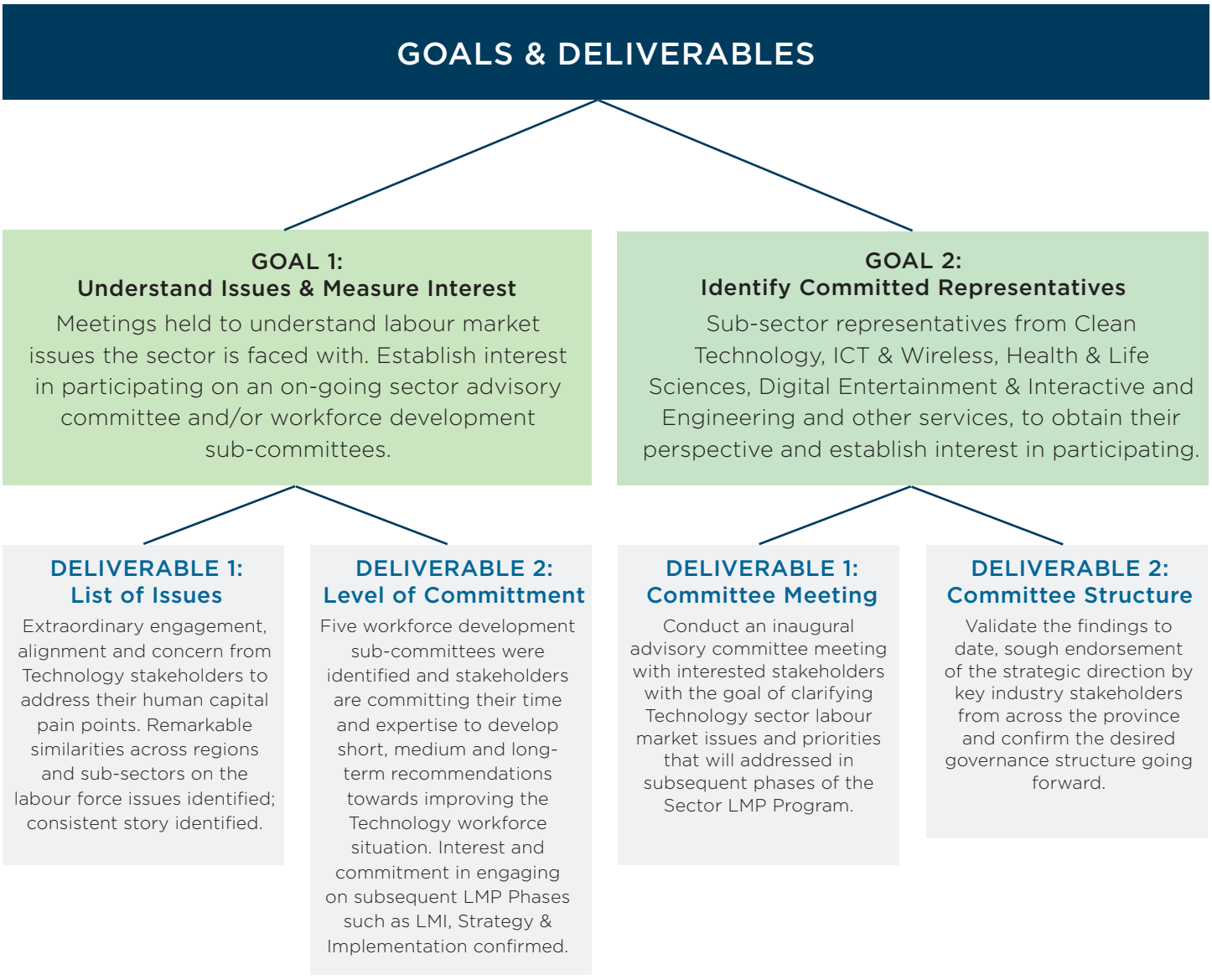
Table 4.1 Technology Sector Labour Supply Steering Committee



It is anticipated, through the subsequent LMP stages, particularly Strategy and Implementation, that positive outcomes related to the attraction, recruitment, retention and development of talent will be established. Examples of outcomes are not limited to and could include: the emergence of a diverse workforce as a result of increased graduation rates from post-secondary institutions, improved access to foreign talent when needed and more women and First Nations people selecting Technology occupations.

A further analysis of the needs, goals, and potential opportunities and obstacles for each sub-committee are defined in the following sections.

Chart 4.1: LMP Goals and Deliverables



DATA COLLECTION AND ANALYSIS/LMI SUB-COMMITTEE

The Data Collection and Analysis/LMI sub-committee fulfills the need to quantify the sector's perceptions on the labour market. "Workforce Planning is a complex process and is inconsistently defined by different stakeholders and groups. In general, "Workforce Planning is the business process of projecting labour supply based on where you are today, capturing labour demand for where you want to go, comparing the two, analyzing the costs, and aligning on the action to take to narrow the gap."[6] To date there have been longstanding difficulties with the statistics collected on the Technology Sector in part due to the pervasiveness of Technology jobs throughout all sectors. There are multiple issues with defining the various sub-sectors; who to include, and the labour issues related to the sheer number of organizations that require Technology workers. The talent pool is impacted by growth of all sectors, which should be a consideration in the measurement process.

The hope is that a dedicated Data Collection and Analysis sub-committee will assist and inform workforce insights and enable data-driven decision-making. It is also important to note the sense of urgency the sector feels to address the concerns as quickly as possible. A number of key stakeholders expressed that a literature review of existing data and regional, national and international best practices might inform the recommendations of the sub-committees. The goal of the Technology sector is to not delay the strategy and implementation that needs to take place to improve the labour issues identified. Stakeholders acknowledged the value of primary data, however there was an overarching feeling that the Technology stakeholders across the province are suffering from several systemic talent issues and there is a need to course-correct as quickly as possible. It was noted by several employers that it would take years to see the impact of policy changes on curriculum development in K-12, for example. Access to workforce planning data will also prove valuable for measuring the results of future initiatives during the Implementation Phase of LMP.

GOALS FOR DATA COLLECTION AND ANALYSIS:

The Data Collection and Analysis/LMI sub-committee's core goal is to conduct a comprehensive analysis of the B.C. industry's current and projected workforce demands including identifying specific current and anticipated skill gaps. Where possible, this committee will identify root causes of workforce supply shortages and strive to quantify the opportunity costs associated with failing to meet the workforce needs of the sector.

The Data Collection and Analysis/LMI sub-committee will also play a key role in supporting the other sub-committees by providing access to valuable quantitative data to better inform decisions and recommendations.

6 http://www.visier.com/workforce-intelligence-101/workforce-planning-101-infographic/

OPPORTUNITIES AND CHALLENGES FOR DATA COLLECTION AND ANALYSIS

Strategic workforce planning will be particularly complicated for Technology. Forecasting jobs that do not exist today is problematic. Employers reported that forecasting their labour demands are in part dependent on having the talent (particularly key, specialized and/or senior talent) available to accelerate growth. Key personnel create jobs, teams and projects within Technology companies. This is further complicated by the ongoing and continuous evolution of technologies, at a pace never seen before in history. When we consider long-term business objectives, there is not necessarily a ceiling for some employers, should the talent be available. In fact, some employers have stated that talent acquisition is their single biggest barrier in the creation of additional jobs and meeting their long-term business objectives.

