KPMG

British Columbia technology report card

Tackling the scale up challenge

November 2020

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Contents

Foreword

The COVID-19 crisis is an unprecedented disruptor, but it is also a unique catalyst.

Over the past few years, rapid expansion in access to mobile technologies and digital innovations have provided new ways to make every company more resilient. Increasingly, the line between tech companies and tech-enabled companies is blurring as we realize the crucial importance of deploying tech talent and tech innovation in every company to drive growth and resilience. The pandemic is accelerating this global shift to a digital economy, which in turn is helping traditional industries become much more competitive, sustainable, and better positioned to handle future shocks, including pandemics.

At BC Tech, we believe that technology is a tool for good in our lives, our communities, and our province. We believe that today every company is a tech company, and that it's clear BC won't be returning to the same pre-COVID world.

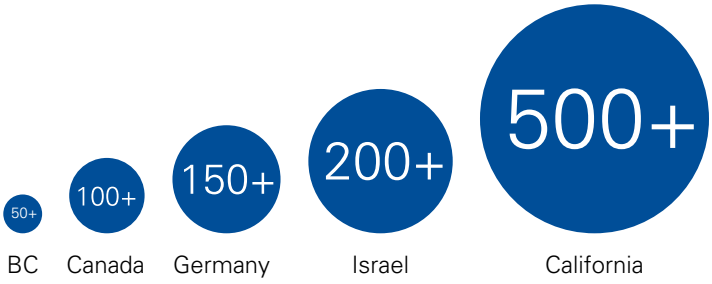
In its March 2020 report, BC's Emerging Economy Taskforce concluded that the province "must build on its strengths in the technology sector and invest further in innovation, as well as facilitate the widespread adoption of innovation and technology across all sectors of the economy in order to improve overall business productivity, increase incomes and enable workers to thrive. Economies with strong home-grown technology and innovation industries have higher rates of technology adoption and capture more of the economic benefit than economies that rely on importing technology from elsewhere."

BC should be one of the best places in the world to build a tech business. We have the talent, the academic institutions, and capital is increasingly available. Even still, we have a persistent scaleup gap; our companies stay small, sell too early, and don't grow into the medium and large-sized companies that anchor a tech ecosystem.

The majority of BC's tech companies have ten or fewer employees, and in this 2020 BC Technology Report Card, KPMG notes that the distribution of small and medium-sized enterprises and larger tech companies has remained relatively consistent. In complementary research conducted by BC Tech, we asked ourselves why BC companies seemed to stay small not only compared to other global ecosystems but compared to other parts of Canada.

BC's Biggest tech companies are small:

The threshold to be one of the largest 10% of tech companies in BC is an employee count of 50. The comparable threshold for Canada is 100 with trails Germany at 150, Israel at 200, and California at 500.



We found a clear answer: what BC lacks is sustained, multi-year, public investment to provide the kind of programs that help companies grow from small to medium-sized and from medium-sized to large. These accelerator programs provide access to leadership training, market access, subject matter experts, mentors, and advisors that are beyond the resources of start-ups to access or fund themselves. Without the right programs and sufficient funding, ecosystems get hollowed out over time, leaving only start-ups and multinationals. With funding for these programs, companies can successfully navigate a path around the "valley of death" that otherwise challenges tech start-ups.

We know that scaleup companies are more likely to create jobs, attract investment capital, invest in R&D, remain in the community, and create economic prosperity. Moreover, we know the potential of BC's tech sector is even greater than the success we see today and that with the economic challenges ahead, a thriving BC tech sector is essential to pulling us out of this pandemic and building a resilient future economy for all of BC.

Jill Tipping
President & CEO
BC Tech Association

Executive summary

2020's BC Technology Report Card arrives at a critical moment-in-time for the province's tech sector. On the one hand, COVID-19 has fast-tracked digital transformations within every industry, creating gainful opportunities for BC tech firms who can support or spearhead those initiatives. On another, pandemic restrictions, have created competitive hurdles and barriers that have held some sectors back from realizing their full, international potential.

And there is certainly potential to spare. Relative to our previous study in 2018, BC's tech sector continues to outperform its provincial counterparts and lead other Canadian industries. Moreover, the community has retained its uniquely creative and collaborative environment that attracts the innovators, entrepreneurs, and problem-solvers needed to push the industry ahead. These traits bode well for the sector's ongoing success, but stronger domestic investments and growth supports are required to close the gaps between it and its competitors in the US and around the world.

KPMG is honoured to be a part of the BC technology ecosystem, especially as it explores growth opportunities. This optimism is shared among the senior BC tech leaders we spoke with while preparing this report, whose insights helped paint a fuller picture of the current BC tech environment. It's thanks to them, our BC tech partners, and our network of KPMG subject matter experts that we can extract key findings from our most recent industry review.

The tech sector in BC is a fearless ecosystem of entrepreneurs

Tech sector leaders believe BC entrepreneurs are willing to take risks on innovating for important issues. Moreover, our interviews reveal confidence that the sector's tech companies are adept at applying impactful solutions to big world problems. Their ability to do so is owed to the sector's uniquely cooperative culture that facilitates knowledge sharing, creativity, and mutual growth.

The BC tech sector continues to exhibit consistent growth in revenues, GDP contribution, and employment.

BC's tech sector has experienced consistent growth over the last decade compared to other provincial sectors that have seen greater fluctuations in terms of performance. BC's economy is also continuing to narrow the gap in tech jobs per capita relative to Ontario and Quebec, establishing itself as a strong epicenter of the sector. Nevertheless, there remains much more room to grow when compared to US jurisdictions.

BC's start-ups are maturing, but the province has difficulty fostering and retaining large anchor firms.

Small and medium-sized tech companies have continued to grow since our 2018 study; however, the distribution of small, medium, and large-sized enterprises has remained relatively consistent over the past two years with small and medium enterprises comprising nearly the vast majority of the ecosystem. In fact, in BC, there are only 22 companies in tech that employ at least 500 people (of nearly 11,000 total companies in the sector). An increase in the share of larger companies (anchor companies) would be more favourable as they are considered to play an important role in the development of a tech ecosystem. It is important to encourage the further growth and scaling of tech sector companies through the combined efforts of both private and public stakeholders.

Foreign investors are perceived as more competitive and risk-tolerant

While BC tech companies have access to capital from Canadian investors at earlier stages of their lifecycle, the common consensus is that firms must look beyond our borders for investors that are more open to taking risks and offer more competitive investment terms as they look for later-stage growth capital. As such, a more robust capital market within Canada would increase the ability of companies to raise later rounds of financing that can fuel their growth as they get through the funding gap commonly referred to as the "valley of death".

George D. Kondopulos
Partner, Tax and Greater Vancouver Area Industry Leader for Technology, Media & Telecommunications
KPMG in Canada

Mike deBruijn
Partner, Transfer Pricing & Economic Services
KPMG in Canada

BC technology sector scores

Economic indicators	Versus other BC sectors			Versus other provincial tech sectors		
	2020	2018	2016	2020	2018	2016
Economic performance indicators	**A**	A	A	**B+**	A	B
Sector input indicators	**N/A**	N/A	N/A	**B**	B–	B–
Overall	**A**	A	A	**B**	B	B–

Summary of Economic Performance Indicators

Revenues

- Tech revenue continues to grow steadily with a 5-year CAGR of 8.1%.
- Tech revenue is growing faster than comparable provinces and Canada as a whole.
- BC's tech revenue per employee ranks below Alberta, having surpassed Ontario and the Canadian average in recent years.
- The BC tech sector may be experiencing strong growth, but it remains relatively small when compared to similar regions in the United States. This highlights the potential for continued growth and expansion for the BC tech sector.

GDP

- BC tech sector GDP continues to grow at a higher CAGR than other BC industries.
- BC's tech sector continues to grow faster than the majority of tech sectors in other Canadian provinces, although its growth between 2013 and 2018 is comparable to that realized in Ontario.
- BC's tech GDP has overtaken Alberta's tech GDP in terms of both simple growth rate and absolute size; however, the contribution of BC's tech sector to its provincial economy ranks behind that of US states with comparable populations.

Employment & Wages

- BC tech sector continues to create jobs, with employment growing by 70% since 2003 and tech jobs per capita growing at double the rate of Ontario and Quebec's tech sectors between 2013 and 2018.
- BC's tech sector's productivity (GDP per person employed) falls below the Canadian average and is only higher than Quebec.
- BC tech sector jobs pay 79.4% more than the BC provincial average. This rate has seen sustained growth, but it is not matching growth in employment over the same time period.

Exports

- BC tech exports 5-year CAGR is strong, reaching 10.7%.
- BC's tech service exports contribute more to tech GDP than the Canadian average, with the share of tech GDP explained by tech service exports increasing in recent years while the Canadian average has remained relatively stagnant
- The contribution of BC's exports to tech GDP has increased in recent years, closing the gap with the national average.

Summary of Sector Input Indicators

Talent

- BC outperforms Quebec in the number of undergraduate tech degrees per capita and has closed the gap with Alberta in the same metric.
- BC performs better than Quebec in regards to the number of tech undergraduate degrees per capita and has closed the gap with Alberta thanks to strong growth between 2015 and 2017. That said, the province continues to have a significantly lower tech undergraduate degrees per capita than Ontario.
- BC has seen a steady increase in the percentage of master's graduates with technical degrees; however, the gap between the percentage of graduate tech degrees in BC as compared to Alberta, Ontario, and Quebec continues to be nearly 5%.

