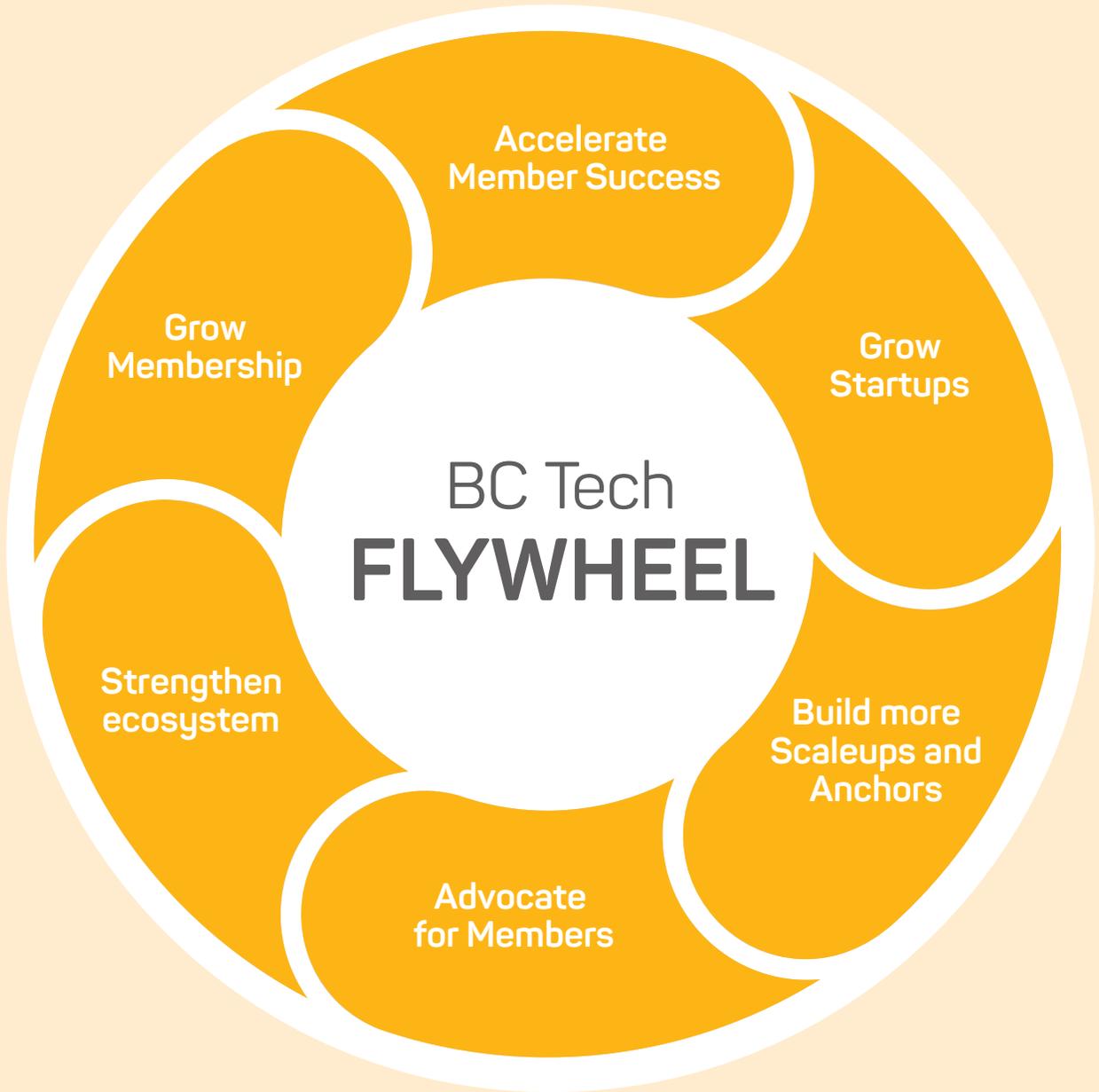




A New Economic narrative for BC

Labour Supply and Demand in the Tech Sector

June 2022



Accelerate
Member Success

Grow
Startups

Build more
Scaleups and
Anchors

Advocate
for Members

Strengthen
ecosystem

Grow
Membership

BC Tech
FLYWHEEL

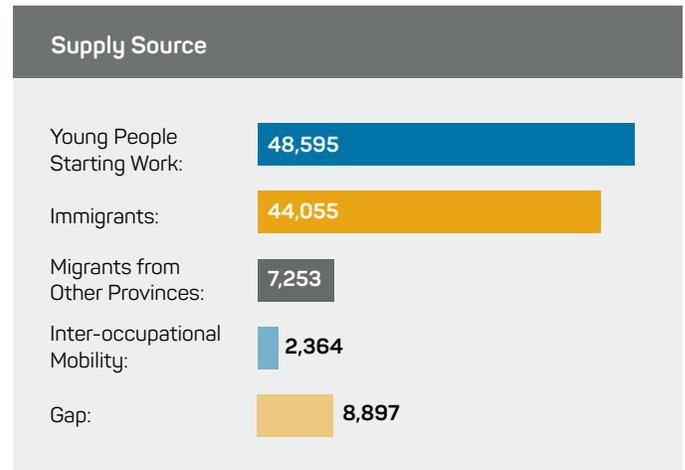
Labour Supply and Demand in the Tech Sector