Naming conventions for occupations within Technology is an issue that will need to be overcome. In sectors such as retail or food services, the naming conventions are straightforward. Everyone understands what a Cashier or a Short Order Cook is. The naming conventions within the various sub-sectors of Technology are problematic and will require significant mapping, to the existing National Occupation Classification (NOC) system. Some stakeholders, experienced on the use of NOCs, stated that it is impossible for the NOC system to keep pace with Technology and NOCs cannot be relied upon to derive meaningful data on which to build policy. For example, an employee might be called a Software Engineer, Programmer, Software Developer, Developer, or many other names depending on the employer, the size of the organization or the sub-sector. This is further compounded by the fact that smaller Technology employers often require employees to wear many hats and do many different jobs simultaneously.

According to Visier, "HR leaders say that workforce planning is one of their highest priorities, yet one of their weakest abilities: 62% are still using manually produced spreadsheets despite facing dynamic, complicated planning problems" (Zincarini, 2015). Some sub-sectors are largely project based making it difficult to gather and compare data as there is continuous ramp-up and ramp-down flow based on project needs. Additional difficulties that may emerge when collecting data include the fact that workforces have become more complex with global competition for talent worldwide; contingent workers may account for a significant percentage of the workforce and; demographics and estimates on immigration, migration and retirement will also be influencers.

In measuring supply and demand, additional consideration may include consultation with the provincial private and public post secondary institutions to determine data on the number of students graduating and the types of skills being developed. This also should include data related to the retention of students in the B.C. marketplace, inclusive of loss of new graduates and international students not eligible for work permits.

Linking back to the Job Readiness Sub-Committee, the Data Collection and Analysis/LMI sub-committee should look to confirm perceptions and identify root causes, as to why Eastern Canada and the US are producing higher skilled graduates with more hands-on practical training experience. According to BCTIA's 2014 "Growing the Tech Sector – A Four Point Plan," "in B.C., cooperative education is an underutilized tool as many small companies find the cost to recruit, train and support co-op placements to be prohibitive. Although B.C. already offers co-op programs across 23 post-secondary institutions with over 10,000 co-op placements annually, the University of Waterloo alone reports over 16,000 co-op placements annually. Many provinces across Canada have supported the growth of co-op placements through tax credit programs to encourage small businesses to participate."[7]

At a recent roundtable with Canada's Minister of Finance, a senior local Technology stakeholder shared his astonishment that UBC had only two tenured professors for Software Engineering (SE), and the university was trying to raise funds privately to bring on an additional faculty member. Meanwhile, at the University of Waterloo there are nine tenured professors for the same program. Designing appropriate undergraduate curriculum and keeping up with the pace of the changing sector requires additional resources.

Employer data on who is attracted, assessed, selected and hired may prove valuable as it pertains to several sub-committees, such as Job Readiness and Diversity and Outreach. Gathering and aggregating employer data on the percentage of international vs. domestic workers hired in which sub-sectors, may reveal where critical skills gap lie. It may be valuable to look at additional linkage to those organizations' revenues, training and development of internal staff and retention rates. Establishing best practices in total rewards, inclusive of compensation structure, benefits, recognition, tangible rewards and time off provisions, for example, may also have a place within the Workforce Development Strategy.

THE FOUR ADDITIONAL, TECHNOLOGY WORKFORCE DEVELOPMENT STRATEGY WORKING SUB-COMMITTEES:

Job Readiness, Recruitment and Retention, Immigration, and Diversity sub-committees will begin the plan for immediate and long-term workforce needs through strategic recommendations. It is important to note that industry has strong feelings on addressing the issues identified. In some cases long-term strategies will take years to impact businesses. It is recommended that the work of these four Technology Workforce Development Strategy Working Sub-Committees be linked to, but not delayed by the work of the Data Collection and Analysis/LMI sub-committee and associated efforts. In order to set the stage for Strategy several recommendations include: a literature review of existing recommendations, consultation with the provincial and federal government on what data is needed in order to amend policy and an examination of regional, national and international best practices. These activities could set the stage for the LMP Strategy stage, so the Technology Sector can move to implementation as soon as possible.

7 http://www.bctia.org/Resources/Library/BCTIA-Publications/Industry-Reports/4-Point-Plan

Job Readiness Sub-Committee

The engagement revealed an overarching concern surrounding training and education, with the majority of stakeholders suggesting that B.C educational institutions need to keep pace with industry needs. The Job Readiness Sub-Committee will address the need to explore the perceived lack of hands-on practical training experiences through partnerships between educators and employers. One major employer said that they need workers who can "hack their way to solutions," and another said they are less interested in what theory they have learned and more interested in what (software solutions) they can build. Senior Technology stakeholders reported the need for new grads to be capable of learning on the job, collaborating, building and iterating on ideas through brainstorming, debating, designing, coding, debugging and optimizing, for example.

The vast majority of regions and employers reported that there is currently an insufficient number of qualified graduates. Particular sub-sectors within Technology reported significant challenges. For example, programs within the DE&I subsector can be quite short and graduates do not meet the requirements or have the technical skills required by many major facilities. Some studios have implemented million dollar in-house training programs to accommodate for the lack of skills, in turn creating significant economic opportunity. All employers have an appetite for employees with practical work experience but outside of traditional education, employers have differing levels of capacity to develop in-house training programs to deal with this issue. There is opportunity for improved communication between industry and education, as well as enhancing and developing new education and training programs. Employers may be more readily in a position to offer real-life, practical experience if they have improved assistance and partnership from education and government.

Goals of Job Readiness Sub-Committee

The Job Readiness Subcommittee will develop strategies to align public and private sector education and training to ensure that students are 'job ready' when they graduate. This sub-committee will strive to identify and implement ways to improve access to programs that enable British Columbians to fill the need for skilled Technology workers in B.C. This Job Readiness Sub-committee will collaborate with the Immigration Sub-Committee as it pertains to Post-Graduate Work Permits (PGWP) to better retain the talent that has been trained within the province.

Opportunities & Challenges for Job Readiness Sub-Committee

Technology Stakeholders identified a series of recommendations to address concerns at the educational level, both within the educational institutions and the community. One area for opportunity is to invest in Computer Science (CS) training for K-12 teachers, both

existing teachers and teachers currently going through their B/M.Ed training. Another key suggestion is to align incentives for secondary to post-secondary CS through recognition of CS/ICT 12 to count for post-secondary admissions. Currently, CS is not recognized as a trade nor as a science, by The Industry Training Authority (ITA). Stakeholders expressed concern that Technology is also somewhat lost in the educational classification system, and it is unclear which departments should invest in CS. Within B.C.'s education system, Technology based electives are currently considered "Applied Skills Design Technology."?

Partnering with the Data Collection and Analysis/LMI Sub-Committee, the Job Readiness Sub-Committee will examine and consider international best practices and close to home successes. For example, in Alberta, universities recognize CS as a Science or Math equivalent. The net impact has been three fold increase of CS admissions at the high school level . B.C.-based industry advocates have suggested that the British Columbia Teacher's Federation's (BCTF) Computer Using Educators of British Columbia (CUEB.C.) adopt a similar model to Alberta and BC Council for Exceptional Children (B.C.CEC, a post secondary CS articulation committee) may be well positioned to engage on this potential solution.