Patents

- BC continues to rank behind Ontario, Alberta, and Quebec in terms of patents filed and granted.
- Patents granted as a percent of patent applications still lags all comparable jurisdictions and falls below the Canadian average. In context, however, there was a nationwide decrease in percent of patents granted in recent years.
- BC ranks behind Ontario, Alberta, Quebec, and the Canadian average in terms of patents granted per provincial GDP.

R&D Expenditure

- R&D expenditure increased significantly between 2015 and 2017 with growth driven mainly by business expenditure and the higher education, private non-profit sector.
- BC remains below the national and OECD averages in terms of R&D expenditure as a percent of GDP.

Sector profile and comparative analysis

Introduction

BC's technology sector hosts nearly 11,000 companies representing a broad range of sectors, including interactive and digital media, clean technology, life sciences, information and communication technology, and IT and engineering services[1]. In addition to creating more than 120,000 jobs for British Columbians, the sector generates close to $18 billion in GDP, nearly 90% of which is produced by services.

Blending sector data and KPMG insights, this Report Card reviews the BC tech sector's performance in relation to other BC industries, Canadian counterparts, and jurisdictions outside our borders. We also examine the sector's progress since the 2018 Report Card and highlight themes for collective action going forward.

Methodology

This report reflects an analysis based upon data and information gathered from external datasets and focused discussions with executives. These sources are described in further detail below.

External Data

The predominant data source used for this analysis is a high tech dataset published by BC Stats. On a biannual basis, BC Stats compiles an extensive dataset of economic indicators related to the tech sector in BC, Canada, and the United States. In addition to the BC Stats data, analyses were supplemented by data from sources such as Statistics Canada, the Organisation of Economic Cooperation and Development, and the Canadian Intellectual Property Office.

Focused Discussions

In conjunction with the BC Tech Association, KPMG conducted focused discussions with executives from 13 different BC tech companies. The selection of companies was designed to reflect the diverse composition of the tech ecosystem in BC, with companies ranging from some of the largest technology companies in the city to start-ups with less than five employees from many of the different subsectors (cleantech, biotech, software).

Special thanks to executives who participated in our focused discussions and to BC Stats for developing a detailed collection of data and analysis for the high technology sector in BC, both of which greatly enabled our assessment.

[1] There is no universally adopted definition of what the technology (or "high technology") sector should encompass. In any case, such a definition is likely to vary over time as technology evolves. For the purposes of this report, KPMG has used the definition adopted by BC Stats, which allows us to leverage the detailed dataset published by the agency and ensures consistency with the definition used in previous versions of the BC Technology Report Card published by KPMG. The high technology sector, as defined by BC Stats, comprises "industries that produce high technology goods and services as their ultimate outputs", and is based on the North American Industry Classification System (NAICS). In 2020, a total of 37 standard industry categories have been included in the definition.

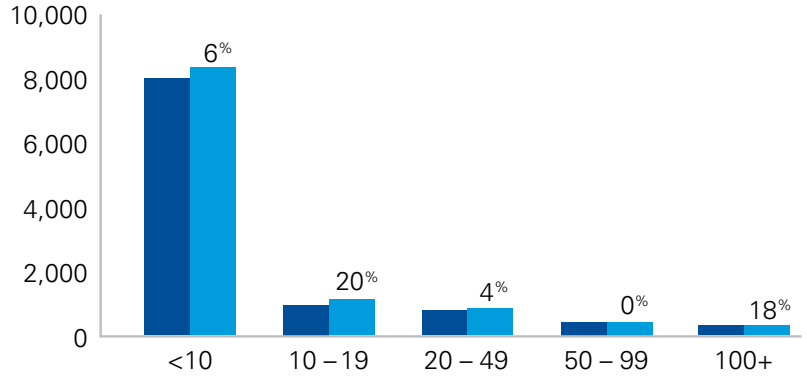
BC technology sector at a glance

Inputs

Labour	Intellectual property
123,170 Jobs	**$4B** R&D investment
$1,740 Average weekly earnings	

Production

Business Count and Growth 2016 – 2018



Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

Since our last report, more and more companies are progressing from start-ups to small enterprises. In addition, there has been growth in larger medium-size firms employing greater than 100 people. However, growth has stagnated in medium-size enterprises with between 50-100 employees.

Outputs

Domestic business	Exports
$35B Revenues	**$8B** Exports
$18B GDP	
90% Services	**81%** Services
10% Goods	**19%** Goods

Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

"The players in BC's tech sector have an affinity for going after the big problems – the 'moon shots' like hydrogen fuel cells, regenerative medicine, quantum computing, fixing drug discovery and carbon capture technologies that can (and will) have a tremendous impact on our world. That fearlessness is one of our biggest strengths, but I don't think it is celebrated as much in Vancouver as it should be."

Andrew Booth
AbCellera

Sector breakdown

The BC high technology sector comprises nearly 11,000 companies. Its BC Tech Association recognizes five distinctive subsectors within this growing space, including:

Information & communications technology

The BC information and communications technology segment is comprised of a diverse range of companies pursuing advances in software, cloud computing, information technology, Internet of Things, telecommunications, and electronics manufacturing. Mobile and digital media have been presented separately for the purposes of this report.

Clean technology

As a part of the BC's Climate Action Plan, the green economy has been a focus for growth in new jobs and innovation in the province. BC's tech sector is supported by the clean technology sector through the pursuits of alternative energy generation, storage, environmental remediation, and resource management systems.

Interactive & digital media

The digital media and wireless segment of the BC tech sector has experienced continued growth over the past two years. That growth has been driven by new platform technologies for mobile applications, the mainstream expansion of social media marketing, the creation and distribution of entertainment and education content, the emergence of augmented and virtual reality, and the proliferation of new consumer experiences in the video game and digital animation segments.

IT/Engineering & other services

The engineering and other services segment includes companies that provide IT, engineering, design, and environmental services to the government, industrial, and enterprise markets. BC has long had a strong base of engineering services companies that provide the core capabilities for infrastructure projects that relate to the resource, transportation, utilities, and government sectors.

Life sciences

The BC tech industry has historically benefitted from a strong life sciences sector in BC. Spanning the areas of pharmaceuticals, medical devices, research and testing platforms, the life sciences sector has had strong ties with all of BC's post-secondary institutions.

Key sectors

Information & communication technology

- Cloud computing
- Semi-conductor
- IT systems
- Ecommerce
- Enterprise software
- Communications
- Wireless devices

Clean technology

- Energy management
- Environmental technology
- Water technology
- Energy storage
- Alternative energy
- Natural gas

Interactive & digital media

- Mobile apps
- Web & social media
- Gaming

IT/Engineering services

- IT services
- Engineering services
- Environmental services
- Design/infrastructure

Life sciences

- Genetics
- Biotechnology
- Diagnostics
- Medical devices
- Healthcare technology

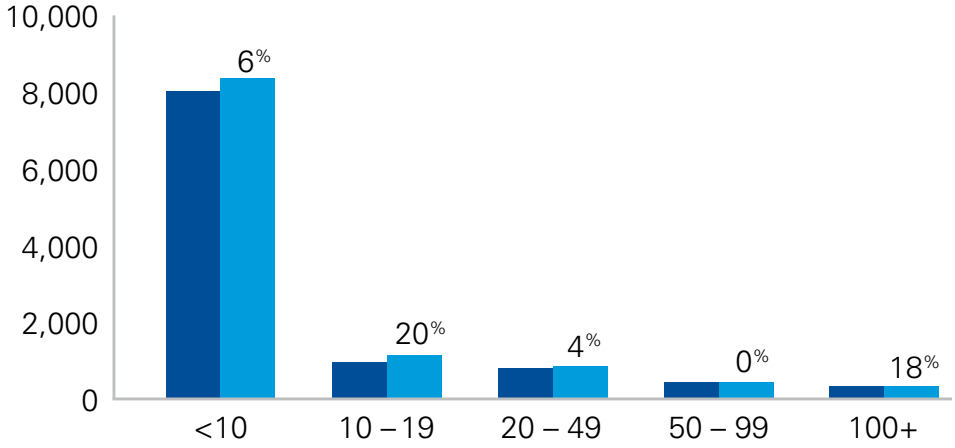
Tech environment in BC

The BC tech community is host to 10,941 businesses with at least one employee.

A majority of those businesses are small to medium-sized enterprises employing fewer than 50 employees, with nearly 80% employing less than 10. In fact, there are only 22 companies in the BC tech community that employ at least 500 people. While this distribution has not seen a significant change between 2016 and 2018, there has been an increase in companies employing more than 100 employees (+18%) while firms employing fewer than 100 employees have grown by nearly 7%. Although this growth is significant, the number of firms employing more than 100 employees (220) dwarfs in comparison to the number of firms employing less than 100 employees (10,721).

The BC tech community continues to be dominated by small firms with less than ten employees.

Business Count and Growth 2016 – 2018



Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

"We were able to quickly pivot to a remote work environment, but this has created new challenges for innovation and collaboration. You can get the job done, but trial and error remain to schedule creativity, promote cohesion, and maintain strong team relationships in a fully virtual environment."

Zac Cohen
Trulioo

As for where BC tech companies call home, 68% of firms are located in Mainland/Southwest region, 15% in Vancouver Island and Coast, and 8% within the province's Thompson & Okanagan region. Virtually all of the firms (92%) that employ more than 100 employees are located in the Mainland and Vancouver Island.