Access to skilled talent is the number one challenge facing tech companies of all sizes in British Columbia today and that challenge is expected to worsen in the coming decade. Lack of sufficient tech savvy workers will not only limit the growth of BC's tech industry but will limit the ability of BC's non-tech companies to adopt technology and increase productivity. This tech talent supply gap is a huge risk to the BC Government's Stronger BC Economic Plan.

BC Government Estimates of Tech Talent Demand and Supply

In the BC Government Labour Market Outlook 2021, for the industry classification of professional, scientific, and technical services it predicts in the next 10 years:

- 140,700 job openings; 14 per cent of provincial total. This is the highest of any private sector job
- The highest number of new jobs of any major industry group at 75K
- Highest employment growth of any industry at 6% which is double the provincial industry average. Computer systems design and related services is even higher
- Professional, scientific, and technical services have more than three times the employees that agriculture, fishing, forestry and mining combined currently have



In addition to the 140,700 job openings, there are also job openings for technical workers in traditional industries. In a ranking of 500 occupations as to which have the highest opportunity, 4 of the top 6 are tech-based roles. For roles defined as purely STEM occupations government data predicts there will be 111,333 job openings in the next 10 years. Government predicts the supply for those roles will come from the following sources:

BC Tech Industry Estimates of Tech Talent Demand

Based on feedback from companies the average industry predicted growth ranges from a low case of 6.7% to a high case of 8.9% – every year – for the next 10 years. This would result in 262,290 to 362,071 job openings over the next 10 years, which is 2.3 to 3.3 times the government's forecast of job openings.

With the BC Labour Markets Information Office estimated talent supply of tech occupations of 102,436, that will leave a gap of 159,854 to 259,635 unfilled open positions for new and replacement roles.

What is the economic impact of those unfilled roles?

To quantify the tax revenue impact of unfilled roles we must estimate the job years impact. Using company demand and the government's supply numbers, this will result in a gap of 731,867 to 1,176,906 jobs years over the next decade.

With the average tech worker generating revenue of \$282K/yr, this represents a loss of between \$200 Billion and \$300 Billion in GDP over the decade if these roles cannot be filled.

Furthermore, tech positions are high quality, high paid roles with an average salary of \$89K/yr and expected salary inflation of at least 5% annually over the coming decade. The loss in income tax paid by these workers alone to the Province would be \$5.2 Billion to \$8.4 Billion.



What is the gap by source of worker?

In order to meet this demand requirement, we will need to increase all areas of supply significantly as shown in the table below:

Supply Source	Government Estimate	Low Industry Estimate	High Industry Estimate	Gap to Low Industry Est.	Gap to High Industry Est.
Inter-occupational Mobility	2,364	70,000	100,000	67,636	97,636
Young People Starting Work	48,595	100,000	120,000	51,405	71,405
Immigrants	44,055	70,000	110,000	25,945	65,945
Migrants from Other Provinces	7,253	20,000	30,000	12,747	22,747
Reduction Unemployment	169	2,290	2,071	2,121	1,902
Gap	8,897				
Total	108,969	262,290	362,071	159,854	259,635

Why is the tech talent shortage more damaging to BC's economy than other labour shortages?

Many industries are facing a talent shortage however, the tech talent shortage has some unique factors that increase the negative impact not just in the tech industry but across every part of BC's economy:

- Labour shortages are an issue for every industry in BC. The strategy in non-tech sectors is to increasingly automate low paid jobs and low value tasks with technology so that the workers available can be redeployed in higher value add functions. But the automation that allows other sectors to manage their labour shortages has the opposite effect on the tech sector as it increases demand for tech talent.
- If BC's traditional industries cannot access the tech savvy workers needed to adopt technology, they will not be able to increase their quality, efficiency and competitiveness globally and it will have a negative impact on productivity.
- It isn't possible for BC to go from 'volume/commodity' to 'value-add' in traditional industries without injecting tech and innovation and without the skills of the tech savvy workers that deploy
- Without the local tech talent to develop and deploy technology solutions, industry will need to import solutions from non-BC companies and deploy them with the services of non-BC workers.
- If BC suffers from a shortage of tech savvy talent it will also limit the growth of home-grown tech companies and BC's tech sector.
- Government projects that tech sector job growth will be the main source of private sector job growth in the next decade – a key source of taxation revenues and GDP growth for BC. But these jobs can only be realized if the talent exists to fill them.
- BC cannot afford to starve of talent its main private sector growth industry and forego the tax revenues for government that these new jobs represent.
- Competition for BC's existing tech talent will increase as post-Covid it is fully accepted that tech roles can be done. So, competition for BC's tech savvy workers will come not only from companies with a BC presence, but also from employers based elsewhere, notably the USA.
- We must avoid creating a talent scarcity battle which drives up cost and reduces global competitiveness. Insufficient supply of tech talent will inflate tech wages, worsening BC's income disparity issues and further fuel the escalating price of housing.