Another topic for consideration is curriculum development in response to the increasingly fast evolution of technical job requirements. This includes adapting educational resources such as textbooks to digital needs and including entrepreneurship and start-ups within the current educational framework. Little curriculum exists in support of how to start your own business and partnership opportunities are ripe between the Technology sector and educators. Opportunities to engage youth early can be implemented through internships, cooperative education, and practical experience during high school and post-secondary stages of education. Support for programs, like Launch Academy has led to helping over 250 early-stage startups launch their business since 2012. To date, Launch Academy companies have collectively raised over $57 million in funding and created more than 635 jobs for the economy. "For every $1 spent, Launch Academy has returned $61 in GDP for the economy, making it one of the most cost-efficient Technology hubs in the country.[8]

This year, the Hour of Code[9], the largest youth coding event in BC benefits well over 400 high-school students in Vancouver, Victoria, Kelowna and Prince George. "Of the 124,734 Hour of Code events around the world, 3,876 of those will be in Canada, 563 will be in B.C."[10]

There is a significant opportunity to build upon community involvement with successful CS activities such as coding programs and campaigns like the Hour of Code by scaling and dispersing activities throughout the rest of B.C.. Similarly, educating the general public needs significant promotion to raise awareness about the vast diversity of ample jobs, career paths, and the excellent pay available with Technology careers. Parents, teachers and students need to understand what kinds of positions are available, what skills are

8 http://www.launchacademy.ca/blog/2015/11/24/launch-academy-companies-raise-over-57m-in-funding-over-last-three-years

9 https://hourofcode.com/ca

10 https://news.gov.bc.ca/releases/2015EDUC0079-002027

required, where the growth is anticipated and what the salary projections look like with experience gained. The Job Readiness and Recruitment and Retentions Sub-Committees can collaborate together on this goal.

RECRUITMENT AND RETENTION SUB-COMMITTEE

Similarly to the Job Readiness theme, it has been conveyed by multiple stakeholders that there are an insufficient number of workers with the right kinds of skills currently available in the market and that access to available Technology talent is only going to get worse. The hope is to increase the quantity of Technology workers through attraction, recruitment and retention of the best quality talent possible. This benefits the domestic labour force through exposure to exceptional co-workers, training and development through informal mentorship and also positions companies to improve their productivity and innovation possibilities.

Goals of Recruitment and Retention

The goals of the Recruitment and Retention Sub-Committee will include working to improve the sector's ability to secure a high volume of the right kind of Technology workers. In addition, there is a particular need for highly experienced / top-level workers. Developing and promoting a consistent 'brand' for the BC Technology sector locally, domestically, and abroad will be a key goal that might be addressed through marketing and public relations based activities.

It is anticipated that the Recruitment and Retention sub-committee will work closely with the other working sub-committees to strategize securing talent domestically and abroad. This sub-committee will also work to encourage the repatriation of skilled Canadian workers currently working outside the country and work towards strategies to entice post-graduates to live and work in their respective regions despite higher wages being offered elsewhere.

Opportunities & Challenges for Recruitment & Retention

As with the Job Readiness Sub-Committee several current and forecasted challenges exist with respect to talent. An insufficient number of workers with the right kind of skills make it extremely difficult to fill roles, particularly Technology specialists, executives and marketing & business leaders.

In order to attract more people into the Technology sector increased efforts need to be made to promote and brand Technology careers, to improve understanding of career paths and to enable progressive career development. Some sub-sectors cite the lack of formal career paths, and other career planning tools and resources (succession plans, development plans, transfer of knowledge) are due to a limited capacity and presence of senior talent available to devote to the development of these activities.

Retention of new graduates and international students is also of concern when combined with the issues surrounding Job Readiness. Exceptional juniors who have cooperative education and internship experience and who are job ready have many options. If junior level talent is seen by industry as not being "job ready" the opportunities to stay and work in B.C., building a progressive career become challenging. Providing internships and training will allow the next generation of the Technology workforce to stay within the province to develop their skills and in turn secures a more qualified workforce within B.C. for the future. A policy consideration to retain talent could include funding STEM education; if the talent stays, works and contributes to the Provincial economy. Employers do retention agreements when relocating talent and / or funding MBAs for example. Government could consider a similar retention strategy.

An opportunity cited by the BCTIA in their four-point Talent Plan includes the expansion of the BC Training Tax Credit program. Currently the program is not inclusive of Co-operative Education and Internships; these placements provide necessary incentives to small Technology companies. Providing development and training funding pots – such as IRC's IRAP and other subsidy programs is a possible solution for bridging the resource gap, along with offering more required technical training courses to fill the current skills gap.

IMMIGRATION SUB-COMMITTEE

The VEC has advocated on behalf of a growing number of employers to change the immigration policy. There is a general feeling from the industry that immigration policy is not meeting the needs across sub-sectors of Technology, impeding economic growth and talent development. Many employers report that specialized, skilled workers and senior talent are often prerequisites to economic development. Securing new business, projects, product lines, services and ultimately the ability to launch additional teams and hire more Canadians are directly linked to access to the right talent. Foreign workers offer international experience that can assist domestic, local workers in accelerating and growing their own skill sets and careers. To this end, immigration ultimately serves as a "job creator." Currently, the policy and system does not complement the needs of the Technology industry, and stakeholders across sub-sectors voiced concerns on the perceived threat to their business as a result of limiting timely foreign worker access.

Industry stakeholders assert that recruitment takes significant time and resources to do well. International recruitment is costly and necessitates significant effort to find the right candidate. Once found, there is a time sensitivity in brining key personnel to Canada. There is a strong sense that employers should be trusted to choose the most appropriate candidate with the required skillset, for their business. The hope is that the issues the industry has identified will be considered with recommendations to both operations and policy divisions of Employment and Social Development Canada (ESDC). The Immigration sub-committee intends to extend invitations to hear feedback from the sector and from Service Canada and Immigration, Refugee & Citizenship Canada (IRCC).

Goals of Immigration Sub-Committee

The Immigration Sub-Committee's goal is to improve access to skilled international workers to complement the maximum use of domestic sources. The sub-committee will pursue recommended strategies to expedite immigration processes for qualified applicants, and advocate for the removal of policy barriers to both permanent and temporary immigration pathways that fit the business needs of the sector.

Opportunities and Challenges for Immigration Sub-Committee

Several areas of immigration present challenges for the Immigration Sub-Committee: the NOC system of classifying workers, significant requirements and criteria, slow and complicated processes, tight restrictions on work permit durations, and in general an immigration system, that does not support fully the needs of educational institutions and employers.

B.C. employers have voiced concerns on categorization of specific NOCs where government can interpret a candidate's NOC differently than an employer. Recently, an employer shared that they lost a foreign candidate, due to the difference of interpretation of the NOC by Service Canada during the LMIA process, despite lengthy conversations, documentation and explanations.

