Tech Talent Guide

An overview of the abundant, diverse, and high-quality tech industry talent in the Metro Vancouver region.

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INVEST VANCOUVER

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Indigenous Territorial Recognition

Metro Vancouver acknowledges that the region's residents live, work, and learn on the shared territories of many Indigenous peoples, including 10 local First Nations: **q̓ićəy̓** (Katzie), **q̓ʷɑːn̓ƛ̓ən̓** (Kwantlen), **kʷikʷəƛ̓əm** (Kwikwetlem), máthxwi (Matsqui), **xʷməθkʷəy̓əm** (Musqueam), qiqéyt (Qayqayt), se'mya'me (Semiahmoo), **Sḵwx̱wú7mesh Úxwumixw** (Squamish), **scəw̓aθən məsteyəxʷ** (Tsawwassen) and **səlilwətaɬ** (Tsleil-Waututh).

Metro Vancouver respects the diverse and distinct histories, languages, and cultures of First Nations, Métis, and Inuit, which collectively enrich our lives and the region.

About Metro Vancouver

Metro Vancouver is a diverse organization that plans for and delivers regional utility services, including water, sewers and wastewater treatment, and solid waste management. It also regulates air quality, plans for urban growth, manages a regional parks system, provides affordable housing, and serves as a regional federation. The organization is a federation of 21 municipalities, one electoral area, and one treaty First Nation located in the region of the same name. The organization is governed by a Board of Directors of elected officials from each member jurisdiction.

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Contents

Foreword 4

Snapshot of the Metro Vancouver Region: A Thriving Tech Hub 5

Overview of the Metro Vancouver Region's Tech Talent Market 6

- Tech Excellence: Access to High Quality Talent & Innovation 6
- Cost Efficiency in Tech: A Competitive Advantage 10

What factors have contributed to the success of the Metro Vancouver Region's tech companies? 14

- 1. Existing Tech "Clusters" 14
- 2. Education & Learning Programs 16
- 3. Work-Integrated-Learning (WIL) 21
- 4. Immigration as a Gateway to Global Talent 24
- 5. Strategic Talent Acquisition Enabled by Professional Recruiting Firms 26

Looking ahead: What opportunities will the future bring? 28

- Expansion of Existing Tech "Clusters" 28
- Emerging Tech Frontiers 28
- Sustainable Solutions 30
- Tech Integration Across Industries 31

Appendix A: List of Resources 32

Appendix B: Number of Enrollments in Tech Programs by Occupation 34

Appendix C: Number of Credentials in Tech Programs by Occupation 39

Appendix D: Interviews Conducted 43

Foreword

Metro Vancouver is a region for opportunities and innovation.As the regional economic development service for Metro Vancouver, Invest Vancouver represents 21 municipalities, one electoral area, and one Treaty First Nation. We are one economy and one workforce not bound by borders. Our role at Invest Vancouver is to promote our competitive advantages and position our region for success in the ever-evolving global economy. We work with municipal, provincial, and federal governments to advance the liveability and sustainability of our region, including addressing affordable housing and advocating for reliable transit, and providing critical utility services and infrastructure to advance prosperity for all 2.8 million residents.

Time and time again, the advantage that stands out internationally is our region's talent supply. It is not only culturally diverse, it is also of the highest quality and supported by world-renowned educational institutions and supplemented by sector-specific accelerators, cutting-edge research facilities that nurtures the innovators of today and tomorrow.

The Metro Vancouver region is truly a region like no other and is home to a growing and thriving tech ecosystem. The region's strategic location on the west coast of Canada makes it ideally situated to collaborate with established tech hubs along the Cascadia corridor, notably in Washington and California who operate in the same time zone to maximize business dealings.

Our region delivers value to meet both business and personal needs, and Canadian immigration policies offer a much more streamlined and cost effective approach, which accelerates an influx of new workers into our region, many of whom have post-secondary education and other training skills that amplify our talent supply pool. In addition, other government funding policies such as tax credit and exemptions and other program incentives accentuate our advantages to be competitive with our counterpart south of the border.

The aim of this guide is to help interested investors learn more about the Metro Vancouver region's competitive advantages, high-quality tech talent, and other significant factors that contribute to the success of tech companies across various industries in this region.

Jacquie Griffiths
President, Invest Vancouver

Snapshot of the Metro Vancouver Region: A Thriving Tech Hub

Located in the Pacific Northwest and home to 2.8 million people, the Metro Vancouver region is the third largest metropolitan area in Canada spanning 21 municipalities, one electoral area, and one Treaty First Nation that encompasses a diverse and dynamic urban landscape. Its strategic location as the gateway to Asia Pacific and the United States, has contributed to its economic significance and role as a major hub for trade, technology, and cultural activities.

From Pacific shores to snow-capped mountains, the Metro Vancouver region is where a rich, culturally diverse, and attractive urban life meets innovative, cutting-edge tech-driven growth. Front and center is the region's high-quality tech workforce molded by top-notch educational institutions and an innovative ecosystem that supports growth across tech industries. Without compromising on quality and talent, the region offers a strategic labour cost advantage relative to other West Coast tech hubs like Silicon Valley and Seattle.

The region plays host to tech companies of all sizes, including industry giants such as Microsoft, Sony Imageworks, Salesforce, Intel, Electronic Arts, Samsung, Apple, and Amazon, as well as start-ups and scale-ups. Tech companies in the region are known for their expertise in a variety of industry verticals including:

- Software;
- Animation;
- Artificial intelligence;
- Interactive digital media and virtual reality;
- Biotechnology;
- Clean tech and green buildings; and
- Precision agriculture

One of the reasons for this success is the top-tier talent built from institutions that prioritize bridging academia and industry. World-renowned institutions in the region have developed industry partnerships to confirm the next generation of talent in the region is also aligned with industry needs and demands. This ensures the region will continue to maintain a strong pool of talent to meet the needs of the evolving tech sector.

The success of the Metro Vancouver region's tech talent ecosystem is further supported by government initiatives, programs and policies. Through cost-effective and efficient immigration programs, for example, tech companies gain access to a global supply of high caliber professionals with top-tier skills. The Metro Vancouver region continues to grow as a tech hub, is globally recognized and has achieved renowned success.

This guide is designed to help interested investors learn more about the Metro Vancouver region's competitive, high-quality tech talent and other significant factors that have contributed to the success of tech companies across various industries in this region.

Overview of the Metro Vancouver Region's Tech Talent Market

Tech Excellence: Access to High Quality Talent & Innovation

In a sector defined by rapid evolution, a thriving tech hub needs to remain resilient, adaptable, and positioned for sustained success in the global marketplace. The Metro Vancouver region has emerged as one such tech hub, boasting a diverse and highly skilled workforce that sets it apart. Tech companies find the region's blend of academic excellence, abundance of talent across several tech disciplines, and entrepreneurial spirit particularly attractive:

EDUCATIONAL EXCELLENCE

The Metro Vancouver region's world-class education system produces premium tech talent. The University of British Columbia (UBC), Simon Fraser University (SFU) and the British Columbia Institute of Technology (BCIT) are all known for their strong emphasis on technology and innovation. These institutions produce graduates with the cutting-edge skills in STEM fields sought by firms in the tech sector. (Learn more about education and learning programs in the Metro Vancouver region later in this guide).

ABUNDANCE OF TALENT ACROSS DISCIPLINES

One of the core facets of the Metro Vancouver region's thriving tech ecosystem is its abundance of high-caliber talent that spans multiple tech disciplines. Tech companies in the region, from startups to industry leaders, benefit from this diverse talent pool as they are able to acquire the precise skills needed to meet their company's needs.

Major software development companies such as Microsoft, Apple, Samsung, Salesforce, and Amazon have all been able to recruit, retain and foster top-notch engineers and developers for their operations in the region. Similarly, the Metro Vancouver region has become home to extensive game development and animation talent, which is drawn to some of the industry's biggest players - Electronic Arts, Sony Imageworks, Blackbird Interactive, and Relic Entertainment. The region's strength in data analytics is evident across different industries, with organizations like Lululemon, Arc'teryx and Boeing leveraging analytics and AI to drive impactful insights and solutions. Moreover, within the clean tech industry, companies like Ballard Power Systems have found success in attracting the right talent that is also passionate about sustainability. Beyond these examples of global tech companies, the collaborative nature of the tech community in the region fosters interdisciplinary exchange, creating vibrant tech hubs and a broader tech ecosystem that continually attracts and nurtures high-caliber talent across a spectrum of disciplines.

"The Metro Vancouver region has all the right ingredients necessary for a thriving tech ecosystem where talent chooses to grow, develop, and flourish. Access to this kind of high-quality talent is why Microsoft chose to invest in this region, and we would absolutely recommend this region to a peer tech company."

- HR Director, Microsoft

"Technology stacks at companies like Terramera require broad and multidisciplinary teams. We have been incredibly lucky to have recruited a wide range of talented team members locally including computational chemists, traditional biologists and chemists, machine learning engineers, and robotics experts."

– VP Stakeholder Relations, Terramera

"Operating as a company in the clean tech sector, we are fortunate to be located in a region where we have access to a large highly motivated and mission driven talent pool."

– CEO, Moment Energy

"We continue to operate in the Metro Vancouver region because, as a biotech company, it is very important for us to ensure that we have a pipeline that continually fills our important tech roles as we expand and grow in different areas. Having quality researchers collaborating seamlessly in labs alongside an infrastructure to support this research are keys to our success in this region."

– Executive Director and Global Head of HR, Zymeworks

"Our experience of expanding has really boosted our confidence in the Metro Vancouver region. We have been able to get both software and hardware talent here in record time. Now we are building a customer success team and planning to hire HR and marketing professionals in this region as well."

– Vice President Engineering, Lumotive

"The Metro Vancouver region is a great market for talent. Both the volume and breadth of experience we have seen here in the gaming industry is really strong."

– Director of Recruiting, Phoenix Labs

ENTREPRENEURIAL SPIRIT

The Metro Vancouver region attracts and fosters a unique entrepreneurial spirit that benefits startups, scale-ups, and more established tech companies alike.

> "The Metro Vancouver region has a uniquely exceptional start-up ethos that is very well suited for innovative ideas. We found people in this region who are not only interested in exploring new technologies and developing tech products, but are also highly motivated and hungry for success. We think this is because people come to this region to build a new life and prove themselves, and this mindset is reflected in their work culture."
>
> – Vice President Engineering, Lumotive

The region is home to a large number of startups and has been consistently ranked by Startup Genome as one of the top 30 startup ecosystems globally [1]. Some prominent examples of startups that have been built from the ground up in the Metro Vancouver region include:

- **Acuva** is a clean water tech company that is now spearheading the global effort for clean water through UV-LED disinfection. Its growth has been robust and is due in large part to where it is located – in an ecosystem that consistently supports the expansion of the clean tech industry.
- **Moment Energy** is another thriving startup within clean tech, which provides commercial-scale sustainable energy storage by repurposing retired electric vehicle batteries.
- **Asset Market** is a business-to-business software and services platform that makes use of advanced analytics to connect organizations needing to install EV chargers with owners and operators of the lands where the devices will be placed.
- **Build Smartr Robotics** is a steel framing company that deploys cutting-edge material engineering, 3D modelling and robotics to make housing cheaper and more sustainable.

With such examples of successful startups growing in the region across various industries, in addition to local companies like Lululemon, Stemcell Technologies, and Hootsuite that have already become global giants, the Metro Vancouver region stands out as an exceptional location for innovation.