The North Coast saw the greatest increase of businesses between 2016 and 2018 at a growth of 9%. The Mainland/Southwest region, Thompson/Okanagan, and Kootenay Regions follow closely with a business count growth of 8%, while the Nechako and Northeast regions saw business count decreases over the same time period. As a result, the majority of employment in the tech sector is also in the Mainland/Southwest region, with approximately 79% of employment in the area. The remaining 11% of employment in tech resides in the Vancouver Island/Coastal region, and an additional 6% is in the Thompson and Okanagan region.[2]

Although the Mainland/Southwest region has the majority of BC's tech sector, growth in some of the smaller regions has been increasing in recent years.

Insights: COVID and the Tech Sector[3]

The COVID-19 pandemic has had a dramatic and unexpected impact on all sectors of the economy. Sectors that rely on tourism and travel faced unprecedented obstacles, while sectors such as technology were less impacted by supply chain disruptions and restrictions placed on the movement of people or goods and often found themselves in high-demand as they helped firms deal with a remote working environment. As a result, many companies within the BC tech sector saw an increased demand for services and products in the past six months. This is particularly true for biotechnology companies which saw the value and demand for innovation increase as a result of the pandemic. Many tech sector players have adapted to a remote working environment; however, some have faced certain constraints that have prevented them from achieving optimal performance. For example, travel restrictions prevented some tech companies from building relationships with companies outside BC and from integrating themselves within prospective networks. Similarly, shifting to a work-from-home environment has made it difficult for some companies to maintain and enhance their work culture, thereby hindering the levels of creativity and collaboration that have long contributed to the sector's success.

2 Employment estimated using business count by employee ranges, taking the median average of the employment range and multiplying by the number of businesses in each range. For companies employing 1500+ persons, 1500 was used as the employee estimate.

3 Based upon Focused Discussions held during October 2020

Part A: Economic performance indicators

The BC technology sector continues to progress as a dynamic sector with growth across multiple economic indicators. This section outlines how the BC technology sector is performing across revenues, technology GDP, employment, wages, and exports.

On a relative basis, the BC technology sector continues to show strength in growth in revenues, GDP, and employment.

BC technology sector – 2020 report card grades

	Versus other BC sectors	Versus other provincial tech sectors
Economic performance indicators		
Revenues	N/A	↗
GDP	↗	↗
Employment	↗	↗
Wages	→	→
Exports	N/A	→
Grade	**A**	**B+**

Highlights

The BC tech sector's economic indicators can be more fully appreciated when viewed in a broader context. For example, when compared to other sectors within its borders, the BC tech sector contributes more to the economy than traditional BC industries (e.g., forestry, mining, oil & gas) with $17.4B chained 2012 GDP in 2018. This continued dominance makes it a "top five" sector within the province.

Equally promising is the fact that the GDP and revenue of BC's tech sector each have one of the fastest compound annual growth rates between 2013 and 2018 when compared to other Canadian provinces. Moreover, the BC tech community is catching up to the larger provincial tech sectors in terms of GDP and revenue, and has surpassed many of them in average wages. At last count, average yearly earnings for the industry are 79% higher than the BC industrial average[4].

These positive indicators notwithstanding, it is important to note that the sector is underperforming in terms of the number of mid to large-size firms. That is, while BC has a growing number of mid-size companies, it continues to trail other more mature tech sectors in Ontario and Quebec.

4 References to industrial average refer to the all industry aggregated data provided by BC Stats in the Profile of the British Columbia Technology Sector: 2019 Edition.

Revenues

The BC technology sector generates a significant revenue base and is growing quickly compared to its provincial counterparts. On an absolute basis, BC ranks third in the country, trailing Ontario and Quebec. Based on a five-year compound annual growth rate, however, BC's technology sector currently ranks first; and based on a two-year simple growth rate, BC's technology sector ranks second in the country, outperforming Ontario and Quebec but trailing Manitoba.

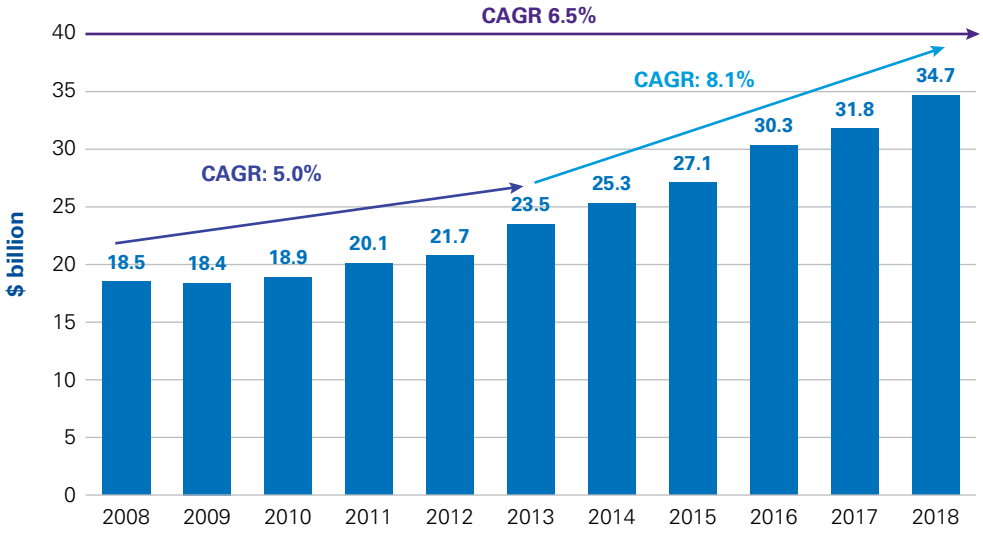
Comparison of sector revenues

	Versus other provincial tech sectors
Revenues	→
Revenue growth	↗
Summary	↗

Going deeper[5]

BC's technology sector revenues continue to have an upward trajectory, recording $34.7B in 2018. Over the last two years, the technology sector revenue grew an impressive 14.6%. The sector exhibits a five-year compound annual growth rate of 8.1%, which is a slight decrease from the 8.5% exhibited from 2011–2016.[6,7]

Growth in BC technology revenues



Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

5 Note that revenue figures include one company that may comprise up to 40% of the total revenues in the High Tech sector.

6 Revenue figures are not adjusted for inflation. For inflation-adjusted output values, please refer to the GDP section of this analysis.

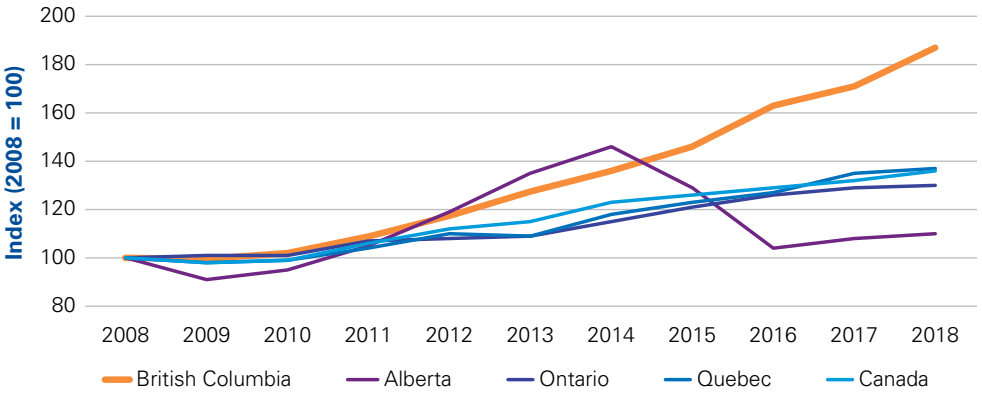
7 Sector revenue figures for BC are based on establishments. That is, for firms headquartered in BC, only the revenues generated from their BC operations are included in the revenue figures.

Revenue growth continues to outperform the Canadian average and ranks first of all comparable provinces.

Index of technology industry revenues[8]

On an absolute basis, BC's tech revenues outperform Alberta, but are smaller than the tech revenues generated in Ontario and Quebec for 2018. On growth measures, BC remains the clear leader in Canada with an 8.1% five-year compound annual growth rate, more than double the 3.3% national average. Per-employee revenue in BC's tech sector has increased since the last report to $282,000, ranking higher than Ontario and the national average, but placing BC in second behind Alberta.

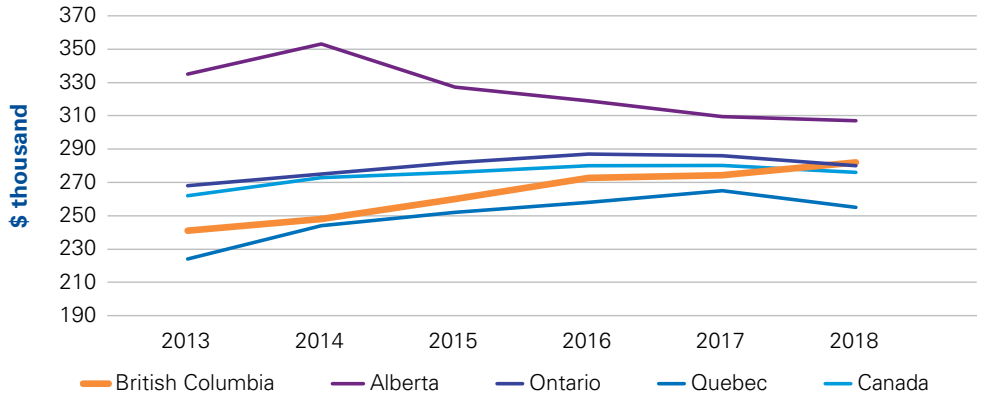
Index of technology sector revenues (2008 = 100)



Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

Compared with other Canadian provinces, BC's tech sector productivity has significantly improved since the last report.