The NOC system is particularly problematic for the Technology sector in the face of the fast evolution of Technology. Often employers are forced to categorize their workers into a code system that does not accurately portray the work that the employee is doing, due to the lack of suitable alternative. "Fur cutter" for example is the most appropriate NOC for apparel designers and some employees working within Life Sciences. On occasion occupations that are not typically classified as Technology but critical to the business may also be required; for example BC Life Sciences reported that one local company required tailors, recruited from Europe, to do fine hand stitching for a medical device. A competency-based approach or hierarchies/families of NOCs may be more appropriate for the Technology sector, with consideration for the differences between specialists and generalists, both valuable skillsets depending on the nature of the business. Through subsequent stages of the LMP it may be possible for BC Technology Stakeholders to partner with the Federal government to consult on the NOC system. As it currently stands, the NOCs are causing tremendous issues, as a great deal of existing data and policy is built upon them; this impacts immigration and education curriculum development, for example.

With respect to the process of obtaining work permits, there is overwhelming negative feedback on the immigration process for TFWs and LMIAs. Employers face uncertainty and an inability to plan because of the LMIA's tedious process and lack of timeliness. These hurdles combined with the shared industry experiences of dealing with lengthy audits (one

of every four employers), has resulted in employers avoiding the LMIA process altogether. Technology workers pay a higher tax rate than minimum wage earners and their wages are more likely to stay and be re-invested into the local economy, as opposed to the wages of low-skilled workers.[11]

Another concern among some employers is that Cumulative Duration is an immediate and compelling retention problem. Under Cumulative Duration, a work permit cannot be issued when the individual has worked in Canada for one or more periods totalling four years. This four-year limit to the TFW program is negatively impacting retention of talent. The latest wave of significant growth in the DE&I sub-sector began four to five years ago and workers originally brought into B.C. through the TFW program are now reaching their work term limits. Requiring these people to leave the country, risks reputation damage to Canada, and to industry employers who cannot meet contract deadlines and quality standards because of the loss of experienced talent. Compounding these concerns is the fact that renewing a work permit can take 115+ days, creating lengthy delays and uncertainty for employers, the employee, and his/her family. The human experience impact is significant, especially when talent is mobile and other talent-competing countries offer seamless systems. For example, local multi-nationals have compared their experiences to Singapore, where the employer and the incoming employee receive a text message that their application has been approved within 24 hours.

Difficulties with permanent immigration pathways for Technology workers related to both Express Entry and PNP exist. Express Entry is a valuable tool that long term workers use to pursue permanent residency status. Within DE&I, particularly for VFX and Animation studios, the industry works almost exclusively on contracts as opposed to permanent employment and as such contract positions, such as “Digital Artists,” are often not selected, as they do not earn enough points to be “invited” to Express Entry. The subsector of DE&I is further impacted by PNP’s eligibility criteria related to permanent job offers. As well, general Technology sector feedback demonstrated concerns regarding timeliness and that the number of permanent residency approvals under PNP are limited. There is understanding from the sector that the cap is negotiated with the Federal Government, but there is a clear overwhelming need for a high volume of expedited Technology designated nominations for the sector, based on the current labour market conditions.

Each year, B.C education institutions train high volumes of international students that could be employed by the industry. However, immigration policy related to post-graduates is also currently problematic for employers. Industry would welcome the re-introduction of the pilot program that allowed international students to work in B.C. following graduation. Improving the original pilot program to include an expanded list of eligible schools and a longer work permit duration (ideally 3 years) is desired by employers. Current non-Canadian graduates require work permit sponsorship (LMIA) either as soon as they graduate or at the end of their post study work permit period, and where this duration is 12 months or

11 http://www.vancouversun.com/business/Remittances+billion+year+sent+home+from+Canada/10080290/story.html

less they are unable to match the current minimum qualifying salary for their occupations. Graduates would require at least 2+ years of post-graduate experience to reach minimum required salaries for work permits. These immigration issues are also related to the issues of Job Readiness Sub-Committee.

One local DE&I employer has invested millions into their own on-site training program / academy designed as a "finishing schools" for graduates in Canada who are not production ready at the end of their studies. Working with education establishments on helping to improve courses to be more relevant for the industry is underway, however the largest hurdle in improving quality of graduates is the short duration of the programs offered. One studio has reported difficulties filling the spots for fully paid internships; targeting 200 per year. Since a large percentage of students graduating from the other schools (Vancouver Film School, Van Arts, Lost Boys) are International, the studio is only able to consider these students for positions outside of the province of B.C. According to this multi-national studio's estimates, they believe that only about 30% of all graduates from B.C. VFX relevant educational establishments are Canadian Nationals.

There are qualifying rate of pay issues to obtain a LMIA, with employers expressing concerns over the escalation of wages, particularly for new graduates, who are often not entirely Job Ready.

Qualifying rate of pay for work permits as dictated by Service Canada:

- Vancouver qualifying rate for work permits: approximately:
  $22-25 CAD per hour ($52,000 CAD annually)

Two tier-rates of pay available so employers can employ juniors:

- Montreal graduate qualifying rate for work permits (less than 1 year experience):
  $16 CAD per hour ($33,280 CAD annually)

- Montreal qualifying rate for work permits (more than 1 year experience):
  $20.09 CAD per hour ($41,800 CAD annually)

In order for a Graduate to gain the required amount of experience to attain a salary level of $55,000 CAN per annum it would take approximately 2+ years, therefore International students who Graduate from a recognized University would be permitted to work under their Post Study Permit for at least this amount of time, and afterwards studios in a position to, would be able to provide them with Sponsorship.

It should be noted that the brain drain of Canadian talent to the United States will always be an issue. Given the global mobility of Technology talent coupled with the sheer ten-fold size of the United States economy and population, the loss of some talent based on the

marketplace must be expected. In light of this fact Canada must reform and improve policy in order to be competitive and retain talent.

Opportunities to engage the PNP, Service Canada, Citizenship and Immigration Canada and ESDC on both the policy and operations side may prove valuable in the production of short, medium and long term recommendations to address the challenges the Technology sector is experiencing.

DIVERSITY & OUTREACH SUB-COMMITTEE

There is a significant desire from the Technology sector to increase the diversity and sheer number of people choosing Technology as a career. Over the course of this Stakeholder Engagement phase it was noted by multiple sources that systematic support of women, First Nations, youth and others is necessary to support Technology Workforce Development.

Goals of Diversity and Outreach Sub-Committee

Several goals of the Diversity and Outreach Sub-Committee have been established. The Sub-Committee will aim to develop strategies and recommendations to increase the number of British Columbians choosing to pursue training and education for Technology occupations. There have been some preliminary efforts made to educate parents, educators and students on opportunities in the Technology sector and the hope is this work will be expanded upon and scaled across the province. In particular the need to appropriately brand "Technology" careers, workers and improve perceptions while simultaneously removing barriers on what it means to work in Technology will need to be addressed. Of particular interest is to work towards increasing the number of women entering and staying in Technology occupations in B.C.

Challenges and Opportunities for Diversity & Outreach Sub-Committee

It was noted that there is a unique opportunity for Technology employers to attract and retain youth, women, First Nations and other underrepresented populations. Several stakeholders commented that the sector is missing half of the potential labour pool by not encouraging girls and women to go into STEM careers. In some regions, such as Nanaimo, it was mentioned that investing and partnering with First Nations is of critical importance as this segment of the population may be more likely to stay in regions that may otherwise lose talent to other areas of the province.