SUPPORTING ECOSYSTEM

Tech companies in the Metro Vancouver region benefit significantly from the support of tech accelerators and industry associations, which serve as powerful catalysts for collaboration and innovation, bringing together a diverse array of established companies, startups, and educational institutions.

Tech accelerators offer programs to give developing companies access to mentorship, investors and other support that help them become stable, self-sufficient businesses. Some examples of accelerators in the region include:

Entrepreneurship@UBC: This accelerator provides UBC students, researchers, faculty members, alumni and staff with the resources, networks, and funding they need to succeed. As of 2023, it has created 1,800 full-time jobs, raised over $1.83B in capital, generated over $739M in revenue, and supported 742 ventures. [2]

SFU VentureLabs® : SFU VentureLabs accelerates science, technology, and innovation-based companies that have winning value propositions and strong potential to scale up. They connect entrepreneurs with experienced mentors and a network of resources focused on tackling the unique challenges and complexities faced by technology innovators.

1 Source: https://startupgenome.com/article/global-startup-ecosystem-ranking-2023-top-30-plus-runners-up

2 Source: https://entrepreneurship.ubc.ca/

Creative Destruction Lab (CDL): This non-profit is dedicated to supporting early-stage companies in the fields of science and technology. CDL operates with the understanding that innovation often involves the "creative destruction" of existing paradigms, and its initiatives aim to guide and nurture promising ventures through their crucial seed-stage development to achieve massive scalability. As of 2023, companies participating in CDL have generated over $28B in equity value.[3]

Foresight Canada: Foresight is a Canada-wide clean tech accelerator, dedicated to expediting the growth and influence of clean tech ecosystems throughout the country. Its programs offer support to clean tech companies at various stages, from validating business concepts and launching products to navigating the challenges of growth and scalability. Foresight's activities extend beyond traditional accelerators, encompassing investor showcases, ecosystem-building events, Innovation Challenges, and technology scouting initiatives. As of 2023, Foresight has created over 8,000 jobs, generated $474M in revenue, supported more than 1,090 companies, and raised $1.68B in venture capital.[4]

Similarly, industry associations are essential components of the supporting ecosystem in the Metro Vancouver region. Some prominent industry associations include:

DIGITAL: DIGITAL, Canada's Global Innovation Cluster for digital technologies, grows Canadian businesses through the development, adoption and deployment of Canadian-made technologies and by working with industry to develop a digitally skilled workforce to positively impact lives across the country. As an independent not-for-profit, they bring together businesses, academia, community and government agencies to solve some of industry and society's biggest challenges – better and faster than any single organization can do on its own. Through a powerful model that combines cross-sector collaboration, Canadian IP creation and results-based co-investment, their model unlocks the potential of Canadian industry to lead and succeed in the digital world.

> "DIGITAL enhances the appeal of what tech ecosystems in Canada have to offer. We connect Canadian SMEs with multinational customers and academic institutions to commercialize their research, protect and promote Canadian intellectual property and adapt to the changing needs of our workforce in an increasingly digital world. We regularly facilitate global opportunities for Canadian innovation and the growth of Canadian companies. In the Metro Vancouver region, we also focus on fostering local connections through organized events and thought leadership, contributing to a professional network and support system conducive to global business expansion."
>
> – Director, The Digital Learning Lab

The Artificial Intelligence network of BC (AInBC): The purpose of AInBC is to unify and catalyze the Artificial Intelligence (AI) and Machine Learning (ML) communities to position BC as a national and global leader in AI by 2025. Citing the strategic importance of AI/ML to the economic and social well-being of the province, AInBC is dedicated to serving all members of the 'AI community' in BC, including academic institutions, AI/ML companies and startups, corporations with AI/ML initiatives, entrepreneurs, the investment community, government, and foreign/non-BC based corporations seeking AI/ML talent in BC.

3 Source: https://creativedestructionlab.com/about/

4 Source: https://foresightcac.com/

Frontier Collective: The Frontier Collective, comprising industry leaders, supports the tech ecosystem by directing investments into critical spaces for incubation, design, and collaboration across frontier technologies such as Web3, VR/AR, spatial computing, computer vision, robotics, climate tech, AI, and more. It provides funding support for startups in their scaling phase, creates crucial connections between skilled workers and local companies, aligns students with job opportunities in the tech sector, and aids adults in re-skilling efforts.

BC Tech Association: The BC Tech Association is a non-profit industry association with a focus on supporting tech talent, driving entrepreneurship, and addressing the challenges of the tech sector. Through its various programs, events, and initiatives, the association provides valuable resources, networking opportunities, and advocacy for its members, contributing to the overall vibrancy and competitiveness of the tech ecosystem in the province.

For more information on industry associations and tech accelerators in the Metro Vancouver region, refer to Invest Vancouver: Innovation Ecosystem Profile.

Cost Efficiency in Tech: A Competitive Advantage

The ability to access and retain affordable top-tier talent is a "must have" for a thriving tech ecosystem. While renowned tech hubs such as Silicon Valley and Seattle have long been magnets for tech companies, they also come with relatively higher labour costs. Many tech companies are turning to the Metro Vancouver region as a less cost prohibitive alternative that provides access to talent that is both high-quality and affordable. The region's thriving tech ecosystem, affordable compensation packages, and proximity to North American tech hub giants have made it a compelling choice for tech companies looking to expand while managing their bottom line. The following are key components that contribute to the region's competitive advantage:

PROXIMITY TO MAJOR NORTH AMERICAN TECH HUBS & THE COST ADVANTAGE

The Metro Vancouver region possesses a distinct locational advantage in comparison to other major Canadian tech hubs like Toronto and Montreal. This is due to its proximity to two of North America's largest tech hubs—the San Francisco Bay Area (Silicon Valley) and Seattle. In addition to enjoying a similarly attractive West Coast lifestyle, what makes this proximity particularly compelling for business is the ability to tap into some of the advantages offered by these tech hubs (easy access to client base and same time zone as clients / headquarters) without incurring the premium labour costs associated with the prominent locations in the West Coast of the United States such as the Bay Area in California and the Seattle region in Washington State. Furthermore, the geographical positioning of the region also opens up opportunities for a seamless crossover with the Asia-Pacific region, allowing companies to benefit from a 24-hour workday and increased cross-border collaboration.

With the presence of companies such as Microsoft, Samsung, Apple, Amazon, and others, the Metro Vancouver region has proved appealing to the big players in the tech sector over the years, with affordability of talent being one of the key draws to the region. A standout example is that of Lumotive, a trailblazer in photonics and advanced sensing technologies, headquartered in Redmond. One of the primary drivers of Lumotive's decision to expand to the Metro Vancouver region was the access to cost-effective tech talent.

Relative to the Bay Area and Seattle, the salaries dictated by the market in the Metro Vancouver region are considerably lower. The Metro Vancouver region's average tech sector wage is ~ 54% lower than San Francisco, and ~ 41% lower than Seattle.[5] The lower cost of labour in the Metro Vancouver region offers an attractive proposition for companies seeking a strategic location without a premium cost.

"We found that, in general, tech employees in Seattle prefer the more established, larger corporations that can offer extensive perks, making it very expensive for a startup to attract suitable talent. When expanding to the Bay Area, we were met with similar challenges related to high costs of doing business there. After conducting thorough research into North American tech hubs, the Metro Vancouver region emerged as the optimal choice for further expansion."

– Vice President Engineering, Lumotive

COST OF HEALTHCARE

The low costs of healthcare are also a major advantage of the Metro Vancouver region. Companies like Microsoft, Sony, Phoenix Labs and Lumotive that have locations in both the US and the Metro Vancouver region have pointed to the significant cost advantages of not having to pay for basic health insurance when locating in the Metro Vancouver region due to Canada's universal healthcare system.

In fact, companies operating in the Metro Vancouver region who also employ people based in the US noted that they have to pay their US-based employees more to account for the added healthcare costs - on top of the higher overall salary expectations.

Moreover, in British Columbia, companies are exempt from paying the Employer Health Tax (EHT) if their total BC remuneration is below $500,000[6]. In contrast, major Canadian provinces such as Ontario grant an exemption for remuneration of $1 million or less, while Quebec does not provide any exemption.

In the United States, healthcare costs on their own are a notably significant business expense and many firms, especially larger ones, opt for direct payment of some or all their employees' health services from their own funds rather than purchasing health insurance. For instance, in California, around three-quarters of covered workers in firms with 5,000 or more employees were in self-insured plans. In 2022, the average premiums for covered workers in California for single coverage were $8,083, and for family coverage, it was $22,818, mirroring national US averages. On average, workers paid 15% of the cost for single coverage ($1,167 annually) and 30% for family coverage ($6,680 annually).
(CHCF, 2023)

5 These estimates are based on data from April 2023 as cited in the Scoring Tech Talent CBRE Report (2023): www.cbre.com/insights/books/scoring-tech-talent-2023
In April 2023, the average tech salary in Vancouver was ~ USD 72,000/CAD 100,000 compared to USD 157,000/CAD 218,000 in San Francisco and USD 123,000/CAD 170,000 in Seattle (Based on an exchange rate of 1 USD = 1.39 CAD).

6 Source: https://www2.gov.bc.ca/gov/content/taxes/employer-health-tax/employer-health-tax-overview

MINIMAL IMMIGRATION-RELATED COSTS

Another critical advantage of doing business in the Metro Vancouver region relative to the US is the ability to save money on immigration teams and lawyers. (Learn more about immigration opportunities later in this guide) According to tech companies currently operating in the region, Canada's streamlined and straightforward immigration processes are easier to navigate relative to those in the US, making it unnecessary to hire immigration lawyers – a significant cost saving, particularly for smaller companies.

"For each engineer we hire in the Bay Area, we can hire 2 equally qualified engineers in the Metro Vancouver region."

– Vice President Engineering, Lumotive

WAGE SUBSIDIES AND FUNDING SUPPORT

The availability of funding support and wage subsidies is an innovative feature of the Metro Vancouver region's tech talent ecosystem. A number of programs are available that help reduce labour costs for employers, create pipelines of high caliber local talent and help foster diversity and inclusivity:

MITACS, a non-profit organization that plays a pivotal role in fostering collaboration between academia and industry, provides funding to companies looking to hire research interns. Through MITACS, businesses can access financial support to hire talented students and researchers to work on innovative projects. This not only reduces the cost of hiring highly skilled individuals who often transition to employees but also promotes knowledge transfer and skills development.

"One of our next stages of expansion in the Metro Vancouver region is to incorporate the use of the MITACS program, where we can access a talented pool of tech employees"

– Vice President Engineering, Lumotive

"We frequently make use of the MITACS and NSERC programs. They are excellent sources of funding and relatively easy to acquire."

– Director of Innovation, Hydra Energy

"In terms of having funding and investment support from the local and federal government, Metro Vancouver is an excellent place for a tech company to locate."

– Director of Innovation, Hydra Energy

NSERC is a federal funding agency that provides financial support to researchers, fosters collaborations between academia and industry, and strives to build a strong foundation for Canada's future competitiveness on the global stage. Through various funding programs and initiatives, NSERC encourages the development of talent, the exploration of new ideas, and the application of research findings to address real-world challenges. This funding can help offset the costs associated with hiring tech talent, making it more affordable for businesses in the Metro Vancouver region to access top-tier expertise.