Technology sector revenue per employee



Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

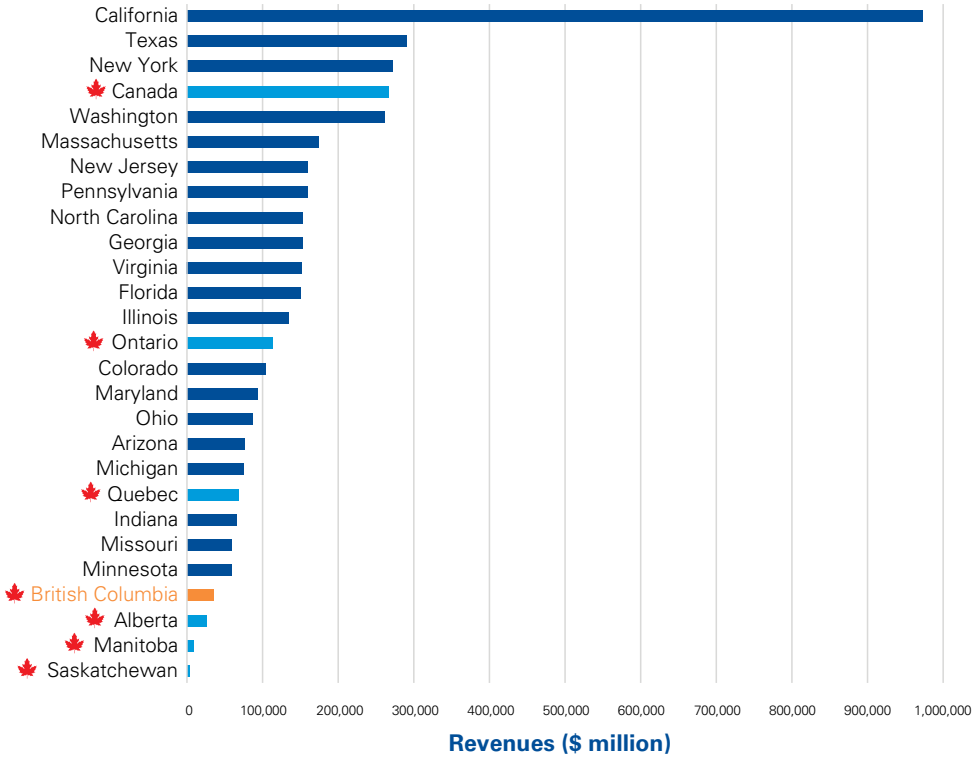
8 Note that revenue figures include one company that may comprise up to 40% of the total revenues in the High Tech sector.

Despite the strong growth of the BC technology sector, the sector's revenues lag behind major tech centres in the US. This indicates both the magnitude of the US economy versus Canada's and highlights the BC Tech sector's potential for continued growth and expansion.

Stateside, California jumps out as the clear leader in the tech space with over $973B in revenues from their developed tech sector, versus $35B for BC, $68B for Quebec, and $113B for Ontario. Moreover, California's tech sector revenue is more than triple that of all of Canada's tech sector combined. Importantly, a large gap in output continues to exist, even when considering states with more comparable in population to BC (e.g., Colorado, Arizona, or Minnesota).

Canadian tech sectors continue to lag behind those in the US, and BC continues to fall behind states with comparable populations (e.g. Colorado, Arizona, or Minnesota).

Technology sector revenues 2018



Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

Insight[9]

Although revenues show strong growth in recent years, the tech sector companies consulted for this study noted that they have had difficulty finding Canadian customers to buy their products. An easy target of additional sales could be to local customers who need a service or product that is manufactured or provided locally. Additionally, companies suggested that an incentive to get Canadian business customers to keep as much of their supply chain in Canada as possible will help to increase demand for tech sector products.

9 Based upon Focused Discussions held during October 2020

Gross domestic product

The technology sector is responsible for 7% of the BC industrial economy and continues to be one of the largest contributors to the provincial GDP at $17.4B in 2018 . Tech GDP grew 10% over the last two years. While the BC tech sector is strong and has exhibited positive growth, there is still an opportunity for further accelerated growth when compared to other provinces and US states.

Comparison of GDP

	Versus other BC sectors	Versus other provincial tech sectors
Industry GDP	↗	→
Industry GDP growth (2 year)	↗	↗
Summary	↗	↗

This section of the report highlights the current value GDP and the chained 2012 GDP value. Please note that, where available, our analysis will use chained dollar amounts to allow for comparisons across sectors and provinces as this format is used more widely by BC Statistics and Statistics Canada. Comparisons between the province and the US will rely on current value GDP.

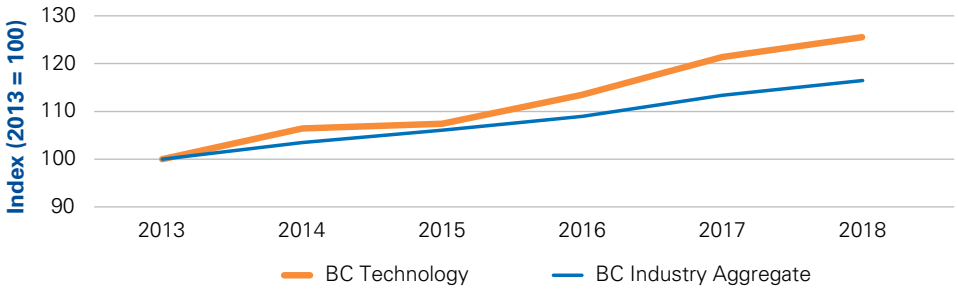
BC technology GDP, chained 2012 versus current

	Metric	BC technology Sector	BC industrial aggregate
Current	2018 GDP	$17.86B	$273.06B
	5-Year CAGR	5.4%	5.0%
Chained 2012	2018 GDP	$17.42B	$246.26B
	5-Year CAGR	4.6%	3.1%

Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

10 Note that values throughout will be reported in 2012 Chained Dollars unless otherwise noted

Index of GDP contribution (2013 = 100)



Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

Going deeper

Consistent with previous findings, BC technology continues to be one of the "top five" contributors to the provincial economy, outperforming traditional BC sectors such as forestry, mining, and oil and gas.

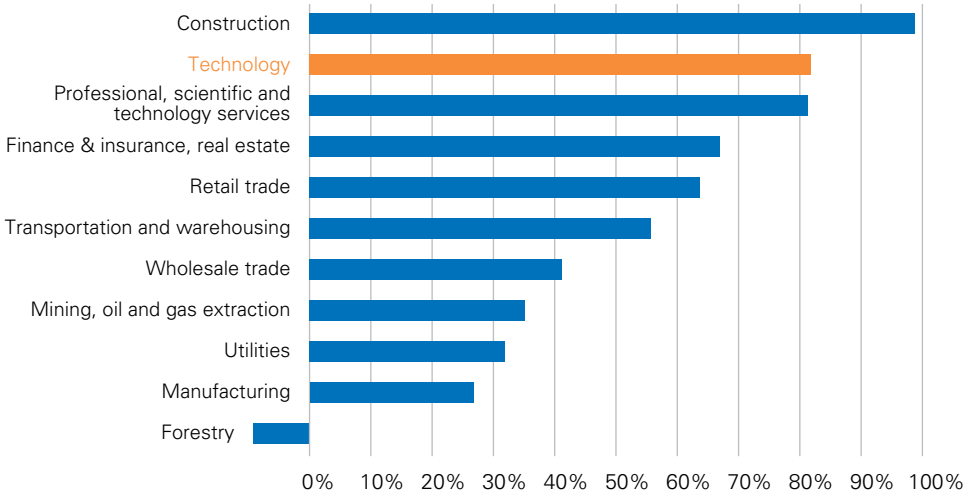
GDP growth by sector

	2018 Chained GDP ($ million)	5 year CAGR
Finance & insurance, real estate	58,216	3.3%
Construction	20,562	4.2%
Manufacturing	17,621	3.8%
Technology	17,415	4.6%
Retail trade	14,670	3.3%
Professional, scientific and technical services	15,439	4.0%
Transportation & warehousing	14,374	4.5%
Mining, oil and gas extraction	10,848	3.4%
Wholesale trade	9,455	1.9%
Utilities	4,833	1.4%
Forestry	1,844	-1.7%

CAGR = compound annual growth rate

Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

Industry GDP growth 2003–2018



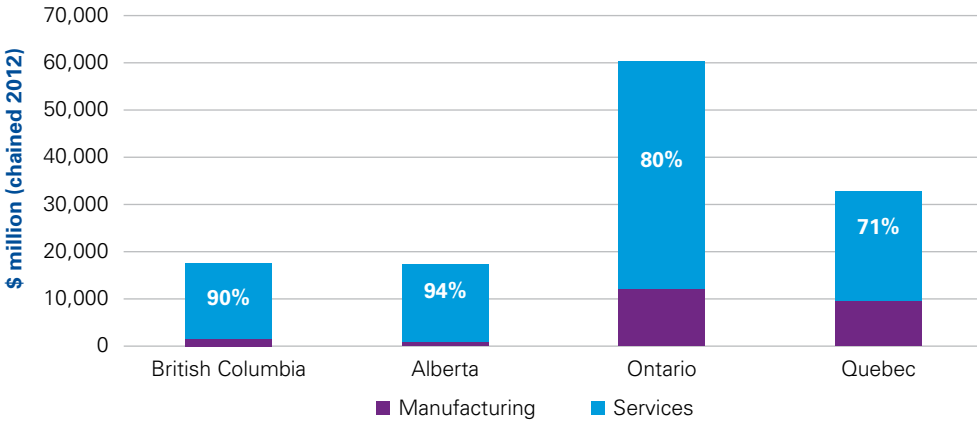
Utilities/transport/construction/wholesale/mining – goods producing
Others – services producing
Technology

Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

BC's tech sector continues to grow faster than any other sector in BC, with a 4.6% CAGR in GDP from 2013 to 2018.