Connectivity was also raised and may serve as an important and legitimate labour issue to address. Some regions of B.C suffer from a lack of connectivity, which translates to an inability for students to be trained adequately on Technology due to lack of access. The First Nations Technology Council suggests that approximately 80% of First Nation territories are not sufficiently connected.

There are various concerns for these communities. The vast majority have connectivity but there are issues with the current definition of high-speed (5mbps) and speed and functionality when shared. Compounding these issues are the operating costs, whereby even with a fibre connection, individuals and even sometimes the community cannot afford the cost. There are no dollars for operating or hardware. The First Nations Council expressed that it not only about connectivity in terms of running lines, but "resourcing comprehensive tech ecosystems in communities that are sustainable."

ENVIRONMENTAL INFLUENCES: OUT OF SCOPE ISSUES IDENTIFIED

An issue raised in the context of Recruitment & Retention, is the general affordability and cost of living across the province, particularly for Vancouverites. In particular, comparatively high costs associated with home ownership was an obstacle voiced by numerous Stakeholders. Senior talent are more likely to be older, have families and have an expectation that they should be able to purchase a home. Even with a six-figure salary it is often impossible to afford a home with prices continuing to escalate.

The exchange rate is another financial influencer that may impede efforts to attract TFWs and repatriate Canadians living in the United States. Canadians who are working in the United States will note cost of living issues, lower taxation south of the border, relatively lower wages available in the province compared to other regions and a potential thirty percent or more salary increase when considering the exchange rate.

NOTABLE REGIONAL FINDINGS

The labour issues that stakeholders identified were similar across the province. In Victoria, it was noted by the start-up community that significant efforts were undertaken to partner with UVIC, as an example. It was noted that engaging specific professors and instructors and building relationships require a great deal of time and effort. One stakeholder said, "Initially, we couldn't even get a parking spot or have it covered (paid for) by the university when we were presenting to students." There are opportunities for employers to come forward and educational institutions to provide support for marketing Technology and start-ups.

During the roundtable in Nanaimo, it was noted that former senior Technology workers could be engaged as mentors to entrepreneurs. This sizable population of knowledgeable Technology retirees could be engaged to assist the ecosystem locally.

More rural communities expressed concerns that their region is experiencing talent loss, with students and small organizations getting started but then moving to the mainland or other regions for a variety of reasons including access to markets, infrastructure and talent.

In addition, Okanagan-based Technology stakeholders suggested branding their region in order for Technology employers to not be required to have lengthy conversations on where their companies are located when attempting to attract talent from abroad. One DE&I CEO said that before international travel, he spends time researching the geography of various countries to find equivalently sized and/or distance from major metropolitan cities, in order to describe the location of Kelowna. Finally, it was noted that there are a significant number of entrepreneurs and people who are self-employed which will prove difficult to quantify in the Okanagan region. This will be a unique challenge to obtaining a baseline of Technology workers across the province.

All regions noted that recruitment and retention of a critical talent mass is key for the survival of Technology businesses. In order to attract senior talent, particularly to less urban areas, a vibrant thriving ecosystem is required. When considering relocation, experienced candidates assess opportunities and are more likely to accept a position if there are similar types of jobs, at similar types of companies available in the region. A healthy ratio of competitors is essential for a healthy ecosystem or hub. The presence of critical mass is an essential optic relocating talent takes into consideration when assessing job opportunities.

GOVERNMENT AND THE TECHNOLOGY SECTOR

Soon after the Stakeholder Engagement phase, the "#BCTECH Strategy 2016" was unveiled. It is clear that recognition and associated efforts to support the Technology sector are underway. The introductory Message from the Premier states, "The Technology sector has become a major engine of economic growth in British Columbia." Stakeholders found these recent announcements on Capital and Talent to be encouraging. Further, broad scale collaboration from the Ministry on how government can support and enable the Technology sector's economic growth and job creation will be most welcome by Technology stakeholders across the province.

Stakeholders within Technology voiced concerns at a recent Federal Budget roundtable with the BC Minister of Finance, on the erosions of government spending on STEM. One CEO from a large B.C. Technology company expressed frustration at B.C.'s funding levels, particularly when compared to the funds invested in the resource sector and other provinces investments in Technology. For example, the British Columbia Innovation Council (BCIC) has similar funding to a Nova Scotia equivalent organization, however Nova Scotia has only twenty percent of B.C.'s population, and Ontario's equivalent has a budget seven times the budget of BCIC and Alberta's equivalent has a budget fourteen times the budget of BCIC.

5. GOVERNANCE MODEL AND STRUCTURE

A consensus and direction emerged to forge ahead with an implementation strategy to combat the human capital and labour market challenges of the Technology sector. The industry is eager to create detailed action plans and performance targets, towards improving the labour market and associated access to talent. Efforts to move as quickly as possible towards a Sector LMP Implementation stage may be a key driver in ensuring the long-term viability and competitiveness of the sector. Many employers, industry associations and some educators feel that we are in a talent crisis and that action needs to be taken as soon as possible.

There is acknowledgement that data is an important consideration to policy makers but stakeholders communicated that they are concerned that this process will take time and that implementation of an industry driven strategy may then be jeopardized due to time sensitivity. Stakeholders expressed feelings of being skeptical of efforts due to previous well-intended promises that were not delivered.

Partnership and support of government has been deemed by Technology Stakeholders as a critical factor in improving the economic growth of the sector. Throughout this Stakeholder Engagement there was a high degree of interest and commitment expressed in participating in recommendations and activities towards the improvement of talent related policies, programs, and initiatives. Identifying opportunities for quick wins for the sector will assist with buy-in and ongoing investment of time and expertise towards the development of a strategy with recommendations. Ongoing progress must be tracked and reported back to industry. Tangible industry commitment is present, but the sustainability of key stakeholders on the issues identified will require resource planning and potential funding.

This LMP provides a unique opportunity for a cross-sector employers forum where dialogue on best practices and successful strategies to recruit, retain and develop high potential talent can be shared.

In addition, there are two potential themes that emerged for future consideration regarding the Job Readiness and Recruitment and Retention Working Sub-Committees. One, is the potential to include a focus on Start-ups / Entrepreneurship. Or alternatively, create a sixth sub-committee devoted to this subject matter. The other is to break the Job Readiness sub-committee down into smaller working groups or strike teams. This section encompasses a great deal including curriculum development and the quantity of students, courses, programs, instructors and teachers required to enhance the labour pool. Possible areas of focus include: K-12 Curriculum Development, Private and Post Secondary Education, and Training (both specific skill training programs and real-life practicums / internships).

OUTLOOK: LEADERSHIP AND GOVERNANCE STRUCTURE FOR SUBSEQUENT LMI AND LMP PHASES

The VEC has strived to collaborate with multiple stakeholders to ensure the support of growth and development of Technology ecosystems across the province. Based on the mobility of knowledge-based sector talent, the VEC sees talent as an international, national, provincial and regional issue and in order to make traction on policy it is best to take a broad lens to the issue. Moving forwards, the hope is that ongoing collaboration between industry sub-sectors, the many industry associations, employers, educators and supportive services for Technology will lead to a sharing of best practices.