MOSAIC is a major non-profit organization that helps tech companies in the region access federal government programs and initiatives aimed at promoting diversity and inclusion in the tech sector. Through MOSAIC's programs and services, employers can access support in finding qualified candidates and funding to help offset the cost of hiring women,

Indigenous people, newcomers to Canada, and other marginalized communities, making it more affordable for businesses to prioritize inclusion and diversity in their workforce. MOSAIC also offers programs that focus on skills development and training for individuals from underrepresented backgrounds. This includes mentorship, networking opportunities, and training sessions designed to help diverse talent thrive in the tech sector. By equipping individuals with the skills they need to excel in tech roles, MOSAIC helps bridge the talent gap and saves tech companies additional training costs.

"We are able to secure funding through various federal and provincial programs which allow us to then offer attractive incentives to tech employers, including wage subsidies. One successful example of this is the WorkXP Internship program, which connects internationally educated and experienced immigrant professionals with Canadian employers. This program is funded by Employment and Social Development Canada (ESDC) and participating employers benefit from a wage subsidy."

– Director of Employment Services, MOSAIC

SR&ED Credits: For tech companies seeking a strategic foothold, Canada's SR&ED program offers a compelling value proposition. Eligible businesses conducting research and development in Canada can either 1) claim a deduction against income by calculating their SR&ED expenditures incurred in the year, or 2) earn an investment tax credit to reduce their income tax payable for the year. These tax credits, along with other incentives detailed above, contribute to an ecosystem that fosters innovation without compromising financial stability.

"In Metro Vancouver, there is an ecosystem that supports startups and young entrepreneurs with a wealth of grants and programs, both on a federal and provincial level. A great example is that of SR&ED credits that are especially useful for startups with a high CAPEX (Capital Expenditure). The region offers invaluable assistance from pre-investment all the way to the Series A phase, allowing new businesses to thrive."

– CEO, Moment Energy

What factors have contributed to the success of the Metro Vancouver Region's tech companies?

1. Existing Tech "Clusters"

The Metro Vancouver region competes globally as a thriving hub for tech companies across diverse industries. The presence of key tech and tech-related "clusters", such as high-tech, digital media and entertainment, clean tech, agritech, apparel, transportation and logistics, and life sciences, plays a pivotal role in retaining and attracting established and up-and-coming industry leaders to this region. These clusters of tech companies in specialized domains provide a concentrated pool of specialized talent, facilitating knowledge exchange and growth and development opportunities. The concentration of expertise within these clusters provides an ideal environment for both existing tech companies as well as new market entrants. New entrants in particular benefit from shared resources, established infrastructure, and a collective wealth of experience.

Furthermore, the presence of tech clusters not only helps to attract but also retain talent in the region. It lowers the risk and provides growth opportunities for individuals that move to the Metro Vancouver region for work as these hubs can provide a number of different job opportunities into the future.

"For a tech contractor, going to a location that does not have established tech "clusters" is risky. This is why, as a recruitment agency, it is easy for us to persuade top-tier tech talent to come to the Metro Vancouver region. This region provides great options for contract work and people feel secure knowing that there are plenty of jobs that will suit their specialized skillsets."

- Associate Partner, TEEMA Group

"We prefer hiring locally from the Metro Vancouver region. Nearly 35% of our hires comes from referrals within the local network."

– Director of Recruiting, Phoenix Labs

"Our local hires are typically from other Metro Vancouver-based tech companies. There is a healthy ecosystem here for specialized tech like gaming, software development, UX design, so the tech talent does not usually step outside that ecosystem"

– HR Director, Microsoft

Following are three of the Metro Vancouver region's fastest growing tech clusters:

HIGH-TECH

The high-tech industry is not only home to industry giants but is also marked by a vibrant community of startups and scale-ups. These companies collectively drive innovation in software, artificial intelligence, and virtual reality. The synergy between established players and emerging tech disruptors creates a dynamic ecosystem of collaboration and knowledge exchange.

"Our experience of expanding to the Metro Vancouver region has been very positive. Having the support of the high-tech ecosystem – other tech partners and exceptional educational institutes – has made it very convenient for us to operate here."

– HR Director, Microsoft

DIGITAL MEDIA & ENTERTAINMENT

The digital media and entertainment cluster in the region remains at the forefront of creative and technological fusion. With influential players like Electronic Arts, Sony Imageworks, and Bardel Entertainment, the region is a powerhouse for film, gaming, animation, and virtual reality. Furthermore, organizations like Creative BC and the Canada Media Fund play crucial roles in supporting and fostering the growth of the Metro Vancouver region's dynamic digital media and entertainment industry. The collaborative spirit within this cluster not only fuels the development of blockbuster entertainment but also drives advancements in immersive technologies.

"From the perspective of a tech professional, the Metro Vancouver region stands out because of its prominent industry clusters – film, digital media & entertainment, clean tech, high-tech, just to name a few."

– Director of Employment Services, MOSAIC

CLEAN TECH

Clean tech pioneers, such as Ballard Power Systems, Westport Innovations, and Saltworks Technologies exemplify the Metro Vancouver region's commitment to sustainable solutions at the global level. Numerous clean tech companies headquartered in the Metro Vancouver region have also achieved considerable success in international markets by leveraging the region's strategic positioning as a gateway to the United States and Asia. Notable examples include BioteQ Environmental Technologies, specializing in wastewater treatment, and Nexterra Systems Corp., a front-runner in the renewable biofuel industry. Additionally, the Metro Vancouver region's clean tech companies are also technically and financially supported by organizations like the NRC Industrial Research Assistance Program, Sustainable Development Technologies Canada, and the Foresight Cleantech Accelerator.[7]

"The clean tech hub in the Metro Vancouver region is very strong, underpinned by cross-sector support that creates a positive impact on both the clean tech and high-tech domains. This hub's significance lies not just in imparting industry knowledge, but also in recognizing the invaluable expertise that other professionals bring from their respective disciplines. It's also noteworthy that our companies have attracted investments from major US players, dispelling the notion that one must be in the Silicon Valley to secure such partnerships. This says a lot about the strengths of the Metro Vancouver region's tech ecosystem."

– Vice President Stakeholder Relations, Terramera

7 Vancouver Economic Commission: Clean Tech (Source: https://vancouvereconomic.com/clean-tech/)

2. Education & Learning Programs

The tech ecosystem in the Metro Vancouver region is supported by high-quality education and learning programs. These programs play a pivotal role in cultivating a pipeline of skilled professionals, ensuring a continuous flow of talent to continue to fuel the growth of the region's dynamic tech clusters. Here's a closer look at the educational landscape that contributes to the Metro Vancouver region's status as a magnet for tech talent:

WORLD-CLASS INSTITUTIONS

A key facet of the region's tech talent ecosystem is the presence of world-class post-secondary institutions (PSIs) that offer cutting-edge and innovative programs in technology and related fields. For example, the University of British Columbia (UBC), Simon Fraser University (SFU), British Columbia Institute of Technology (BCIT) and Northeastern University Vancouver, among others, provide comprehensive courses in computer science, engineering, data science, and other tech-related disciplines. These institutions not only equip students with theoretical knowledge but also emphasize practical, hands-on experience through industry partnerships and innovative projects.

"One of the most important reasons of our success in the clean tech industry is the strategic collaboration with local universities, like UBC and SFU, where we actively build and contribute to a diverse array of research projects. This collaboration is further supported by the Metro Vancouver region's comparative advantage in attracting and retaining exceptional tech talent relative to other regions in Canada."

– Director of Innovation, Hydra Energy

Leading Public Post-Secondary Institutions in the Metro Vancouver region:

- University of British Columbia (UBC)
- Centre for Digital Media
- Simon Fraser University (SFU)
- Langara College
- British Columbia Institute of Technology (BCIT)
- Kwantlen Polytechnic University
- Capilano University
- Vancouver Community College
- Douglas College
- Emily Carr University of Art & Design

Ranked as one of the world's leading public universities, according to Times Higher Education (THE) and QS University Rankings, [8] UBC produces top-tier researchers in the life, physical, and computational sciences. UBC's research-led approach ensures that their graduates are not only active learners but also contributors to future technological innovations. The Life Sciences Institute (LSI), for example, has become a designated UBC Global Research Excellence (GREx) Institute and is spearheading initiatives like the Biological Resilience Initiative (BRI), a first-of-its-kind initiative in Canada that integrates cross-disciplinary research on biological resilience, addressing major challenges in human health and planetary well-being. This and other initiatives position UBC as a key influence on the expansion of major tech clusters in the Metro Vancouver region.

8 Source: https://www.ubc.ca/about/institutional-rankings.html

"We have consistently partnered with UBC and SFU to help build cutting-edge technology in the Agri-tech sector. Without this collaboration, the innovative solutions powering Terramera today would not be possible."

– VP Stakeholder Relations, Terramera

Similarly, SFU has consistently been ranked as Canada's top university for innovation and industrial application, as well as number two in the world for entrepreneurial spirit, according to the 2023 World University Rankings for Innovation (WURI). The university supports an innovation ecosystem through SFU Beedie School of Business's Invention to Innovation (i2I) program, the Charles Chang Institute for Entrepreneurship, Coast Capital Venture Connection at SFU, VentureLabs, and the Technology Licensing Office. [9] SFU's contribution toward the success of local tech companies within the region includes Ionomr Innovations, a clean tech and advanced materials company, which had its first intellectual property protected through SFU and attracted over $15 million USD in funding in 2022. Over the past two years, Ionomr has earned recognition on the Global Cleantech 100, an annual list highlighting the most inventive and promising companies dedicated to advancing initiatives for achieving net-zero goals.

Moreover, BCIT's Digital Design and Development program equips students with a strong foundation in creating and marketing interactive applications for various digital platforms. Graduates find opportunities in user interface design, front end engineering, and web/mobile development across diverse industries in the Metro Vancouver region. The Full-Stack Web Development (FSWD) Diploma program at BCIT offers an interdisciplinary learning environment, emphasizing technical skills for web application development and core competencies like teamwork. Additionally, in response to the increasing prominence of AI and machine learning, BCIT's Business Information Technology Management (BITMAN) – Artificial Intelligence Management (AIM) option trains professionals for entry-level roles in managing AI and ML solutions. The curriculum covers AI business models, ethics, machine learning, computer vision, and natural language processing. In 2023, BCIT BITMAN students collaborated with Vancouver International Airport (YVR) to develop an AI model predicting transportation demand [10]. Their work reduces taxi wait times for passengers and supports YVR's Net Zero Carbon 2030 goals by optimizing vehicle movements.

"SFU stands out as a beacon of innovation in the Metro Vancouver region's tech ecosystem. The School of Interactive Arts and Technology supports advancements in augmented and virtual reality, while our robust Mechatronic System Engineering program integrates mechanical, electrical, and computer science engineering, propelling us to the forefront of advanced manufacturing. Notably, our commitment to cutting-edge exploration extends to diverse fields, from health research in our Pain Studies Lab, to pioneering clean technologies in our Sustainable Energy Engineering program – Canada's first standalone program of the kind."

– Co-op Coordinator, SFU

COLLABORATION WITH INDUSTRY

In addition to their world-class contributions towards research and innovation, the Metro Vancouver region's leading tech-focused PSIs also ensure synergies between academia and industry. These PSIs actively collaborate with tech companies, ensuring that the curriculum remains aligned with industry needs and

9 Source: https://www.sfu.ca/sfunews/stories/2023/05/sfu-named-canada-s-top-university-for-innovation-in-global-wuri-.html

10 Source: https://commons.bcit.ca/news/2023/04/bcit-students-develop-an-artificial-intelligence-model-for-yvr/

incorporates the latest trends, tools, and technologies in the tech sector. This proactive collaboration helps prepare graduates to tackle real world challenges and to contribute meaningfully to the rapidly evolving tech landscape.