Alberta's technology sector continues to align closest to BC's tech sector in terms of size and composition (services versus manufacturing). Since the last report card, the composition of BC's technology sector has remained relatively consistent, while Alberta's has shifted slightly to an increase in manufacturing. By comparison, Ontario and Quebec's tech sectors are significantly larger in size and have a greater focus on manufacturing.[11] BC's tech services GDP has grown at a five-year compound annual growth rate of 4.6%, while tech manufacturing has also realized a strong CAGR of 3.8% over the same period.

Technology GDP contribution and share of services and manufacturing sectors 2018

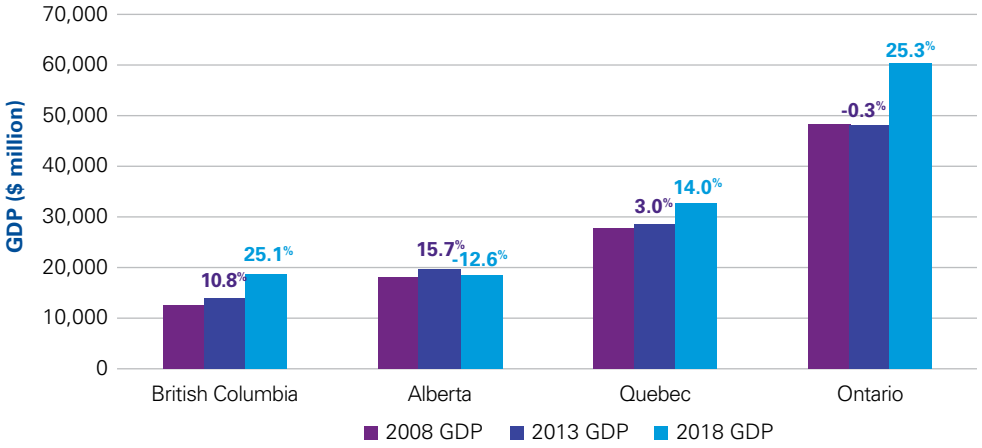


Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

11 When using chained GDP data, the sum of the components (Manufacturing and Services) does not necessarily add to the total, therefore the percentage breakdown of industry is an estimate.

Compared to other major Canadian tech provinces, BC's tech sector continues to surpass Alberta since the previous report but still ranks behind Ontario and Quebec. BC has consistently exhibited one of the highest tech sector growth rates over time, indicating that BC should continue to narrow the gap in comparison to other provinces.

Technology sector GDP and GDP growth between 2008, 2013, 2018

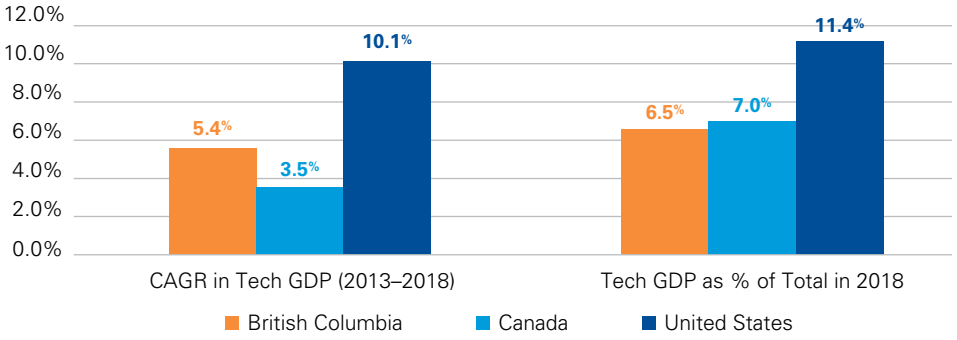


Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

With a five-year compound annual GDP growth rate of 4.6%, BC's tech sector GDP is growing faster than the tech sector in Canada. This represents an increase from the 3.8% realized between 2011 and 2016[12].

As of 2018, BC performs slightly below Canada's overall tech sector in terms of tech GDP as a percent of total GDP at 6.5%; however, the BC tech sector still lags in comparison to the US in terms of growth rate and percent of the economy.

Technology GDP CAGR and as percent of total GDP[13]



CAGR = compound annual growth rate

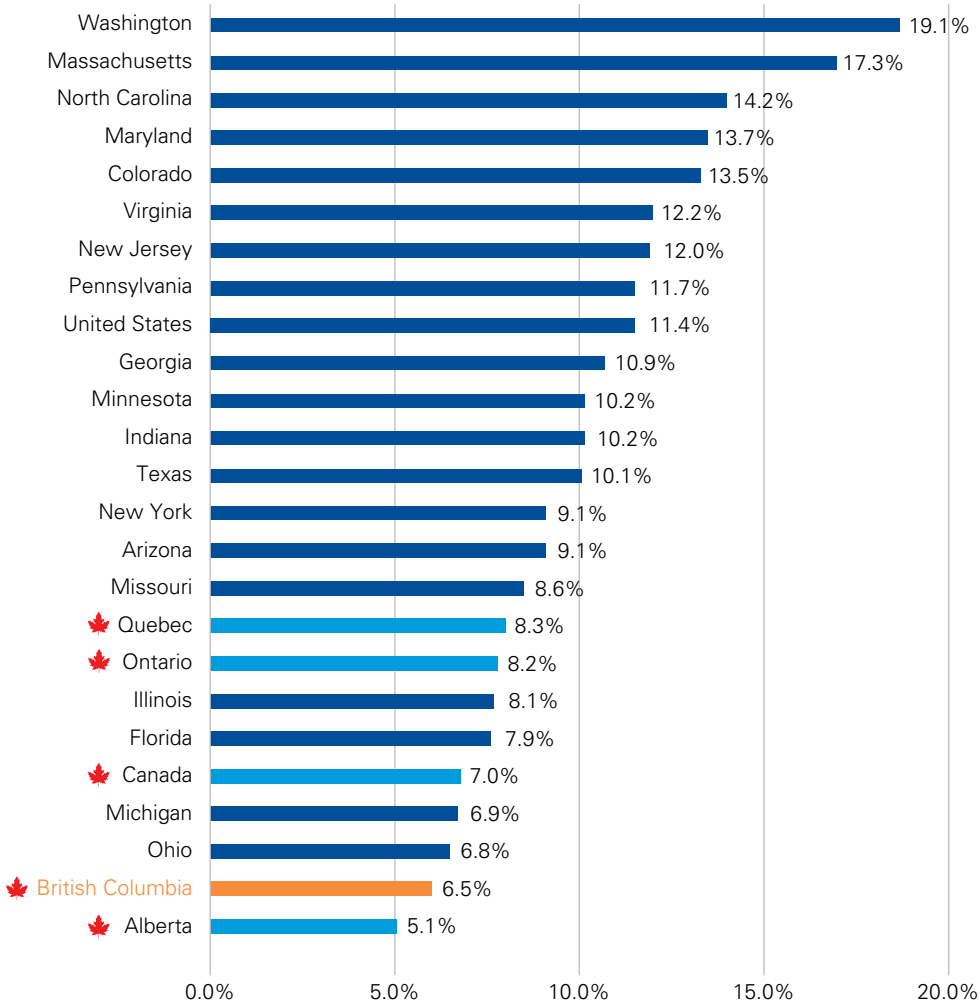
Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

12 Nominal GDP increased at a compound growth rate of 5.4 % between 2013 and 2018, an increase from the 4.6% realized between 2011 and 2016.

13 Chart uses nominal GDP because chained GDP data is unavailable for the US Tech sector

Although the BC tech sector is growing at a faster pace than the Canadian average, the performance of leading US states show the extent to which a tech sector can contribute to an economy. That is, while the tech sector in BC contributes 6.5% of the province's GDP, comparable US states like Massachusetts record an impressive 17% of their GDP as coming from technology.[14]

Percent of GDP from technology sector 2018



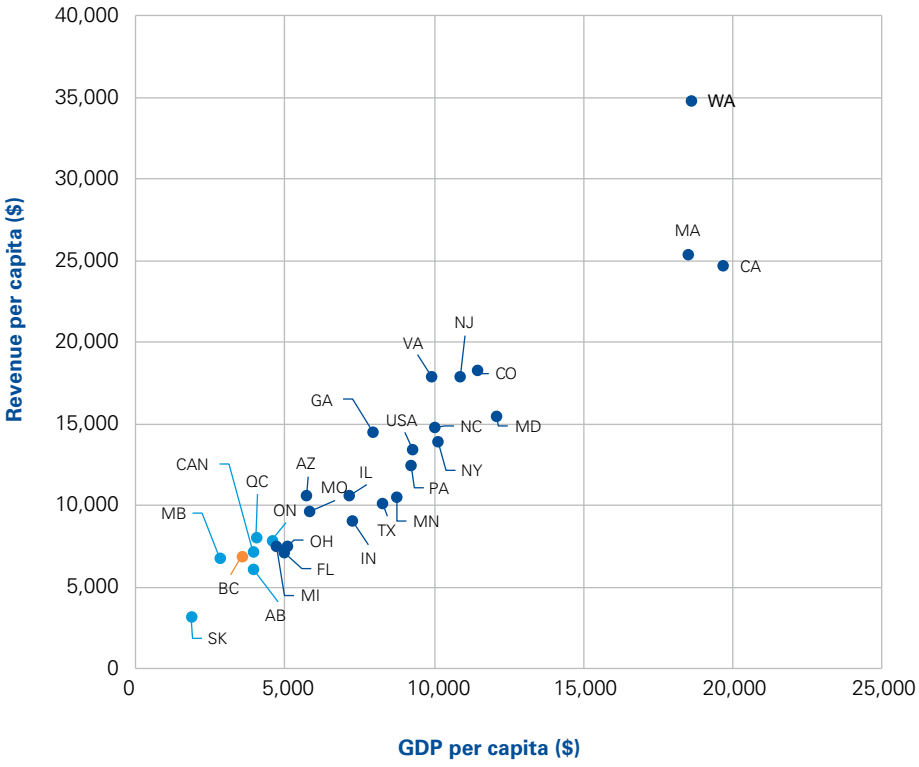
Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

14 Tech GDP and state GDP are at market prices used for United States observations. US Dollars converted at the average annual exchange rate. Tech GDP and provincial GDP are at basic prices for Canadian observations. Provincial GDP at basic prices estimated by multiplying the 2018 market price GDP by the 2016 ratio of market price GDP to basic price GDP.