The VEC is well positioned to continue to support subsequent LMP Stages. One of the five sub-committees will consult and coordinate efforts on Data Collection and Analysis with the other four. The sub-committees are positioned to dive into Phase Three, Strategy. There is significant work ahead in order to map key milestones and deliverables between upcoming LMI and Strategy Phases. A literature review is recommended, in order to leverage the existing data and associated recommendations previously created. A unique challenge is that many "internal" reports have been created by various organizations, but are not publically available. Several Technology Stakeholders voiced concerns in having participated and shared data, but that the results of these studies have not been made public. Confidentiality limitations may be an inherent barrier, limiting the ability to share this data, which perpetuates the issues of various sub-sectors and various associations working in silos. Requests for executive summaries and key data will need to be made from partner organizations.

The LMP Program has agreed to consider running concurrently both Phase Two LMI and Phase Three Strategy LMP, in order to maintain momentum and for the industry to see progress on the issues they have identified. The BC Technology Industry Association (BCTIA) will lead Phase Two LMI, in collaboration with the VEC, BC Innovation Council, Information and Communications Technology Council (ICTC) and BCjobs. Consultation with the sub-committees is planned. The VEC will submit…. The VEC will submit a Phase 3 application, focused on an industry-driven strategy to address talent issues identified through Phase One, Stakeholder Engagement.

In the long term, in order for the sector to collectively make progress on these issues, sustainable financial support from government will be required. Viability of future Technology LMP projects would benefit greatly from specific assistance in organizing efforts through a Project Manager. Due to the size, scope and expansive geographical reach of the Technology stakeholder group, additional efforts to engage a variety of critical stakeholders will be key. Gaining senior Technology stakeholders' commitment to share their time and expertise to the various strategy sub-committees will require efforts. Governance has been established and working groups are being formed.

6. CONCLUSION

The opportunity for economic benefit from B.C.'s Technology Sector cannot be overstated. According to the KPMG Tech Report Card 2014, the sector is worth in excess of $23 billion to the provincial economy. The Sector Labour Markets Partnership Program can be a mechanism for collective action, for the industry to influence the human resources strategy moving forward.

Various sub-sectors of Technology are ripe to become worldwide leaders. For example, the CleanTech industry in Canada is worth in excess of $12 billion, with one-fifth of all companies located in Vancouver, it has quickly become known worldwide as a major CleanTech hub.[12] Vancouver is also one of the major centres of Digital Entertainment & Interactive in the world, with the largest cluster of the world's top VFX and Animation studios.[13] As one senior stakeholder put it: "We are disrupters; we can reverse course and solve this (talent issues)." An Executive Director of a Technology Association said, "I equate the tech talent issues to the industrial revolution." An opportunity exists to transform the landscape. It is not a question of just "the right amount of people" but the opportunity for innovation, growth and economic benefit for the province. With the volume and right kind of talent, the opportunity is limitless. One Senior Stakeholder said, "it's time to be bold; it's time to invest. Why wouldn't we double the number of graduates coming out of our schools?" Industry stakeholders truly believe that B.C. could be well positioned to be a key global destination for the Technology sector and innovation.

Moving forward in subsequent stages of this project, engaged Technology stakeholders will tackle the issues they have identified, particularly in the sector's ability to attract, recruit, retain and develop diverse talent; utilizing domestic workers and complementing the workforce with migration and immigration through marketing and branding initiatives.

13 http://www.analytica-advisors.com/sites/default/files/Stand%20alone%20ES.pdf

14 http://www.vancouvereconomic.com/focus/digital-entertainment-interactive/

7. APPENDIX

1. Master Stakeholder Excel
2. Terms of Reference
3. Roundtable Stakeholders
4. Cites and Reference
5. Other Links of Interest

APPENDIX #1: MASTER STAKEHOLDER EXCEL

1.1 Vancouver
1.2 Okanagan
1.3 Nanaimo
1.4 Northern BC
1.5 Victoria
1.6 Education
1.7 Late Comers
1.8 Chairs
1.9 Stakeholders Committed to a Sub-Committee

APPENDIX #2. TERMS OF REFERENCE

TECHNOLOGY SECTOR LABOUR SUPPLY WORKING GROUP

1. MANDATE

The purpose of the Technology Sector Labour Supply Working Group (the "Working Group") is to develop an evidence-based understanding of the workforce challenges facing the Technology industry in British Columbia including the root causes of labour supply gaps, to develop strategies to address these challenges, to gain broad-based support for the strategies and to successfully implement solutions that meet the labour supply needs of the sector.

In carrying out its mandate, the Working Group will engage relevant public- and private-sector organizations to identify interdependencies, build consensus and coordinate implementation efforts.

2. BACKGROUND

The Technology industry is an important component of the British Columbia economy. In 2013 B.C.'s Technology companies combined to generate $23.3 billion in revenue and the sector contributed $13.9 billion to B.C.'s GDP. The sector also employs over 86,000 people with wages that are 60% higher than B.C.'s industrial average.[1]

The high earning potential of tech jobs leads to the creation of up to 5 more jobs per 1 tech job in the province.

The tech sector in B.C. is growing rapidly. In 2013 it saw 4.7% growth[2]—considerably higher than the 3.2% growth in the overall provincial economy. And, new Technology companies are emerging all the time—700 in 2014 alone

The net effect of the tech sector's tremendous success and growth is a large and growing demand for skilled labour. The current labour supply in B.C. is not adequate to meet this demand. Without a focused strategy that maximizes B.C.'s available workforce and attracts skilled workers from around the world, the Technology sector in B.C. is at risk of losing investment and growth opportunities.

1 BC Stats, Profile of the British Columbia High Technology Sector, 2014 Edition (June 2015), pg. 4

2 BC Stats, Profile of the British Columbia High Technology Sector, 2014 Edition (June 2015), pg. 4

3. SCOPE

The scope of the Working Group's activities is to address the issues leading to workforce supply gaps in the B.C. Technology sector. This includes data, analysis; branding; outreach; diversity; education (K-12 and post-secondary); training; attraction, recruitment, retention of human capital; and immigration.

4. COMPOSITION AND OPERATIONS

A. The Working Group shall include, but not be limited to, employers, educators and representatives from the following organizations:

i) Vancouver Economic Commission
ii) BC Technology Industry Association (BCTIA)
iii) HR Tech Group
iv) Accelerate Okanagan
v) Viatec
vi) Innovation Island Technology Association
vii) BC Innovation Council
viii) BC Ministry of Advanced Education (AVED)
ix) BC Ministry of Jobs Tourism and Skills Training (JTST)
x) Creative BC
xi) Canadian Media Production Association (CMPA)
xii) Motion Picture Association (MPA)
xiii) Motion Picture Production Industry Association of British Columbia (MPPIA)
xiv) The Premier's Technology Council

B. The Working Group is guided by a Steering Committee composed of the subcommittee chairs, members of the secretariat, and a senior executive from the BC Ministry of Jobs, Tourism and Skills Training. The Steering Committee provides strategic direction, integrates the work of the sub-committees and is responsible for the Working Group's final results and recommendations.

C. Sub-committees are composed of representatives from Technology sector stakeholder organizations. The chair of each sub-committee is a representative of a Technology sector organization. Government representatives may serve on sub-committees in a non-directive capacity.