"At Microsoft Vancouver, we are extremely happy with the quality of hires from universities like UBC, SFU, and BCIT. We have closely partnered with such institutes with a lot of success in the past across the Metro Vancouver region and have managers whose roles is to help influence curriculum and build partnerships."

– HR Director, Microsoft Vancouver

"As we expand in the Metro Vancouver region, we recognize the critical role of post secondary institutions & industry partnerships in driving innovation and supporting tech talent in this region. We envision a future where our partnerships with these institutes also evolve similarly to other major companies to influence curriculum, especially in areas like semiconductors, photonics, and 3D sensing."

– Vice President Engineering, Lumotive

"The cost-effective, collaborative relationships with professors in Mechanical Engineering departments empower us to not only secure funding but also effectively double our team size. This approach, particularly in clean tech, enhances our technical capabilities to address crucial research questions."

– Director of Innovation, Hydra Energy

Both UBC and SFU have a number of additional initiatives in place to further facilitate synergies between academia and the tech sector. Examples of SFU's commitment to industry engagement and the development of a skilled and knowledgeable workforce include facilities like:

SFU's 4D LABS, which serves as a comprehensive resource for the materials science and engineering needs of academic and industry stakeholders alike. Operating as a one-stop shop, the facility's team collaborates closely with partners from the tech industry, the public sector, and academia. Together, they address pivotal research questions and translate scientific knowledge into innovative solutions, contributing to society-wide benefits and helping industries grow and innovate.

The Big Data Hub, which responds to the escalating demands of the industry to leverage the power of big data to address real world problems. As the volume and complexity of data continue to grow, SFU's Big Data Hub connects industry, government, and academic partners to the university's expertise. Its services cater to the big data needs of both internal and external SFU partners.

UBC's University-Industry Liaison office (UILO) also plays a pivotal role in fostering the success of the local tech ecosystem by actively participating in the establishment and growth of UBC spin-off companies that originate from the university's research discoveries. This initiative has led to the creation of 249 spin-off companies as of March 2023 [11]. Noteworthy examples include:

- **AbCellera** has gained recognition for its groundbreaking work in antibody discovery, contributing to advancements in healthcare and biotechnology, exemplified especially by achievements in discovering antibodies to fight COVID-19.

11 Source: https://uilo.ubc.ca/ubc-spin-companies

- **Acuva Technologies** is at the leading edge of developing advanced UV-LED water purification systems.

The success stories of these companies highlight the tangible outcomes of the collaborative efforts between academia and industry and the role of PSIs in contributing to the growth and dynamism of the tech landscape in Metro Vancouver.

INNOVATIVE LEARNING PLATFORMS

Beyond traditional educational settings, the tech ecosystem in the Metro Vancouver region offers several other kinds of innovative learning platforms and opportunities, including coding bootcamps, specialized workshops, and online courses, that provide avenues for individuals to upskill or transition into tech careers. The accessibility and flexibility of these programs align with the tech ecosystem's ethos of lifelong learning, catering to both aspiring tech professionals and those adapting to the ever-evolving tech landscape. Notable contributors to this ecosystem include:

- **First Nations Technology Council**: The First Nations Technology Council plays a significant role in promoting diversity and equitable opportunities within the tech industry by advancing digital literacy, improving internet connectivity, and providing guidance on data and digital technology for all 204 First Nations across British Columbia. In the Metro Vancouver region specifically, this Indigenous-led, innovative non-profit supports the tech industry as it responds to Truth and Reconciliation, creating career pathways and culturally safe work environments for Indigenous Peoples. Ultimately, the Technology Council envisions a future where Indigenous Peoples and communities claim their space in the digital age by designing and stewarding technology to renew and strengthen First Nations cultures, lands, languages, and ways of being for future generations.
- **Lighthouse Labs**: A top-ranked coding bootcamp that exclusively focuses on web development and renowned for its unparalleled expertise in full-stack development, Lighthouse Labs is a leading provider of coding education.
- **CodeCore**: CodeCore's program administrators collaborate with industry giants to provide students with a well-rounded and industry-relevant education. Partnerships with prominent companies such as Wishpond, ZOZI, Clio, Sage, ModernAdvisor, and BMC demonstrate CodeCore's commitment to connecting students with real-world opportunities. Moreover, their collaborations with organizations like SFU and Canadian Women in Communications further enrich the learning experience by integrating diverse academic and industry perspectives.
- **VanArts**: VanArts is among the examples of programs in this region designed for individuals keen on applying the latest tech skills in creative industries. Through articulation agreements with well-established universities and colleges in Canada, VanArts provides a seamless transition for students to pursue bachelor's degrees in as little as one year after completing their studies. This unique approach allows aspiring tech professionals in Canadian tech ecosystems, such as the Metro Vancouver region, to quickly tailor their education to the specific demands of the creative and tech industries, fostering a dynamic and versatile skill set. Such learning platforms contribute significantly to shaping a tech workforce that is both skilled and diverse.
- **BrainStation**: BrainStation is a coding bootcamp that covers a range of in-demand technologies and programming languages, providing hands-on experience in building real-world projects. Through a variety of courses, students gain a deep understanding of web development, UX design, digital marketing, product management, and more. The programs are created to accommodate both beginners and those with some coding experience, equipping individuals with the necessary skills to thrive in the high-tech and digital media industries.

MICRO-CREDENTIALS

Micro-credentials play a crucial role in the Metro Vancouver region's tech talent ecosystem by offering a targeted approach to skill acquisition. Since 2020, the government of BC has invested in the development of over 130 micro-credentials within the public post-secondary system [12]. Micro-credentials are short-term learning experiences, ranging from single-day sessions to multi-week courses that allow individuals to acquire targeted competencies. They are specifically designed to impart a particular skill within a brief timeframe, and upon completion, participants receive tangible proof, such as digital badges or certificates. This flexibility is particularly valuable in the tech industry, where in order to remain competitive in a rapidly evolving economy, it is essential to remain up-to-date on emerging skills and technologies.

In alignment with the StrongerBC: Future Ready Action Plan unveiled in May 2023, the government of BC is intensifying its efforts to expand and refine micro-credentials throughout British Columbia, supported by a framework that ensures a consistent approach to the issuing of micro-credentials across the public post-secondary system to ensure credibility and consistency for learners and employers. By prioritizing the development and enhancement of micro-credentials, the provincial government is strategically contributing to a more agile and responsive education system, aligning with the dynamic needs of both individuals and the broader community.

GOVERNMENT SUPPORT

To further support the education and learning ecosystem in the Metro Vancouver region, the BC government has committed to investing $74.7 million over the next three years to establish 3,000 new spaces in tech-related fields including cybersecurity, software engineering, data science, life sciences, creative tech, clean tech and agritech. [13] The current commitment builds upon the creation of 2,900 student spaces in the past six years, resulting in a total of almost 6,000 new tech-relevant spaces in BC since 2017.

Moreover, provincial funding initiatives like the StrongerBC Future Skills Grant aim to expand training opportunities for individuals, preparing them for the evolving job landscape. This initiative is designed to support individuals aged 19 years or older, by providing up to $3,500 for short-term skills training at public post-secondary institutions. Having registered 11,300 learners across the province as of 2023 [14], this initiative supports individuals in adapting to changing job demands, improving current roles, securing higher-paying positions, and preparing for the evolving global economy.

COMMUNITY ENGAGEMENT AND OUTREACH

The Metro Vancouver region's educational institutions actively engage with the local tech community through events, seminars, and outreach programs. Tech talks, hackathons, and networking events facilitate connections between students and industry professionals, creating a supportive ecosystem where knowledge transfer and mentorship thrive.

> "When we are hiring a lot, we benefit greatly from networking opportunities in this region like career fairs that tend to attract young talent."
>
> – HR Director, Microsoft

Moreover, the community benefits from an extensive network that extends to venture capital firms, facilitating connections between aspiring entrepreneurs and potential investors. VANTEC, a BC Angel investors community since 1999, connects entrepreneurs with investors. In 2022, 150 ventures presented through VANTEC, securing over $16

12 Source: https://www2.gov.bc.ca/gov/content/education-training/post-secondary-education/micro-credentials

13 The Stronger BC: Future Action Ready Plan (2023)

14 Source: https://www.workbc.ca/find-loans-and-grants/students-and-adult-learners/strongerbc-future-skills-grant

million for 154 SME companies [15]. Monthly VANTEC meetings in the Metro Vancouver region provide startups with a chance to pitch to angel investors, fostering connections and follow-up opportunities. Entrepreneurs are encouraged to utilize this platform for networking, feedback, and referrals, with additional support from experienced business advisors and organizations dedicated to early-stage businesses.

Collaborative initiatives like the Founders Network recognizes the distinctive characteristics and collaborative nature of the Metro Vancouver startup ecosystem [16]. They offer a platform where local startup founders can engage, collaborate, and gain insights from a global community of peers. The organization facilitates connections through curated events, mentorship programs, and exclusive resources, empowering founders to leverage the abundant opportunities within the Metro Vancouver region startup community.

3. Work-Integrated-Learning (WIL)

A critical contributor to the success of the Metro Vancouver region's tech education and talent ecosystem are Work-Integrated-Learning (WIL) opportunities that bridge the gap between academic knowledge and industry practices through hands-on exposure to real-world projects in a workplace setting.

COOPERATIVE EDUCATION (CO-OP) PROGRAMS

Co-op programs are structured partnerships between educational institutions and business organizations that allow students to alternate between periods of classroom learning and full-time work experience. This approach equips tech students with a deeper understanding of the business challenges and innovations within industry in addition to necessary technical skills. Tech companies in the region see these programs as a strategic investment that contributes to the long-term growth of their full-time talent pool. They also present a unique opportunity to access highly skilled and diverse talent at an affordable rate.

"Co-op programs form a core part of our hiring because there is a strong and rich pipeline of university talent in this region. In an evolving hybrid model of working, it is critical for students to have this kind of work experience before they begin their professional careers."

– HR Director, Microsoft

"In our experience, the caliber of graduates from institutes like UBC, SFU, and UVic has been excellent. Leveraging Co-op programs, we bring in talent from the Mechanical Engineering departments for around 4 to 6 months, which is then usually followed by a seamless integration leading to long-term careers in clean tech for a lot of these Co-op students."

– Director of Innovation, Hydra Energy

"The Co-op programs in the region have proven to be a highly successful avenue of hiring for us. There are people who came in as Co-ops in and are now leaders in the organization."

– Vice President Stakeholder Relations, Terramerra

15 Source: https://www.vantec.ca/cpages/pitch-at-vantec

16 Source: https://foundersnetwork.com/mentoring-programs/vancouver-startup-community/

"The quality of the programs is exceptional. Around 80 – 90% of our Co-ops end up having a full-time position with us once they graduate."

- Executive Director and Head of Human Resources, Zymeworks

"Industry connections and work-integrated learning opportunities play a significant role in tech hiring. About 80% - 85% of our Co-op students find full-time employment with their Co-op employer within 6 months of graduating."