When the revenues and GDP of various tech sectors from Canada and the US are plotted on a graph and normalized by population, the possible trajectory of BC begins to come to light. Each of the jurisdictions on this map show different pathways and options for BC to consider along its growth path. Overall, the data indicates that Canada underperforms in its GDP and revenue per capita relative to the United States, highlighting the comparatively smaller size of our tech sector compared to the US.

Even still, noting the performance of states with comparable population sizes can indicate the potential the BC has to perform.

Technology GDP per capita vs. Technology Revenue per capita 2018



Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

Employment and wages

Since 2003, employment in BC's technology sector grew by 70%, outpacing counterparts such as Ontario and Quebec, and more than doubling the Canadian average. However, since the previous report, job growth has increased while wages have stagnated.

Comparison of employment

	Versus other BC sectors	Versus other provincial tech sectors
Sector employment	→	→
Sector employment growth	↗	↗
Summary	↗	↗

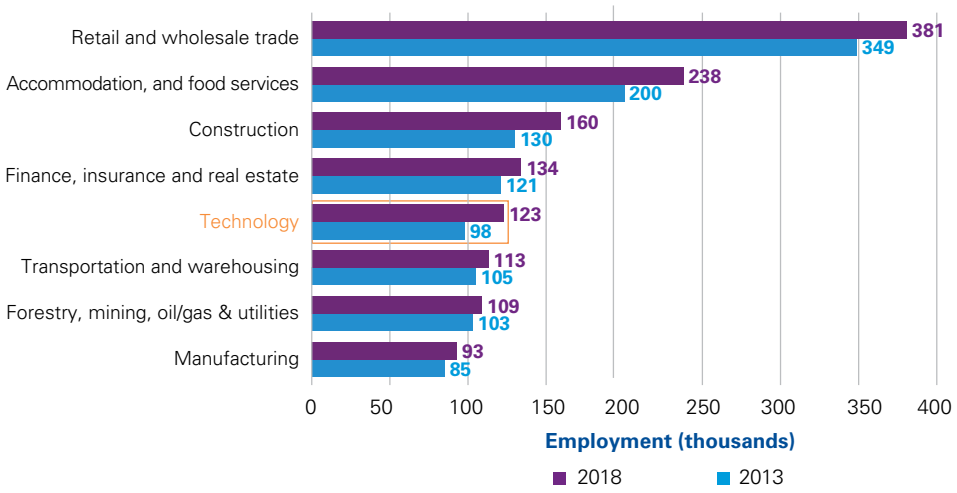
Comparison of wages

	Versus other BC sectors	Versus other provincial tech sectors
Sector wages	→	→
Sector wages growth	↘	→
Summary	→	→

Going deeper: Employment

Since 2013, the BC tech sector has added over 25,000 jobs, totaling a talent population of 123,170 people in 2018. This compares favorably against traditional industries such as forestry, mining, and oil and gas, but continues to lag behind that of large service-oriented industries such as retail trade and accommodation.

Employment in 2013 vs 2018

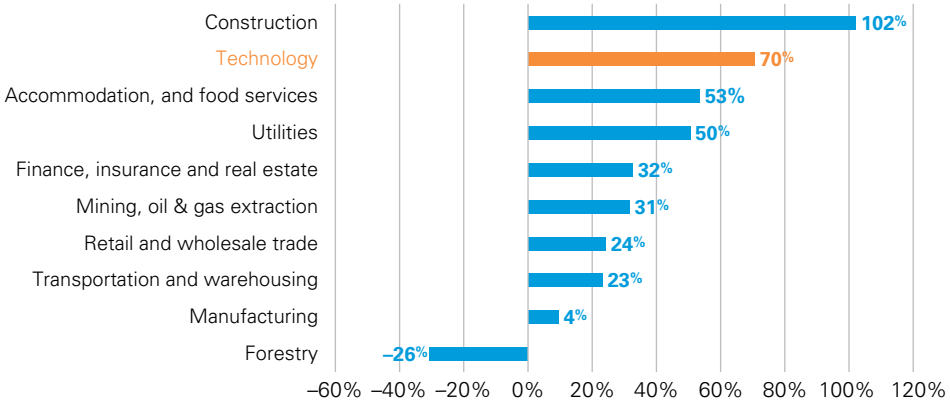


Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

The BC technology sector has had one of the strongest employment growth rates over the last 15 years at 70%, which is annualized growth of 4.6%. Employment growth has also increased at a five-year compound annual growth rate of 4.8% from 2013 to 2018, compared to 3.6 % from 2011 to 2016. Labour demand has remained strong as a result of a growing number of multinational firms and overall growth in locally-headquartered tech firms.

Between 2003 and 2018, BC's tech sector has experienced a 70% growth rate, ranking behind only the construction sector.

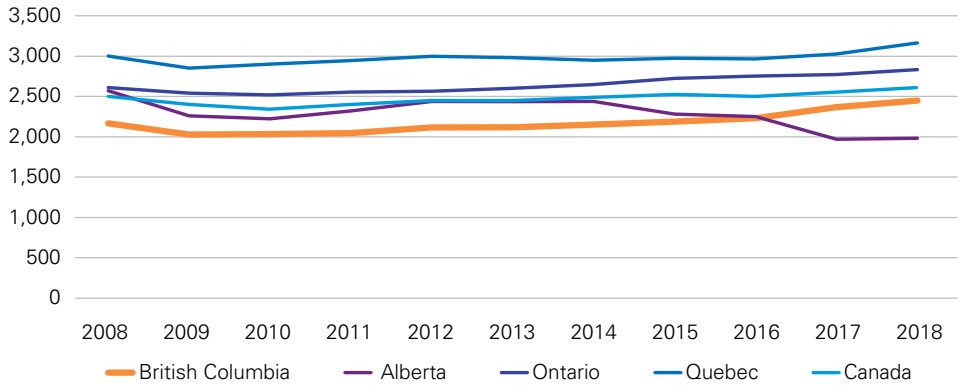
Employment growth between 2003 and 2018



Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

BC's technology sector employment per capita has increased by 17% since 2013 to 2,463 jobs per 100,000 people. BC's growth during the past five years was double that of Ontario and Quebec's.

Technology jobs per 100,000 population

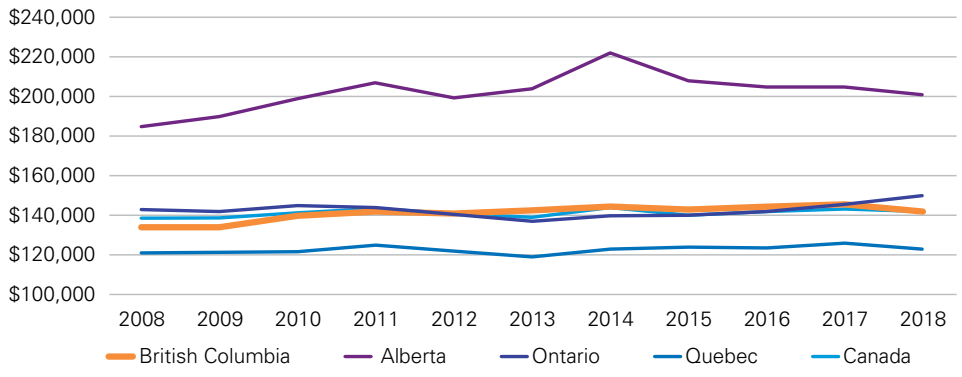


Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

Although the tech sector is growing, its productivity is on the decline. BC's productivity performance in the technology sector dipped slightly in 2018, with a decline of 1.6% since 2016. The province also performs worse than both Ontario and Alberta in productivity metrics.

BC's growth in tech sector employment per capita has doubled that of Ontario and Quebec, however productivity measures in the tech sector have dipped since 2016.

Technology industry GDP per person employed



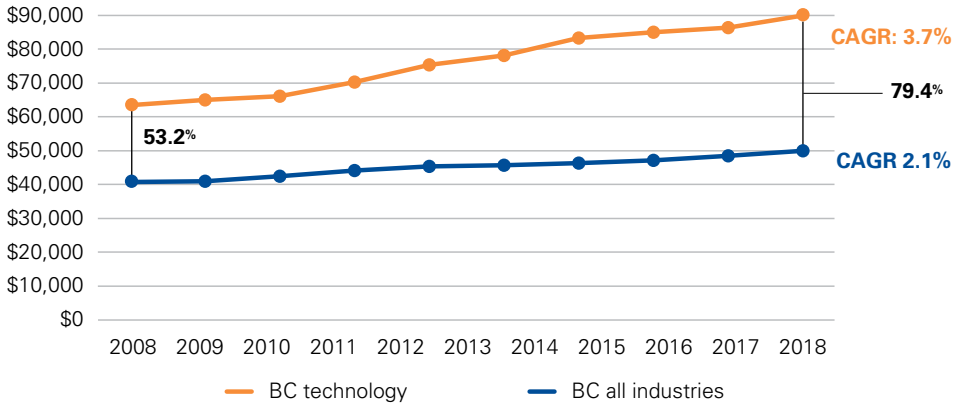
Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

Average weekly wages in the BC tech sector are higher than those in Quebec and Ontario.