5. DUTIES AND RESPONSIBILITIES

The Working Group will pursue the following outcomes:

A. Data and Analysis—conduct a comprehensive review of current and projected workforce needs in the B.C. Technology industry; identify and detail workforce demand and supply gaps; where supported by data, identify root causes of workforce supply shortages; and quantify the opportunity costs associated with failing to meet the workforce needs of the sector.

B. Taking into account existing government and industry labour supply initiatives, propose strategies to address workforce challenges related to:

i) Outreach—educate parents and students about the opportunities in the Technology sector; increase the number of British Columbians choosing to pursue training and education for Technology occupations; and, increase the number of females entering and staying in Technology occupations in B.C.

ii) Job Readiness—align public and private sector education and training to ensure that students have the skills and experience to make them both 'job ready' when they graduate, and able to develop and propel their careers while adapting to employers' needs; and improve access to programs that enable British Columbians to fill the need for skilled Technology workers in B.C.

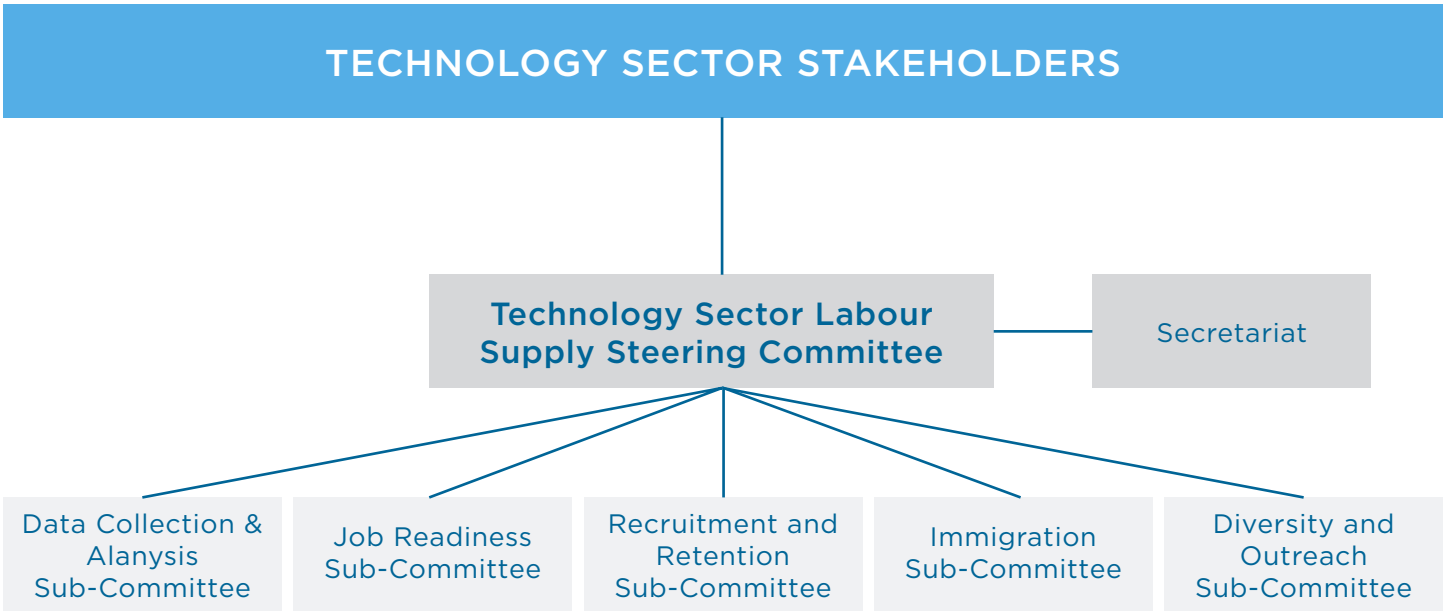
iii) Recruitment and Retention—improve the sector's ability to secure top-level workers; develop and use a consistent 'brand' for the BC Technology sector both domestically and abroad; encourage the repatriation of skilled Canadian workers currently working outside the country; and secure senior talent domestically and abroad.

iv) Immigration—improve access to skilled international workers in parallel with maximizing the use of domestic sources; expedite immigration processes for qualified applicants; and remove policy barriers to immigration pathways that fit the business needs of the sector.

C. Develop a comprehensive implementation plan that encompasses strategies for maximizing the domestic workforce (B.C. and Canada), and supporting immigration for both new British Columbians (permanent residents) and temporary workers.

D. Provide governance for the implementation of the recommended strategies.

6. STRUCTURE


TECHNOLOGY SECTOR STAKEHOLDERS
Technology Sector Labour Supply Steering Committee
Secretariat
Data Collection & Alanysis Sub-Committee
Job Readiness Sub-Committee
Recruitment and Retention Sub-Committee
Immigration Sub-Committee
Diversity and Outreach Sub-Committee

APPENDIX #3. ROUNDTABLE STAKEHOLDERS

Table 3.1 Vancouver Stakeholders - Roundtable Meeting - November 2nd, 2015

TITLE	ORGANIZATION
VP of HR	D-wave
Sr. Consultant	VEC: Vancouver Economic Commission
Head of Film	MPC & MPPIA
Project Manager	JTST
Human Resources / Talent Development Manager	BCTIA: BC Technology Industry Association
ADM: Assistant Deputy Minister	JTST
VP of HR	VP of Sony Imageworks / Digital Domains
Managing Director	BCIC: BC Innovation Council; BC Acceleration Network
Lead Analyst	Premier's Technology Council
Executive Director	HR Tech Group
Executive Director	DigiBC
Managing Vice-President, Operations & Member Services	CMPA
President & CEO	BCTIA: BC Technology Industry Association
Director of Operation	Premier's Technology Council
Director	VEC: Vancouver Economic Commission
Manager of Human Resources	Ballard
Alternate to President & CEO provided	Wavefront
Manager, Digital Entertainment and Interactive	VEC: Vancouver Economic Commission
Director of Immigration	Province of BC - Immigration
Director, Sector Programs	JTST
Director of EA	Electronic Arts Inc.
Director, Talent Operations	Hootsuite Media Inc.
Director, Workforce Mobility at Ministry of Jobs, Tourism and Skill Training	JTST
Director	Ministry of Advanced Education
Attendees: 25	

Table 3.2 Okanagan Stakeholders - Roundtable Meeting - November 6th, 2015

TITLE	ORGANIZATION
CEO	Accelerate Okanagan
Associate Director, University Industry Liaison Office (UILO), STAR Business Development, and entrepreneurship@UBC Okanagan	UBC Kelowna
Manager	COEDC: (Regional District) Central Okanagan Economic Development Commission
Executive Director, Regional Innovation Initiatives	BC Ministry of Technology, Innovation & Citizens' Services - UBCO - MITACS
COO	Community Sift
Community Development	Accelerate Okanagan
Director of Business Development	BC Ministry of Technology, Innovation & Citizens' Services
Co-Founder	Bananatag
Workforce Development Officer	COEDC: Central Okanagan Economic Development Commission
General Manager	Community Futures North Okanagan
Studio Manager	Bardel Entertainment Inc. - Kelowna
Director, Studio Operations	Disney - Club Penguin
Co-Founder & Principal	Adaptive Ventures Inc.
Co-Ordinator: Student, Graduate and Co-op Employment	Okanagan College