– Co-op coordinator, SFU

INDUSTRY-LINKED CAPSTONE PROJECTS & RESEARCH

Industry-linked capstone projects and research, particularly at UBC and SFU, contribute significantly to the infusion of innovative ideas and practical skills in the tech talent ecosystem:

- Under the UILO at UBC, capstone projects offer undergraduate students a hands-on opportunity to apply their academic knowledge to address tangible challenges in the real world.[17] In this collaborative venture, industry and community partners present the challenges and context for the projects and, in return, they receive the solutions and intellectual property generated by the capstone project without incurring any labour costs.
- SFU's Computing Science capstone projects present an opportunity for tech companies to utilize eight months of dedicated effort from a team of senior engineering students supervised by a professional engineer faculty member [18]. This collaboration offers specialized expertise to address and innovate solutions tailored to the company's needs with no wages or consulting costs for the participating students or faculty. The potential benefits range from cost-efficient enhancements in production and the introduction of new technologies to more streamlined operations. Additionally, participating companies gain opportunities to develop and recruit talented new graduates equipped with company-specific knowledge.

GOVERNMENT SUPPORT

Government-supported initiatives play a pivotal role in fortifying work-integrated-learning opportunities and workforce development in the Metro Vancouver region. Recognizing the strategic importance of fostering a skilled workforce, these initiatives cover a spectrum of programs.

For example, Stronger BC: Future Ready Action Plan [19] places a strong focus on the tech sector, with commitments to create more tech spaces, provide skills grants, and increase student financial aid. In addition, MITACS recently secured another five years of funding for its internship program which sustains industry-academic collaboration in the region.[20] There have also been concerted efforts to increase

17 Source: https://uilo.ubc.ca/industry-partners/capstone-projects

18 Source: https://www.sfu.ca/computing/prospective-students/undergraduate-students/programs/degree-programs/softwaresystems/curriculum/capstone-projects.html

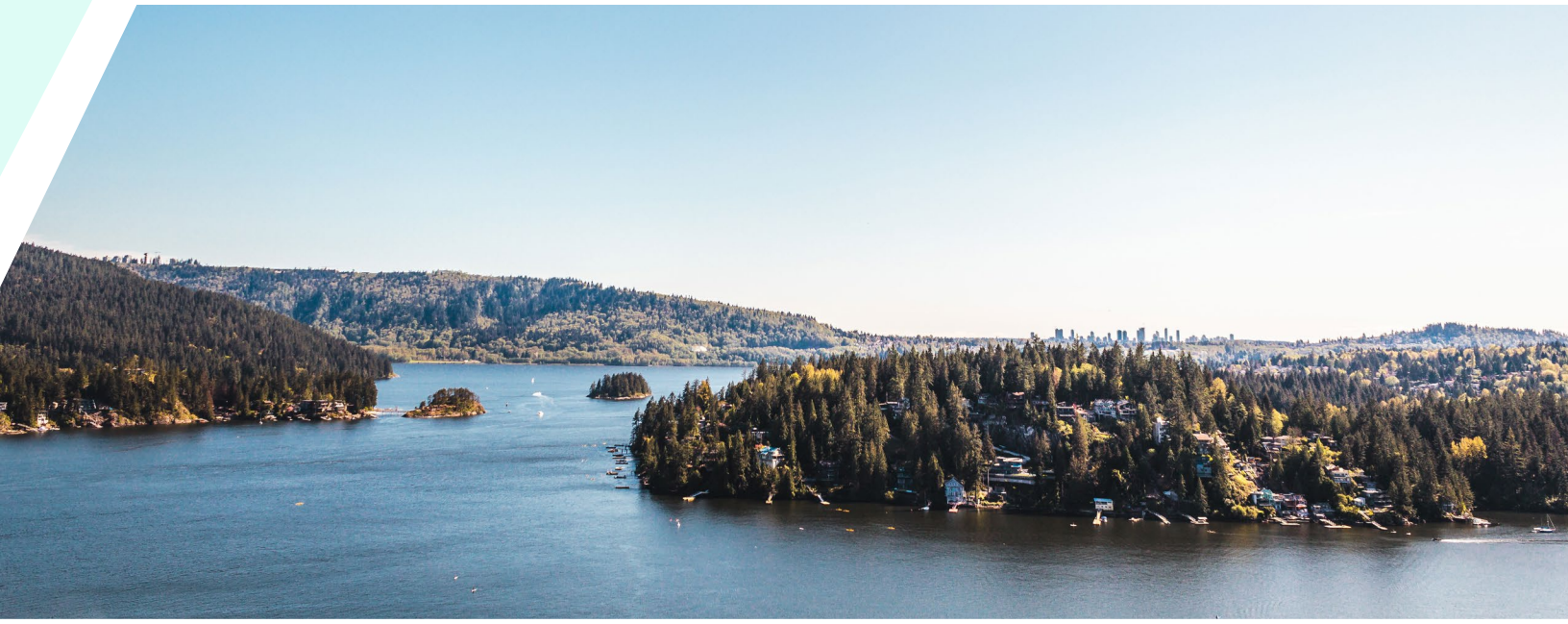
19 The StrongerBC: Future Ready Action Plan (2023) is a comprehensive cross-government initiative in BC aimed at enhancing the accessibility, affordability, responsiveness, and relevance of education and training.

20 The BC government has provided MITACS with $50 million to support 10,000 paid internships over five years.

investments in graduate student scholarships and initiatives through the Workplace Innovation Fund, which supports key tech industries in addressing labour shortages through an increased number of people in the tech workforce and the adoption of new technologies [21].

There is also a notable focus from the federal government on entry-level positions and specific skill sets to ensure a robust talent pipeline, with programs like Tech Talent NPower which creates opportunities for under-represented communities in specialist tech roles. One of NPower's most influential initiatives is the Canadian Tech Talent Accelerator (CTTA), acting as a resource for individuals aged 17-30 facing unemployment or underemployment, as well as for those aspiring to kickstart a career in the tech industry. The CTTA provides two comprehensive free 15-week online programs – the junior IT and junior data analyst programs. These programs cover essential skills and fundamentals in IT or data analytics, and include topics such as networking, security, data collection, data cleaning, and visualization.

The Digital Skills Bootcamp program, originally launched to aid businesses impacted by COVID-19, now offers valuable instruction and mentoring to small and medium businesses, with over 10,000 individuals benefiting from this program as of 2023.[22] The program particularly targets Customer Relationship Management (CRM) platforms, responding to the growing demand for digital skills. To make the industry more accessible, the Innovator Skills Initiative facilitates the entry of under-represented individuals into the tech workforce. Essentially, there is a deliberate emphasis on under-represented communities and Indigenous populations, ensuring diversity and inclusivity. Moreover, programs such as the WorkBC Wage Subsidy Program provide tech companies opportunities to rehire laid off workers or fill hiring needs at subsidized rates by covering part of employee wages. Collectively, these initiatives reflect a holistic and forward-thinking approach to nurturing a skilled and diverse tech workforce in the Metro Vancouver region.



21 Source: https://www2.gov.bc.ca/gov/content/governments/technology-innovation/workplace-innovation-fund

22 Stronger BC: Future Ready Action Plan 2023

4. Immigration as a Gateway to Global Talent

Immigration is a crucial component in attracting the Metro Vancouver region's tech talent pool. The diverse and inclusive nature of the tech sector is enriched by professionals from around the world, contributing to the region's reputation as a global tech hub. The relative convenience, transparency, and affordability of Canada's immigration system play a pivotal role in facilitating the immigration of highly skilled tech professionals to the Metro Vancouver region.

PROVINCIAL PATHWAYS FOR PERMANENT RESIDENCE

British Columbia's nominee programs align with the specific talent needs of the province, addressing shortages in the workforce and supporting the growth of various economic sectors. With streams tailored for specific categories, the tech industry in the Metro Vancouver region benefits from specialized international hiring. The following are two frequently used pathways by the tech industry for hiring international talent:

1. **British Columbia Provincial Nominee Program (BC PNP)**: The BC PNP is an economic immigration program that allows the Province to select immigrants whose skills align with the specific labour market needs of the region. This program offers a pathway for international graduates, skilled and semi-skilled workers, and their families to become permanent residents of Canada, while underscoring the Province's commitment to attract and retain individuals who can positively impact the local economy and community. The eligible streams under this program are:

    a. Skills Immigration for workers and recent graduates with skills needed by BC employers;

    b. Entrepreneur Immigration for experienced entrepreneurs intending to manage a business in the province; and

2. **British Columbia Provincial Nominee Program Tech (BC PNP Tech)**: The BC PNP Tech is part of the BC PNP program and allows candidates with job offers for in-demand tech occupations to apply for Provincial nomination with expedited processing. This specialized program streamlines the immigration process for skilled professionals and aligns well with the Province's commitment to support the growth of export-oriented tech industries like high-tech, digital media and entertainment, agri-tech, and clean tech.

FEDERAL PATHWAYS FOR PERMANENT RESIDENCE

Government of Canada immigration programs offer skilled workers several pathways to permanent residence to ensure that international talent has an opportunity to remain within the regional ecosystem. These pathways are best suited for skilled workers, entrepreneurs, international students, and investors looking to reside in Canada on a permanent basis. The tech industry primarily employs the use of the following:

1. Canadian Experience Class (CEC): The CEC is a streamlined immigration pathway designed to benefit individuals with Canadian work experience. For employers in the country, this program offers the advantage of retaining international hires on a permanent basis in addition to gaining access to a diverse pool of international talent in the economy that is already familiar with the Canadian working environment.

2. Federal Skilled Worker Program (FSWP): The FSWP is a key component of Canada's immigration system, aimed at attracting skilled workers from around the world to contribute to the country's economic growth. It targets occupations that are in demand in the Canadian labour market and is periodically updated to reflect the evolving needs of the regional economies.

3. Federal Skilled Trades Program (FSTP): The FSTP facilitates the recruitment of skilled trades workers on an international scale. It is designed to benefit both skilled trades workers and companies in need of specific expertise that may not be readily available in the local labour market.

4. H-1B Visa Holder Program: This program aims to retain highly skilled workers in North America, specifically those with a valid H-1B visa residing in the United States. Eligible individuals can apply for an open work permit lasting up to 3 years.

TEMPORARY IMMIGRATION STREAMS

In addition to pathways for permanent residence, there are several temporary immigration streams that offer flexible employment solutions for both employers and skilled international workers. Temporary immigration pathways are often best suited for individuals who wish to live and work in Canada for a limited duration. These pathways are typically designed for specific purposes, and individuals such as skilled workers on short-term assignments, seasonal workers, international students, and intra-company temporary transfers. The tech industry in the Metro Vancouver region primarily takes advantage of the following programs, among others:

1. International Mobility Program (IMP): The International Mobility Program (IMP) facilitates the entry of temporary foreign workers for reasons other than permanent immigration. This program operates alongside the Temporary Foreign Worker Program (TFWP) initiative and is designed to respond to various economic, social, and cultural objectives, allowing for the movement of foreign workers to Canada for specific purposes. One significant category under the IMP is the Intra-Company Transferees, which permits multinational companies to temporarily transfer qualified employees to Canada. Importantly, unlike the TFWP, the IMP generally allows for the hiring of foreign workers without the requirement of a Labour Market Impact Assessment, streamlining the process for employers seeking to bring in temporary foreign workers.