What can we do?

The good news is that in the realm of economic challenges this is a good problem to have. It is far more painful and more difficult for a government to face insufficient market demand or excess talent supply.

The challenge that talent supply is not sufficient to meet talent demand is a good problem to have – if it is addressed. Clear signals must be given that the scale of the problem is understood and the action to be taken will address the scale of the problem. In the absence of those clear signals investor uncertainty will cause BC to stumble and lose momentum to other Canadian and North American jurisdictions that move faster to capture the market opportunity for tech talent.

The policy levers to address talent supply problems are better established with a clear cost and return on investment and more possibility for innovation increase the speed with which talent is brought into the job market, which will also increase the cost-effectiveness of the measures.

With well-established current and forecast talent demand, backed by the tailwind of global trends of increased demand, governments can confidently act on the supply side issues.

Tackling each source of talent supply in turn, here are some thoughts on how supply could be increased:



Inter-occupational Mobility

The pandemic showed that when individuals were given the opportunity to move into higher skilled roles, they were able to do so rapidly. During the pandemic professional, scientific, and technical services positions grew by 14.5% from Aug 2020 to August 2021. Many of these roles were filled from individuals who rapidly re-trained from other roles that were in decline. Through BC Tech's reskilling programs, we have seen first-hand how people make the transition from lower skilled roles to a tech role with only 3 months of training. Although retraining puts further challenges on other industries, these lower skilled jobs can be filled more easily and faster through immigration and temporary foreign worker programs. We will need more than 20 times the number of retrained workers as compared to the government estimates.

Young People Starting Work

Digital literacy skills are increasingly as important as reading, writing and arithmetic and we need to ensure our young people are both fluent and confident to use these skills. The opportunity exists to expose more youth to technology earlier in the education process through student curriculum, awareness and the education of teachers. In order to attract more girls into STEM roles we need to provide exposure to technology skills at an earlier age in the K-12 system and in ways that are more engaging for under-represented groups.

Post-secondary, we also need to provide more short skilling courses for high school graduates. Far more can be done at colleges and universities to enable work integrated learning and curriculum modules that provide exposure to the tech sector and tech jobs to a far wider group of students than those studying for 4 year technical degrees. Subsidized internships and work placements at tech companies can open doors for under-represented groups to start a career in the tech sector.

Immigrants

In order to meet the demand for tech talent, we will need to attract more than double the number of immigrants compared to what the current Provincial government estimates are. It will be critical that the Province attracts tech skilled immigrants from all over the globe. Innovation on how to work with foreign credentialed individuals will be key to increase supply and do so in a cost efficient way. This is not about lowering the bar for BC's credentialing systems. But BC needs a skills assessment system that can determine how close the existing credential matches the BC equivalent and responsive training system that can get individuals to the required level in a focused, fast and flexible way. If immigrants with tech experience are not available, we must recruit immigrants with technical aptitudes and provide reskilling programs.

The retention of international STEM students from Canadian universities will also be critical. Governments allocate a lot of resources looking for FDI (Foreign Direct Investment) when what is also desperately needed today is FDT (Foreign Direct Talent).

Migrants from Other Provinces

While BC has an enviable quality of life, the attraction of tech workers will take more than that. Workers want to see a strong tech ecosystem and community. Ontario has invested massively in building the platform, awareness and supports for the tech community through its investments in not for profits like MaRs, Invest Ottawa and Communtech which provide similar services to BC Tech but at 10x the volume. This has enabled Ontario to significantly outperform BC in building startups into scaleups.

Conclusion

The BC Government's StrongerBC economic plan emphasizes the two pillars of Inclusive Growth and Clean Growth which support 6 key priorities:

- Supporting people and families
- Building resilient communities
- Advancing true, lasting and meaningful reconciliation with Indigenous peoples
- Meeting BC's climate commitments
- Leading on environmental & social responsibility
- Fostering innovation across our economy

Each of these priorities speaks to the need to train many more British Columbians in the digital literacy skills required to successfully participate in the modern, tech-enabled economy, whether that is by working in the tech sector itself or in tech-related roles in other industrial sectors.

It is often said that the 20th century economy was fueled by oil. The 21st century economy is fueled by talent. Without the necessary talent supply BC cannot deliver on the promise of StrongerBC and a clean, inclusive and growing economy for BC.





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