Table 3.3 Vancouver Stakeholders - Roundtable Meeting - November 30th, 2015

TITLE	ORGANIZATION
VP of HR	D-wave
Director	Ministry of Advanced Education
Career and Skills Education Coordinator	Ministry of Education - Learning Division
Sector Development Manager, Technology	VEC: Vancouver Economic Commission
Director of Business and Entrepreneurial Development	City of Kelowna
Executive Director	Island Innovation Technology Association
Sr. Consultant	VEC: Vancouver Economic Commission
CEO	Creative BC
CEO	Accelerate Okanagan
Head of Film	MPC & MPPIA
Associate Director, University Industry Liaison Office (UILO)	UBC Kelowna
Project Manager	JTST
Manager	COEDC: (Regional District) Central Okanagan Economic Development Commission
HR	Zoic
Digital Marketing Strategist	Live Work Communications
Human Resources / Talent Development Manager	BCTIA: BC Technology Industry Association
Executive Director, Regional Innovation Initiatives	BC Ministry of Technology, Innovation & Citizens' Services - UBCO - MITACS
Human Resources	Bardel Entertainment Inc.
CFO	Wavefront
Managing Partner	Red Academy
ADM: Assistant Deputy Minister	JTST
VP of HR	VP of Sony Imageworks / Digital Domains
Partner	EY / Egan
Manager, Communications & External Affiars	Life Sciences BC
COO	Community Sift
Managing Director	BCIC: BC Innovation Council; BC Acceleration Network
Lead Analyst	Premier's Technology Council
Community Development	Accelerate Okanagan
Executive Director	HR Tech Group
Executive Director	DigiBC
HR Business Partner	Workday (Vancouver Island)
Managing Vice-President, Operations & Member Services	CMPA
President & CEO	BCTIA: BC Technology Industry Association
Director of Business Development	BC Ministry of Technology, Innovation & Citizens' Services
Co-Founder	Bananatag
Director, Workforce Mobility at Ministry of Jobs, Tourism and Skill Training	JTST
COO	Unbounce
Director of Industry Relations	CDM: Centre for Digital Media
Manager, External Liason Development	VFS: Vancouver Film School
Attendees: 39	

Table 3.4 Victoria Stakeholders - Roundtable Meeting - December 9th, 2015

TITLE	ORGANIZATION
Career and Skills Education Coordinator	Ministry of Advanced Education
Engagement Associate	Engaged HR Inc.
Chief Executive Officer	BC Career Colleges Association
Owner	The Visual Scribe
	Royal Roads University
COO	Codename Entertainment

Table 3.5 Nanaimo Stakeholders - Roundtable Meeting - December 10th, 2015

TITLE	ORGANIZATION
Executive Director	Innovation Island Technology Association
Manager of Energy & Sustainability	Regional District of Nanaimo: Development Services
Exec in Residence	Innovation Island Technology Association
K-12	Ministry of Education
MeTA Digital Humanitiese & Innovations Labs	Vancouver Island University
CEO	Pixelstream Communications Inc.

Table 3.6 Examples of Relevant Stakeholders

For the full list of engaged stakeholders, please refer to the Master Excel Spreadsheet.

TYPES OF STAKEHOLDERS	EXAMPLES OF STAKEHOLDERS
Digital Entertainment & Interactive (DE&I)	MPC: Motion Picture Capture (Vancouver) Disney Club Penguin (Kelowna), Bardel Entertainment Inc. (Kelowna & Vancouver) Sony Imageworks (Vancouver)
Information & Communications Technology (ICT)	Microsoft 2 Hat Security Unbounce, Bananatag
Technology	D-wave
CleanTech	Ballard Axine Water
Life Sciences	Darcy O'Grady BC LifeSciences
Industry Associations	BCTIA: British Columbia Technology Industry Association HR Tech Group Accelerate Okanagan Central Okanagan Economic Commission Community Futures Central Okanagan Viatec Island Innovation Technology Assocation BC Life Sciences Premier's Technology Council Wavefront DigiBC
Government	BC Ministry of Technology Innovation & Citizens' Services - UBCO - MITACS
Education	Okanagan College UBC (Vancouver + Okanagan campuses) UBCO – MITACS OUBC Vancouver Island University

APPENDIX #4: CITATIONS AND REFERENCE

KPMG British Columbia Technology Report Card 2014:
http://www.vancouvereconomic.com/wp-content/uploads/2015/06/KPMG-Tech-Report-Card-20141.pdf

http://www.launchacademy.ca/blog/2015/11/24/launch-academy-companies-raise-over-57m-in-funding-over-last-three-years

http://www.bctia.org/Resources/eLibrary/TechTalentBC/TechTalentBC-Labour-Study-2012

http://www.ictc-ctic.ca/wp-content/uploads/2012/06/ICTC_IEP_SA_BC_EN_03-12.pdf

http://www.bctia.org/Resources/Library/BCTIA-Publications/Industry-Reports/4-Point-Plan

https://news.gov.bc.ca/releases/2015EDUC0079-002027/

APPENDIX #5: OTHER LINKS OF INTEREST

Job Readiness:

http://www.stemedcoalition.org

http://www.stemedcoalition.org/wp-content/uploads/2010/05/Fact-Sheet-STEM-Education-Good-Jobs-and-American-Competitiveness-September-2014.pdf

http://www.cfr.org/united-states/us-education-reform-national-security/p27618

http://www.whitehouse.gov/blog/2012/12/18/one-decade-one-million-more-stem-graduates

http://changetheequation.org/stemdemand

http://www.nga.org/cms/home/nga-center-for-best-practices/center-publications/page-edu-publications/col2-content/main-content-list/building- a-science-Technology-en-1.html

http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/STEMWEBINAR.pdf

http://www.esa.doc.gov/sites/default/files/reports/documents/stemfinaljuly14.pdf

https://hourofcode.com/ca

http://codecreate.ca/

http://kidscodejeunesse.org/en/home/

http://fya.tv/movement/codekids/

Alberta post-secondary CS12 recognition case study (directly targets high school students): http://cacsaic.org/HowAlbertaGotCS

Immigration:

http://www.vancouversun.com/touch/business/Technology/tech+sector+struggles+after+rules+foreign+workers/11388445/story.html?rel=3557423

http://recruitingsocial.com/2015/04/employee-driven-employer-brand-brenda-rigney/

http://blog.hootsuite.com/how-earls-linked-culture-and-strategy-to-drive-engagement/

https://www.biv.com/article/2015/10/bc-immigration-crashes-15-year-lows/?utmsource=BIV+Newsletters&utm_campaign=7dc80821b6-Daily_Friday_October_2_201510_2_2015&utm_medium=email&utm_term=0_6d3015fdef-7dc80821b6-210835465

http://www.cbc.ca/news/canada/saskatchewan/complaint-based-systems-failing-abused-foreign-workers-expert-1.2651413

Data Collection & Analysis:

http://www.manchestereveningnews.co.uk/business/business-news/linkedin-teams-up-greater-manchester-9461383

Growth:

http://www.tableau.com/about/press-releases/2015/tableau-reports-third-quarter-2015-financial-results