Sector wages

Technology jobs in BC pay significantly more than the BC industrial average. In 2018, the wage premium was a commanding 79.4% compared to 53.2% in 2008. BC tech sector's weekly wages grew at a ten-year compound annual growth rate (CAGR) of 3.7%, more than 1.5 times that of the BC industrial average.

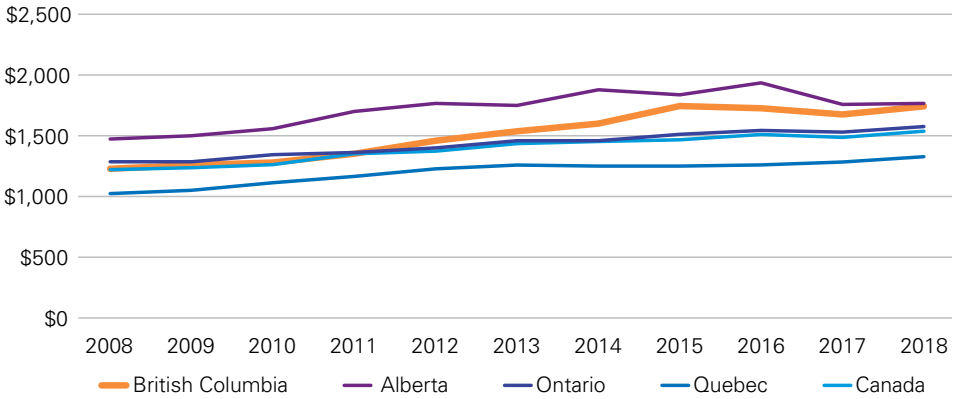
Average yearly earnings – BC technology versus BC



Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

Compared to Canada as a whole, the weekly wage in the BC technology sector has grown significantly faster than the national average since 2016, maintaining a higher average than Quebec and Ontario.

Average weekly wages



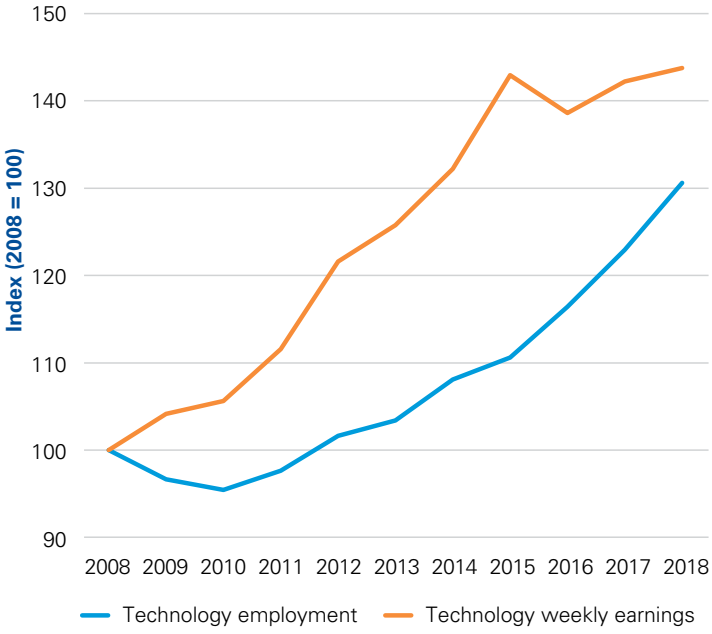
Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

Insights on availability of skilled personnel

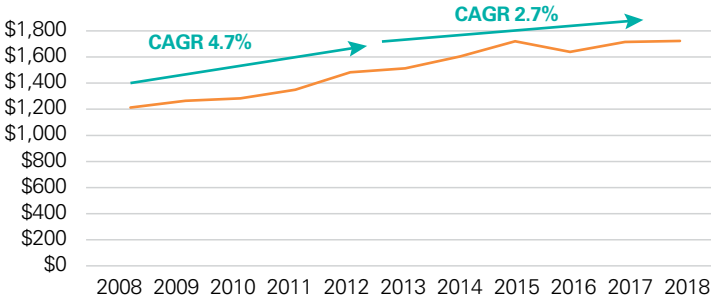
Since our previous report, job growth has increased and is not matched by the same type of growth of wages. Assuming the demand for jobs has remained robust, based on the continued growth of the sector, supply and demand theory would point to increasing supply of labour as a primary reason wages are increasing at a slower rate and growth in the number of jobs has grown significantly faster. This will be discussed further in the inputs section.

An additional explanation could be that wages grew stronger than employment between 2008 and 2013. High wages incentivized increased labour supply between 2013 and 2018, which potentially explains why growth in wages during that period did not match employment growth.

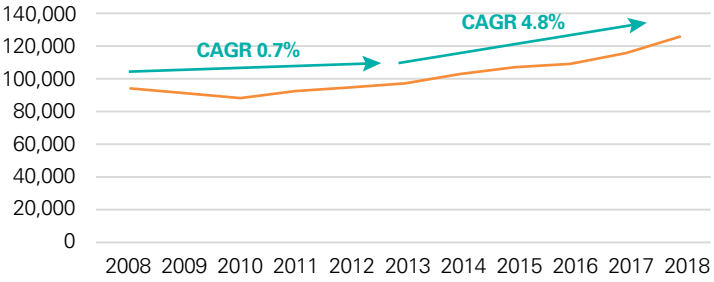
Index of jobs and weekly earnings (2008 = 100)



BC technology average weekly wages



BC technology employment



Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

CAGR = compound annual growth rate

Exports

BC technology sector exports have shown strong growth rates in the last few years, rising at a five-year compound annual growth rate of nearly 11%. Although it has exhibited strong growth, BC has the potential to expand its service exports as it falls below the national average of tech service as a percentage of total service exports.

Exports

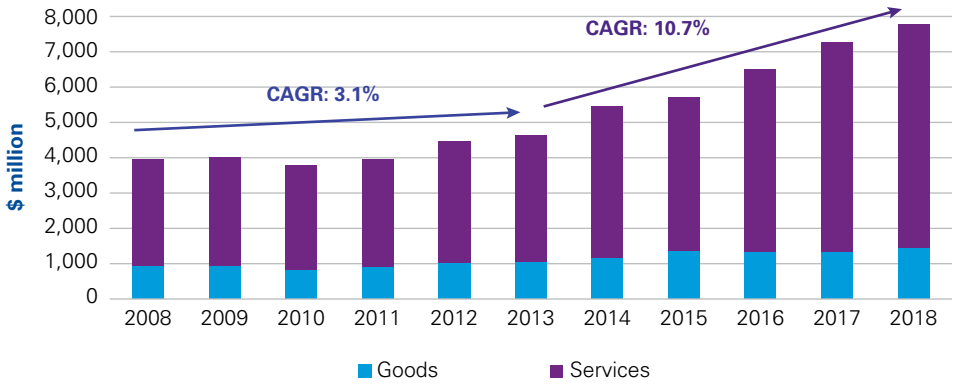
	Versus other provincial tech sectors
Industry goods exports	→
Industry goods exports growth	→
Summary	→

Going deeper

BC exported $7.7B in goods and services in 2018, with services accounting for over three-quarters of the total. This ratio has remained relatively consistent over time, although it has trended toward increasing the proportion due to services. Over the last five years, BC technology exports grew 67%, equating to a 10.7% compound annual growth rate.

BC's tech sector accounts for 6.4% of the province's total exports, with three-quarters of tech exports being service exports.

BC technology exports



Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

All totaled, BC's technology sector accounts for 6.4% of the province's total exports. When considering only services, the sector accounts for 12.1% of BC's total service exports. This continues to trail behind the Canadian average, indicating there is significant potential for growth in technology service exports in BC.

Since the last report, tech services and goods exports have increased for both BC and Canada. Although tech services exports saw a more substantial increase.

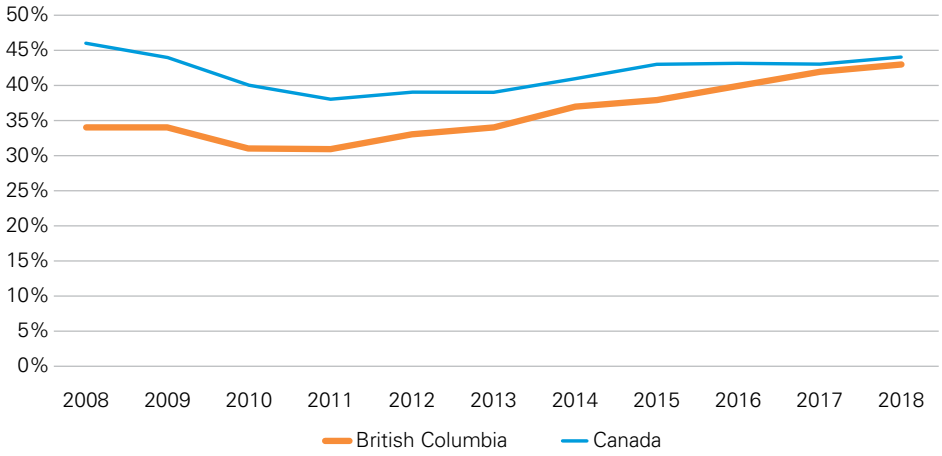
Comparison of export measures in BC and Canada

	BC	Canada
Tech goods exports	$1.5B	$32.5B
Tech services exports	$6.3B	$31.5B
Tech sector exports as % of total exports	6.4%	9.1%
Tech sector goods as % of goods exports	2.1%	5.6%
Tech sector services as % of services exports	12.1%	24.4%

Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

Export composition has remained consistent over the past few years. Computers and telecommunications make up the largest share of tech exports in BC, followed by aerospace products. Tech goods exports decreased from 2015-2017 due to decreases in many commodity groups, including computers and telecommunications, aerospace, and life sciences. However, tech exports have increased robustly since 2017.