2. Global Talent Stream (GTS): Categorized under the Temporary Foreign Worker Program (TFWP), the GTS is aimed at addressing the immediate skills and talent needs of Canadian businesses, particularly those in the Information and Communications Technology (ICT) and Science, Technology, Engineering, and Mathematics (STEM) sectors. The GTS offers a fast-track processing mechanism for work permits, allowing eligible employers to access global talent swiftly. The goal is to process work permit applications within two weeks, enabling companies to expedite the hiring of foreign workers with specialized skills. It comprises two main categories:

   a. Category A for high-growth, innovative companies with a demonstrated need for in-demand, highly skilled talent, and

   b. Category B for companies seeking to fill positions on the Global Talent Occupations List, which includes specific occupations in ICT and STEM fields.

"Generally, immigration policies in Canada are very conducive to accessing talent from around the world. The Global Talent Stream, for example, is one of the programs we use frequently."

– HR Director, Microsoft

"Industry connections and work-integrated learning opportunities play a significant role in tech hiring. About 80% - 85% of our Co-op students find full-time employment with their Co-op employer within 6 months of graduating."

– Co-op coordinator, SFU

Collectively, these immigration programs offer an important avenue for the recruitment of global talent in Metro Vancouver. As a vibrant and diverse tech hub, the region benefits from a constant supply of skilled professionals to maintain its competitive edge, made possible through Canada's convenient and streamlined immigration frameworks. This contrasts with the U.S. immigration system, which can be complex and characterized by various visa categories and quota limitations, further highlighting Canada's relative advantage in attracting and retaining global talent. Moreover, Canada's reputation for being open to immigrants from diverse backgrounds makes regions like Metro Vancouver attractive destinations for individuals looking to build their careers and lives in a progressive, dynamic and inclusive environment.

"Compared to the U.S., the Canadian immigration pathways are much more transparent, quick, and cost-friendly. Our counterparts in the U.S. are always surprised by how quickly we can hire international talent here. I can't recall having a single application denied in over 20 years."

– Director of Recruiting, Phoenix Labs

"As a U.S.-based tech company, we find that bringing in international talent is significantly smoother in Canada compared to the U.S. The convenience of the Canadian permanent residence system has been pivotal in facilitating some of our key hires. Unlike the U.S., where immigration status is often tied to employers, creating potential stress in the workplace, the Canadian system allows our international team members to focus on their work without any concerns regarding their immigration status. The transparent, points-based permanent residence pathways, particularly those geared towards STEM professionals, not only streamline the process but also offer numerous benefits for those in the tech industry."

– VP Engineering, Lumotive

5. Strategic Talent Acquisition Enabled by Professional Recruiting Firms

Recruitment firms act as strategic partners for tech companies, facilitating the identification and acquisition of top-tier professionals across tech industries. Their expertise in talent scouting, market trends, and industry dynamics positions them as key contributors to the growth and success of the region's tech ecosystem.

In a market where skilled tech professionals are in high demand, recruitment firms also serve as guides, helping companies navigate the vast talent pool to find the right fit for their unique needs. They specialize in understanding the intricacies of the tech industries, while ensuring companies remain aligned with the cultural nuances and business practices observed within the region.

"My advice for companies looking to move to the Metro Vancouver region is to not underestimate the importance of the existing culture of collaboration that has been developed in this region over many years. It is critical for them to navigate the ethos in a way that creates the best possible working relationships with peer companies, regardless of whether they are a big player in the industry or a small company."

– HR Director, Microsoft

Moreover, recruitment firms contribute to the tech ecosystem's diversity and inclusion by actively seeking

out candidates from diverse backgrounds. Their role extends beyond matching technical skills; they play a crucial part in building teams that reflect the multicultural fabric of the Metro Vancouver region. This focus on diversity not only aligns with the values of many tech companies but also enhances creativity and innovation within their tech teams.

"As an organization that has been supporting newcomers in Canada for several decades, we offer significant value to the tech companies in the Metro Vancouver region. Most importantly, we offer an additional channel for companies to reach talented candidates from diverse backgrounds who can potentially contribute unique perspectives towards tech innovation and company leadership. MOSAIC is a great avenue for companies to reach out to in order to fulfil their corporate social responsibility to build a culture of inclusion and diversity within their organizations."

– Director of Employment Services, MOSAIC

"Our objective is to deliver programs that assist and train newcomers in Canada while meeting the demands of the Canadian labour market."

– Director of Employment Services, MOSAIC

Recruiting firms generally find Metro Vancouver is well-positioned to attract top-tier global talent because the region is an attractive destination and thriving hub that supports career growth and a great balanced lifestyle,

"As a recruiting firm, it is not difficult to persuade tech talent from across the globe to choose the Metro Vancouver region. The region has earned its reputation as 'Northern Silicon Valley' with one the fastest-growing tech job markets in North America. The recent introduction of fast-track immigration has also added a valuable dimension to our recruitment efforts. Additionally, what sets this region apart from other tech hubs in Canada is the combination of the lifestyle, favorable weather, and recreation opportunities. These factors draw people from across the country to settle here, creating an important synergy between lifestyle appeal and job opportunities."

– Associate Partner, TEEMA

"From a candidate's perspective, what makes the Metro Vancouver region stand out is its visible diversity. People moving here from across the globe are highly likely to find a very present community that they can connect with. It is also a region with a high perceived sense of safety for many, regardless of how they identify."

– Director of Employment Services, MOSAIC

Looking ahead: What opportunities will the future bring?

The evolving tech landscape in the Metro Vancouver region offersconcrete opportunities for real advancements for companies at various growth stages—whether they're a start up, scale up, or considering expanding into the region. From favourable market conditions to a robust talent pool, the future offers tangible advantages for businesses at every stage of development. The following are key aspects of the promising tech future of this region:

Expansion of Existing Tech "Clusters"

As the region's established tech companies expand further, the already thriving tech hub is positioned for growth. This expansion not only fortifies the existing strength of specific tech clusters but also contributes significantly to the overall advancement of the tech ecosystem in the Metro Vancouver region.

"We definitely have plans of growing and expanding in the Metro Vancouver region as we continue to build our engineering team."

– Director of Innovation, Hydra Energy

"We would absolutely recommend the Metro Vancouver region to a peer high-tech company. Our expansion in this region has been greatly supported by the efforts of Invest Vancouver who helped us connect to the ecosystem quickly to make sure we are in touch with the right people and teams."

– VP Engineering, Lumotive

"We really believe in the caliber of Canadian tech talent, especially in the Metro Vancouver region. Importantly, the government has several supportive initiatives in place and companies can scale very quickly."

– CEO, Moment Energy

"As far as expansion is concerned, we have very robust growth goals as a biotech company. Over the next two years, our goal is to move five new molecules into clinical programs to evaluate their therapeutic potential. A very significant portion of the work and research required to get there will be conducted in the Metro Vancouver region as we add to our employee base here."

– Executive Head & Global Head of HR, Zymeworks

Emerging Tech Frontiers

The Metro Vancouver region is also poised to be a leader in various emerging technologies. From the transformative possibilities offered by artificial intelligence, blockchain, and virtual reality to breakthroughs in quantum computing, the region is becoming a hotspot for cutting-edge advancements in high-tech, paving the way for a new era of technological innovation.

The Metro Vancouver region is a global leader in the Virtual Reality (VR) and Augmented Reality (AR) ecosystem, boasting a large and vibrant community. With a wealth of experience spanning decades in VFX, animation, and video games, BC is ranked as the third largest film and production centre in North America, with a large majority of this ecosystem being concentrated within the Metro Vancouver region.[23] [24] Additionally, with initiatives like the VR/AR Association expanding their reach globally, relocating companies can tap into a vast network and unlock significant opportunities in the VR and AR domain.

Canada's National Quantum Strategy, unveiled by the federal government and backed by a substantial $360 million commitment, marks a significant step in shaping the trajectory of quantum technologies across the country.[25] Led by physicists from SFU[26], this strategy highlights the contributions of the Metro Vancouver region's leading institutions in the field of quantum computing. Moreover, initiatives like Quantum BC, led by UBC, SFU, and University of Victoria are catalyzing substantial developments in the tech sector within the region, paving the way for significant progress in the future. A notable local success story is that of Metro Vancouver-based Photonic Inc., which secured $140 million in funding, including $100 million in venture capital financing from Microsoft and other investor in 2023[27], to develop commercially viable and market-ready quantum computers utilizing silicon chips within the next five years.

"Looking towards future prospects, as companies look to expand their technical capabilities, there is a strategic emphasis on Artificial Intelligence (AI) in the Metro Vancouver region. The region already has a very strong AI ecosystem, with immense opportunity to complement Canada's overall strengths as a global leader in AI. At DIGITAL, we're focused on supporting the commercialization and adoption of AI technologies within our health, natural resource and service sectors. We're also focused on supporting the scaling of Canadian companies to be global leaders within emerging market opportunities for AI. Simultaneously, the Metro Vancouver region's dedicated focus on quantum computing is evident through active initiatives, including recent calls for quantum development and DIGITAL's support in alleviating critical business problems with pilot solutions and engaging target adopter customers within safety, security, operations, logistics and material and chemical discovery."

– Director, The Digital Learning Lab

At the University of British Columbia (UBC), the Centre for Artificial Intelligence Decision-making and Action (CAIDA) is a leader in AI research. With over 100 professors and research associates spanning 27 departments, CAIDA focuses on developing, analyzing, and applying AI systems for decision-making and action. As part of the Institute for Computing, Information and Cognitive Systems (ICICS), CAIDA actively contributes to the region's commitment to AI innovation, positioning the Metro Vancouver region as a key player in the evolution of AI technologies of the future.

23 Source: https://silkstartdigibc.s3.amazonaws.com/010fea25-c61c-468b-aacd-15cb559c5810.pdf

24 Source: Immersive Technologies (Nordicity)

25 Source: https://www.canada.ca/en/innovation-science-economic-development/news/2023/01/government-of-canada-launches-national-quantum-strategy-to-create-jobs-and-advance-quantum-technologies.html

26 Source: https://www.sfu.ca/sfunews/stories/2023/01/sfu-physicist-stephanie-simmons-to-help-lead-canada-s-new-quantu.html

27 Source: https://photonic.com/news/photonic-raises-100m-for-quantum-technology/

Sustainable Solutions

Commitments to sustainability are ingrained within the ethos of the Metro Vancouver region's tech ecosystem with future potential opportunities in the flourishing green tech industry, where tech innovation converges with environmental consciousness. From renewable energy solutions and green building to water remediation, clean transport and regenerative agriculture, the region is at the forefront of shaping a more sustainable and resilient future.

This commitment to sustainable solutions positions the region as an ideal destination for tech companies eyeing a move to a forward-thinking and eco-conscious tech ecosystem. Anian, a renowned apparel company based in the Metro Vancouver region, exemplifies this commitment by prioritizing environmental responsibility. The company exclusively uses recycled natural fibers sourced from landfills, redirecting discarded clothing towards sustainable manufacturing. With a focus on transparency, Anian advocates for industry change by emphasizing recycled materials to combat excessive consumption. It sets an example for larger companies, fostering accountability and positive changes in manufacturing practices to contribute to a more sustainable future.

Moreover, the region's push for green building innovations opens avenues for tech companies specializing in eco-friendly construction materials and energy-efficient designs. An example is that of BC Passive House, Canada's first manufacturing plant prefabricating a panel system that meets rigorous, internationally recognized high-performance building standards – the Passive House Standards. BC has also gained prominence as a frontrunner in mass timber innovation, production, and application within North America. The BC Government forecasts that, by 2035, the mass timber sector could produce 1,880 more jobs in technology, forestry, engineering, and design, as well as an estimated 2,350 jobs in mass timber manufacturing.[28]

Urban agriculture expansion initiatives create space for technology-driven solutions in local food production, and the emphasis on smart water management offers opportunities for companies involved in developing sensor technologies and data analytics for efficient water usage. Companies like Terramera, a rapidly expanding Metro-Vancouver based sustainable agriculture clean tech enterprise, exemplify how the region is making significant strides in the field of green technology and contributing to the growth of sustainable practices.

The tech ecosystem's commitment to sustainability not only aligns with global environmental objectives but also provides a conducive environment for technology companies to actively contribute and prosper within the expanding green tech industry and ecosystem.

28 Source: https://www2.gov.bc.ca/gov/content/industry/construction-industry/mass-timber

Tech Integration Across Industries

The future holds remarkable opportunities for the seamless integration of technology across diverse industries. From innovative applications in green economy to transformative advancements in entertainment and media, the combination of diversity and strength in the Metro Vancouver region's tech ecosystem presents opportunities for cross-industry collaboration and innovation for all tech companies in the region.

"Some of the key tech facilities offered by Simon Fraser University (SFU) such as the Quantum Algorithms Institute, BC Centre for Agri-tech Innovation, the Smart Manufacturing Hub, and the Image Tech Lab, serve as valuable resources for companies spanning diverse sectors. These facilities are actively utilized by tech companies seeking innovation and advanced research capabilities. The collaborative environment fostered by SFU encourages cross-sector collaboration, presenting ample opportunities for companies to engage in mutually beneficial partnerships and drive innovation across various domains."

– Co-op Coordinator, SFU

"The Metro Vancouver region is great in terms of accessing high quality tech talent that can contribute across multiple disciplines. There is plenty of crossover in skills across companies in different industries that proves invaluable."

– VP Stakeholder Relations, Terramera

Global Collaboration

The Metro Vancouver region stands out as a key hub for international collaboration due to its strategic location, cultural diversity, and global perspective. Future opportunities will arise through strong global partnerships, connecting local talent with the international stage and facilitating the exchange of ideas across borders. Looking ahead, the region's tech ecosystem is not just adapting to change but actively influencing it. The opportunities for tech companies are extensive in this region, making it a prime location for tech visionaries to play a crucial role in defining the next phases of innovation and success.

"The Metro Vancouver region is a world-class destination for investment and talent, as attested by our 5,500+ members. We have one of the top growing technology talent markets in the world.

It is the 3rd largest film and TV production centre in North America. The Metro Vancouver region's economy is also globally recognized for its commitment to addressing climate change, developing and promoting clean technologies, and advancing the green economy. Headquartered here are over 800 critical mineral exploration companies and two-thirds of the province's largest forestry companies, with a focus on investing in world-leading sustainability initiatives.

With a dynamic and diversified economy complemented by the surrounding natural beauty and cultural vibrancy, the Metro Vancouver region is recognized worldwide as a top-tier lifestyle city, making it an incredible place to live, work, and play."

– The Greater Vancouver Board of Trade (GVBoT)

Appendix A: List of Resources

Following is a list of example organization, institutions, and programs that support the growth of the Metro Vancouver region's tech talent ecosystem:

Category	Organization / Institution / Program	Link
Post-Secondary Institution	University of British Columbia (UBC)	https://www.ubc.ca/
	Simon Fraser University (SFU)	https://www.sfu.ca/
	British Columbia Institute of Technology (BCIT)	https://www.bcit.ca/
	Capilano University	https://www.capilanou.ca/
	Douglas College	https://www.douglascollege.ca/
	Langara College	https://langara.ca/
	Kwantlen Polytechnic University	https://www.kpu.ca/
	Vancouver Community College	https://www.vcc.ca/
	Emily Carr University of Art & Design	https://www.ecuad.ca/
	Northeastern University Vancouver	https://vancouver.northeastern.edu/
Immigration Program	BC Provincial Nominee Program	https://www.welcomebc.ca/Immigrate-to-B-C/About-The-BC-PNP
	Express Entry Program	https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/express-entry/works.html
	Temporary Foreign Worker Program	https://www.canada.ca/en/employment-social-development/services/foreign-workers.html
	Global Talent Stream	https://www.canada.ca/en/employment-social-development/services/foreign-workers/global-talent.html
	International Mobility Program	https://www.canada.ca/en/immigration-refugees-citizenship/services/work-canada/hire-temporary-foreign/international-mobility-program.html
Not-for-Profit (funded in part by government)	DIGITAL	https://www.digitalsupercluster.ca/
	MITACS	https://www.mitacs.ca/
	Canada Media Fund	https://cmf-fmc.ca/
	Genome BC	https://www.genomebc.ca/
	Creative BC	https://creativebc.com/
Public Sector Organization	National Sciences and Engineering Research Council of Canada (NSERC)	https://www.nserc-crsng.gc.ca/index_eng.asp
	Canada Foundation for Innovation	https://www.innovation.ca/
	Sustainable Development Technology Canada	https://www.sdtc.ca/en/

Category	Organization / Institution / Program	Link
Public Sector Program	NRC Industrial Research Assistance Program	https://nrc.canada.ca/en/support-technology-innovation/about-nrc-industrial-research-assistance-program
	NPower Canada	https://npowercanada.ca/
	Innovator Skills Initiative	https://www.innovatebc.ca/programs/isi/
	Wage Subsidy Program	https://www.workbc.ca/discover-employment-services/wage-subsidy-program
	Scientific Research & Experimental Development (SR & ED) Tax Incentives	https://www.canada.ca/en/revenue-agency/services/scientific-research-experimental-development-tax-incentive-program.html
Business Association	Greater Vancouver Board of Trade	https://www.boardoftrade.com/
	Burnaby Board of Trade	https://bbot.ca/
	Surrey Board of Trade	https://businessinsurrey.com/
Industry Association	BC Tech Association	https://wearebctech.com/
	Clean Energy BC	https://cleanenergybc.org/
	Digi BC	https://www.digibc.org/cpages/home
	First Nations Technology Council	https://www.technologycouncil.ca/
	Life Sciences BC	https://lifesciencesbc.ca/
	VR/AR Association Vancouver Chapter	https://www.thevrara.com/vancouver-chapter
	AInBC	https://www.ainbc.ai/
	Frontier Collective	https://thefrontiercollective.com/
	The Canadian Hydrogen and Fuel Cell Association (CHFCA)	https://www.chfca.ca/
Employment Service	MOSAIC	https://mosaicbc.org/
Recruiting Agency	TEEMA Group	https://teemagroup.com/
	Goldbeck Recruiting	https://www.goldbeck.com/
	SWIM Recruiting	https://swimrecruiting.com/it-technology/
	Signature Recruiting	https://sigrecruiting.com/

Appendix B: Number of Enrollments in Tech Programs by Occupation

Following are the total enrollments in British Columbia's public post-secondary tech or tech-related programs mapped to the tech occupations that graduates of the program would typically join from 2017 – 2021:

Category	Occupation	Instructional Program (s)	No. of Enrollments				
			2017	2018	2019	2020	2021
Design & technicians	Biological technologists and technicians	Biochemistry/biophysics and molecular biology	2130	2090	2055	2105	2075
		Biology, general	4485	5475	5465	5520	5620
		Microbiological sciences and immunology	890	865	800	800	845
	Chemical technologists and technicians	Chemistry	1595	1625	1630	1655	1650
		Food science and technology	310	285	275	270	245
		Physical science technologies/ technicians	120	115	100	100	95
	Electrical and electronics engineering technologists and technicians	Electrical and electronic engineering technologies/ technicians	1020	1040	1035	980	980
		Electromechanical and instrumentation maintenance	155	150	165	160	135
	Industrial designers	Design and applied arts	3040	2990	2935	2845	2690
		Mechanical Engineering	1870	1965	2040	2105	2115
	Industrial engineering and manufacturing technologists and technicians	Industrial production technologies/technicians	-	-	-	120	115
	Industrial instrument technicians and mechanics	Electrical/electronics maintenance and repair technology	275	215	175	215	190
	Mechanical engineering technologists and technicians	Mechanical engineering related technologies/ technicians	680	660	615	610	535
	Technical occupations in geomatics and meteorology	Geography and cartography	2070	2085	2060	2075	1995

Category	Occupation	Instructional Program (s)	No. of Enrollments				
			2017	2018	2019	2020	2021
Digital Media & Entertainment	Actors and comedians	Drama/theatre arts and stagecraft	830	875	880	880	840
	Audio and video recording technicians	Audiovisual communication technologies/technicians	210	215	190	200	200
		Film/video and photographic arts	640	665	665	625	620
		Fine arts and art studies	2075	2130	2205	2155	2205
	Conductors, composers and arrangers	Music	1460	1500	1470	1440	1370
	Film and video camera operators	Audiovisual communication technologies/technicians	210	215	190	200	200
		Film/video and photographic arts	640	665	665	625	620
		Journalism	425	460	500	510	495
	Graphic arts technicians	Graphic communication	1080	1065	1260	1415	1430
	Managers - publishing, motion pictures, broadcasting and performing arts	Film/video and photographic arts	640	665	665	625	620
		Fine arts and art studies	2075	2130	2205	2155	2205
	Other technical and co-ordinating occupations in motion pictures, broadcasting and the performing arts	Drama/theatre arts and stagecraft	830	875	880	880	840
		Film/video and photographic arts	640	665	665	625	620
	Producers, directors, choreographers and related occupations	Audiovisual communication technologies/technicians	210	215	190	200	200
		Drama/theatre arts and stagecraft	830	875	880	880	840
		Film/video and photographic arts	640	665	665	625	620
		Fine arts and art studies	2075	2130	2205	2155	2205
	Support occupations in motion pictures, broadcasting, photography and the performing arts	Film/video and photographic arts	640	665	665	625	620
		Fine arts and art studies	2075	2130	2205	2155	2205
	Theatre, fashion, exhibit and other creative designers	Design and applied arts	3040	2990	2935	2845	2690
		Drama/theatre arts and stagecraft	830	875	880	880	840
		Fine arts and art studies	2075	2130	2205	2155	2205

Category	Occupation	Instructional Program (s)	No. of Enrollments				
			2017	2018	2019	2020	2021
Engineering	Aerospace engineers	Mechanical engineering	1870	1965	2040	2105	2115
	Civil engineers	Civil engineering	1845	1855	1990	2040	1945
		Environmental/environmental health engineering	205	200	200	225	245
	Electrical and electronics engineers	Electrical and electronic engineering technologies/ technicians	1020	1040	1035	980	980
		Electrical, electronics and communications engineering	2155	2165	2210	2265	2215
	Engineering managers	Business administration, management and operations	21650	23005	23195	22965	22520
		Civil engineering	1845	1855	1990	2040	1945
	Geological engineers	Civil engineering	1845	1855	1990	2040	1945
	Industrial and manufacturing engineers	Electrical, electronics and communications engineering	2155	2165	2210	2265	2215
		Mechanical engineering	1870	1965	2040	2105	2115
		Mechanical engineering related technologies/ technicians	680	660	615	610	535
	Mechanical engineers	Mechanical engineering	1870	1965	2040	2105	2115
		Mechanical engineering related technologies/ technicians	680	660	615	610	535
		Mechatronics, robotics, and automation engineering	650	680	635	585	580
	Other professional engineers, n.e.c.	Mechanical engineering	1870	1965	2040	2105	2115

Category	Occupation	Instructional Program (s)	No. of Enrollments				
			2017	2018	2019	2020	2021
Research	Biologists and related scientists	Biochemistry/biophysics and molecular biology	2130	2090	2055	2105	2075
		Biology, general	4485	5475	5465	5520	5620
		Ecology, evolution, systematics and population biology	235	235	245	280	315
	Chemists	Biochemistry/biophysics and molecular biology	2130	2090	2055	2105	2075
		Chemistry	1595	1625	1630	1655	1650
	Geoscientists and oceanographers	Geography and cartography	2070	2085	2060	2075	1995
		Geological and Earth sciences/ geosciences	740	675	700	680	670
		Natural resources conservation and research	3085	3035	3120	3215	3165
	Mathematicians, statisticians and actuaries	Management sciences and quantitative methods	55	80	145	180	180
		Mathematics	1405	1550	1480	1475	1445
		Statistics	660	720	705	775	820
	Other professional occupations in physical sciences	Physical science technologies/ technicians	120	115	100	100	95
	Physicists and astronomers	Physics	1050	1080	1080	1060	1020

Category	Occupation	Instructional Program (s)	No. of Enrollments				
			2017	2018	2019	2020	2021
Software	Computer and information systems managers	Business administration, management and operations	21650	23005	23195	22965	22520
		Business / commerce, general	7435	7735	8150	7990	7830
		Computer Science	7770	8265	8685	9170	9650
	Computer engineers (except software engineers and designers)	Computer engineering	1215	1305	1370	1445	1460
		Computer Science	7770	8265	8685	9170	9650
		Electrical, electronics and communications engineering	2155	2165	2210	2265	2215
	Computer network technicians	Computer engineering technologies/technicians	1290	1720	1920	1985	1890
		Computer/information technology administration and management	460	450	450	450	445
		Electrical and electronic engineering technologies/ technicians	1020	1040	1035	980	980
	Computer programmers and interactive media developers	Computer engineering	1215	1305	1370	1445	1460
		Computer engineering technologies/technicians	1290	1720	1920	1985	1890
		Computer Science	7770	8265	8685	9170	9650
	Database analysts and data administrators	Economics	3810	3990	4075	4155	3760
		Mathematics	1405	1550	1480	1475	1445
		Statistics	660	720	705	775	820
	Information systems analysts and consultants	Business administration, management and operations	21650	23005	23195	22965	22520
		Computer engineering technologies/technicians	1290	1720	1920	1985	1890
		Computer Science	7770	8265	8685	9170	9650
	Information systems testing technicians	Computer engineering technologies/technicians	1290	1720	1920	1985	1890
		Computer Science	7770	8265	8685	9170	9650
	Software engineers and designers	Computer engineering	1215	1305	1370	1445	1460
		Computer engineering technologies/technicians	1290	1720	1920	1985	1890
		Computer Science	7770	8265	8685	9170	9650

Appendix C: Number of Credentials in Tech Programs by Occupation

Following are the total credentials received in British Columbia's public post-secondary tech or tech-related programs mapped to the tech occupations that graduates of the program would typically join from 2017 – 2021:

Category	Occupation	CIP Program Name	No. of credentials				
			2017	2018	2019	2020	2021
Design & technicians	Biological technologists and technicians	Biochemistry/biophysics and molecular biology	370	385	415	400	420
		Biology, general	775	785	840	840	925
		Microbiological sciences and immunology	180	185	170	180	170
	Chemical technologists and technicians	Chemistry	270	255	235	255	295
		Food science and technology	105	125	120	125	120
		Physical science technologies/ technicians	50	45	45	30	35
	Electrical and electronics engineering technologists and technicians	Electrical and electronic engineering technologies/ technicians	255	295	290	260	225
		Electromechanical and instrumentation maintenance	45	55	65	60	60
	Industrial designers	Design and applied arts	615	615	685	715	765
		Mechanical Engineering	375	425	455	475	500
	Industrial engineering and manufacturing technologists and technicians	Industrial production technologies/technicians	-	-	-	-	55
	Industrial instrument technicians and mechanics	Electrical/electronics maintenance and repair technology	155	145	100	85	75
	Mechanical engineering technologists and technicians	Mechanical engineering related technologies/technicians	220	235	240	230	195
	Technical occupations in geomatics and meteorology	Geography and cartography	540	550	535	585	560

Category	Occupation	CIP Program Name	No. of credentials				
			2017	2018	2019	2020	2021
Digital Media & Entertainment (non-software)	Actors and comedians	Drama/theatre arts and stagecraft	220	215	230	250	200
	Audio and video recording technicians	Audiovisual communication technologies/technicians	100	100	105	85	95
		Film/video and photographic arts	270	205	220	220	190
		Fine arts and art studies	480	540	490	535	490
	Conductors, composers and arrangers	Music	400	350	325	340	340
	Film and video camera operators	Audiovisual communication technologies/technicians	100	100	105	85	95
		Film/video and photographic arts	270	205	220	220	190
		Journalism	145	125	140	155	165
	Graphic arts technicians	Graphic communication	380	455	435	490	520
	Managers - publishing, motion pictures, broadcasting and performing arts	Film/video and photographic arts	270	205	220	220	190
		Fine arts and art studies	480	540	490	535	490
	Other technical and co-ordinating occupations in motion pictures, broadcasting and the performing arts	Drama/theatre arts and stagecraft	220	215	230	250	200
		Film/video and photographic arts	270	205	220	220	190
	Producers, directors, choreographers and related occupations	Audiovisual communication technologies/technicians	100	100	105	85	95
		Drama/theatre arts and stagecraft	220	215	230	250	200
		Film/video and photographic arts	270	205	220	220	190
		Fine arts and art studies	480	540	490	535	490
	Support occupations in motion pictures, broadcasting, photography and the performing arts	Film/video and photographic arts	270	205	220	220	190
		Fine arts and art studies	480	540	490	535	490
	Theatre, fashion, exhibit and other creative designers	Design and applied arts	615	615	685	715	765
		Drama/theatre arts and stagecraft	220	215	230	250	200
		Fine arts and art studies	480	540	490	535	490

Category	Occupation	CIP Program Name	No. of credentials				
			2017	2018	2019	2020	2021
Engineering	Aerospace engineers Civil engineers	Mechanical engineering	375	425	455	475	500
		Civil engineering	440	465	480	505	460
		Environmental/environmental health engineering	60	55	65	70	40
	Electrical and electronics engineers	Electrical and electronic engineering technologies/ technicians	255	295	290	260	225
		Electrical, electronics and communications engineering	470	485	480	545	585
	Engineering managers	Business administration, management and operations	4965	5275	5905	6950	6250
		Civil engineering	440	465	480	505	460
	Geological engineers	Civil engineering	440	465	480	505	460
	Industrial and manufacturing engineers	Electrical, electronics and communications engineering	470	485	480	545	585
		Mechanical engineering	375	425	455	475	500
		Mechanical engineering related technologies/technicians	220	235	240	230	195
	Mechanical engineers	Mechanical engineering	375	425	455	475	500
		Mechanical engineering related technologies/technicians	220	235	240	230	195
		Mechatronics, robotics, and automation engineering	110	125	130	135	120
	Other professional engineers, n.e.c.	Mechanical engineering	375	425	455	475	500
Research	Biologists and related scientists	Biochemistry/biophysics and molecular biology	370	385	415	400	420
		Biology, general	775	785	840	840	925
		Ecology, evolution, systematics and population biology	80	85	80	95	105
	Chemists	Biochemistry/biophysics and molecular biology	370	385	415	400	420
		Chemistry	270	255	235	255	295
	Geoscientists and oceanographers	Geography and cartography	540	550	535	585	560
		Geological and Earth sciences/ geosciences	180	160	125	160	120
		Natural resources conservation and research	465	555	545	585	615
	Mathematicians, statisticians and actuaries	Management sciences and quantitative methods	-	-	-	70	60
		Mathematics	190	215	260	315	360
		Statistics	115	170	195	215	260
	Other professional occupations in physical sciences	Physical science technologies/ technicians	50	45	45	30	35
	Physicists and astronomers	Physics	165	140	160	165	180

Category	Occupation	CIP Program Name	No. of credentials				
			2017	2018	2019	2020	2021
Software	Computer and information systems managers	Business administration, management and operations	4965	5275	5905	6950	6250
		Business,/commerce, general	645	750	900	950	860
		Computer Science	1045	1145	1305	1415	1635
	Computer engineers (except software engineers and designers)	Computer engineering	175	230	220	255	310
		Computer Science	1045	1145	1305	1415	1635
		Electrical, electronics and communications engineering	470	485	480	545	585
	Computer network technicians	Computer engineering technologies/technicians	370	420	470	640	525
		Computer/information technology administration and management	145	150	155	215	175
		Electrical and electronic engineering technologies/ technicians	255	295	290	260	225
	Computer programmers and interactive media developers	Computer engineering	175	230	220	255	310
		Computer engineering technologies/technicians	370	420	470	640	525
		Computer Science	1045	1145	1305	1415	1635
	Database analysts and data administrators	Economics	1170	1150	1155	1265	1275
		Mathematics	190	215	260	315	360
		Statistics	115	170	195	215	260
	Information systems analysts and consultants	Business administration, management and operations	4965	5275	5905	6950	6250
		Computer engineering technologies/technicians	370	420	470	640	525
		Computer Science	1045	1145	1305	1415	1635
	Information systems testing technicians	Computer engineering technologies/technicians	370	420	470	640	525
		Computer Science	1045	1145	1305	1415	1635
	Software engineers and designers	Computer engineering	175	230	220	255	310
		Computer engineering technologies/technicians	370	420	470	640	525
		Computer Science	1045	1145	1305	1415	1635
		Electrical, electronics and communications engineering	470	485	480	545	585

Appendix D: Interviews Conducted

Following are the list of organizations, companies, and institutes interviewed for this guide:

Company / Organization / Institute Interviewed	Category	Interviewee	Title of Interviewee	Date of Interview
Sony Imageworks	Digital Media & Entertainment	Laurie Murdoch	VP People & Organization	21st Sep 2023
Phoenix Labs		Andrew Glover	Director of Recruiting	17th Oct 2023
Microsoft	High-Tech	Penny Chong	HR Director	22nd Sep 2023
Lumotive		Apurva Jain	VP Engineering	28th Sep 2023
Hydra Energy	Green Economy	Patrick Steiche	Director of Innovation	25th Sep 2023
Zymeworks	Life Sciences	Laura O'Connor	Executive Director and Global Head of Human Resources	12th Oct 2023
Terramerra	Agritech	Kim Haakstad	VP, Stakeholder Relations	12th Oct 2023
Moment Energy	Clean Tech	Edward Chiang	Co-founder / CEO	20th Oct 2023
Ministry of Post-Secondary Education and Future Skills	Government	Melanie Nielsen	Executive Director	27th Oct 2023
Teema Group	Recruitment Agency	Judi Wannamaker	Associate Partner	07th Nov 2023
MOSAIC	Employment Service	David Lee	Director of Employment Services	23rd Oct 2023
SFU	Post-secondary Institution	Cristina Eftenaru	Coop coordinator	30th Oct 2023
SFU		Stephanie Greaves	Co-op Coordinator	10th Nov 2023
UBC		Betty Cho	Co-op Coordinator	28th Nov 2023
DIGITAL	Non-profit	Sydney Goodfellow	Director, Digital Learning Lab	20th Nov 2023
First Nations Technology Council		Megan Jordan	Director, Communications and Engagement	7th Dec 2023

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