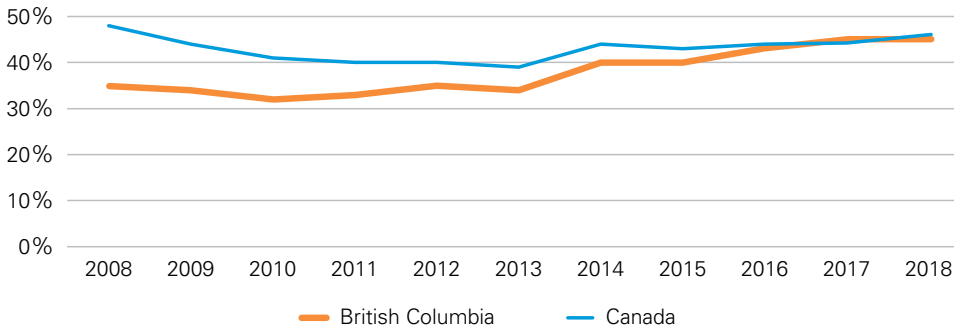
Technology exports as a percent of technology GDP



Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

BC's technology sector exports make up a slightly smaller share of provincial tech GDP compared to Canadian tech exports. However, the gap between the two has been decreasing in recent years. Overall, BC's export performance has improved substantially over time and reached an all-time high of 43% in 2018.

Technology exports as a percent of technology GDP



Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

A deeper look into BC's technology goods exports[15] reveals trends that are similar to our 2018 study. The US remains Canada's largest export partner by far, with the Pacific Rim and other countries continuing to represent a larger consumer of BC technology goods. This is consistent with the globalization of the economy and the ease by which technology products can cross borders.

The US remains BC's largest tech export partner by far, however between 2008 and 2018, the Pacific Rim continues to represent a larger consumer of BC tech goods.

Export destinations (snapshot of 2008, 2013, 2018)

	As % of total technology goods exports		
	2008	**2013**	**2018**
United States	62.7%	61.3%	58.6%
European Union	19.3%	13.7%	13.5%
Pacific Rim	10.3%	14.4%	15.6%
All other countries	7.7%	10.5%	12.3%

Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

15 Note that a limitation in the sections that follow is that these statistics are only known for technology goods exports which is a small fraction of the total tech exports from BC. In addition, due to a lack of data collection across provinces, it is difficult to compare BC's performance with those of other provinces who have larger manufacturing industries and therefore greater tech goods exports.

BC continues to be a significant net importer of technology goods, with the value of imports being nearly five times that of exports. 31% of imports come from the United States and over 45% from the Pacific Rim.[16]

BC technology goods exports and imports

Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

Insights on exports and market access

Of the nearly 11,000 technology companies in BC, over 85% have fewer than 20 employees; smaller size firms can find it more difficult to expand into global markets. As the sector matures, we expect that an increasing number of BC firms will begin resembling the global sales patterns of large established firms. Moreover, as export activity advances, we expect BC tech firms to continue diversifying beyond the US and Europe.

Economic performance indicators – summary

Consistent with the findings of the 2018 Report Card, the BC technology sector continues to be one of the strongest and fastest-growing sectors in the province. In addition, the BC tech sector has continued to narrow the gap versus other jurisdictions and, although there continues to be room for growth, it is becoming one of Canada's more robust tech sectors.

To gain more perspective on these results, the following section analyzes sector input indicators of the BC technology sector.

16 Note this is not a reflection of the trade balance for all tech exports since it does not include tech service exports. Data does not exist for this purpose

Part B: Sector input indicators

Promisingly, BC's tech sector inputs are performing well compared to other provinces. Growth in talent availability and research and development has been consistent since our 2018 report, while patent filings and approvals have decreased since 2016. In the global context, BC still lags behind the tech sectors of the countries in the Organization for Economic Co-operation and Development (OECD), particularly in the areas of research and development (R&D) and intellectual property.

A closer assessment of BC's technology sector inputs offers a glimpse into the supply chain for the tech sector. This can help policy makers understand how to target inputs to help enable the sector's future performance.

BC technology sector – 2020 report card

		Versus other provincial tech sectors
Sector input indicators		
Talent availability: tech grad focus		↗
Research & development		↗
Intellectual property		↘
Grade		**B**

Highlights

While BC has seen an increase in the amount of technology degrees granted per capita, the province issues significantly fewer tech degrees per capita than other provinces, especially Ontario. However, BC has one of the fastest growth rates of undergraduate and graduate tech degrees issued both in absolute terms and on a per capita basis, which is helping to narrow the gap.

R&D investments have risen in recent years, which can be attributed in part to an increased amount of maturing firms in the province. Hopefully, this investment will pay off in the future with patent filings since, as of 2018, BC granted significantly fewer patents per $1 of GDP earned when compared to other Canadian jurisdictions.

Talent availability

Access to skilled talent is fundamental to the technology sector's health, its ability to drive innovation, and its capacity for growth. From information and technology, engineering, life services, and beyond, each sector relies on the availability of a skill-specific talent pool to meet existing business demands and generate growth strategies.

BC technology firms can source talent locally from new grads of BC tech programs, attract talent through inter-provincial or international immigration, or retrain existing BC residents. Against other provinces, BC graduates the third-highest number of students from technical programs; but on a per capita basis, this is lower than Ontario, Quebec, and Alberta.

BC has made great strides in talent availability since the last report card was released; increasing the province's talent pool will only continue to drive the sector forward in terms of output and innovation.

Talent availability (per capita)

	Versus other provincial tech sectors
Undergraduate degrees	↗
Undergraduate technology degrees	→
Graduate technology degrees	→
Summary	↗

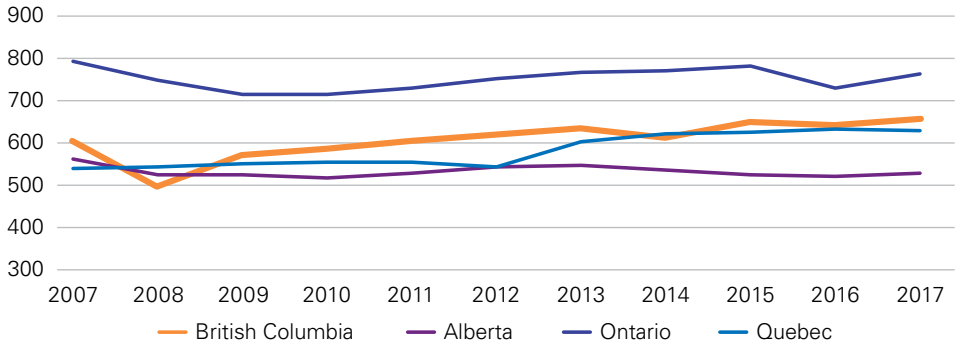
Going deeper[17]

Using tech degrees granted per capita as indicative of talent availability, BC's talent pool growth has increased by 9% between 2015 and 2017. BC performs better than Quebec in terms of undergraduate tech degrees per capita, yet falls behind Alberta, Ontario, and Quebec in graduate tech degrees per capita.

From a high-level perspective, BC has shown sustained growth in both tech graduate degrees per capita and tech undergraduate degrees per capita, and is performing stronger than Alberta, Ontario, and Quebec in two-year growth of undergraduate and graduate tech degrees per capita. In spite of this growth, BC has considerable margin to close the gap in its provision of degrees per capita.

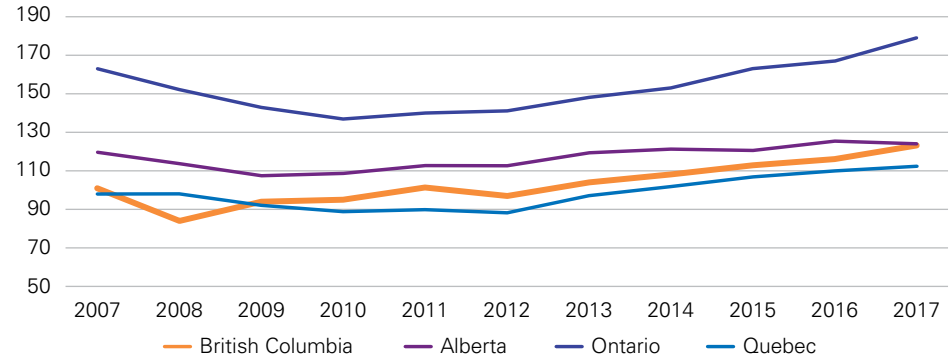
17 The data underlying this section refers to degrees issued in the provinces listed. Although a degree is issued in a province, it does not mean that the degree recipient remains in the province upon graduation.

Undergraduate degrees per 100,000 population



Source: *Statistics Canada*

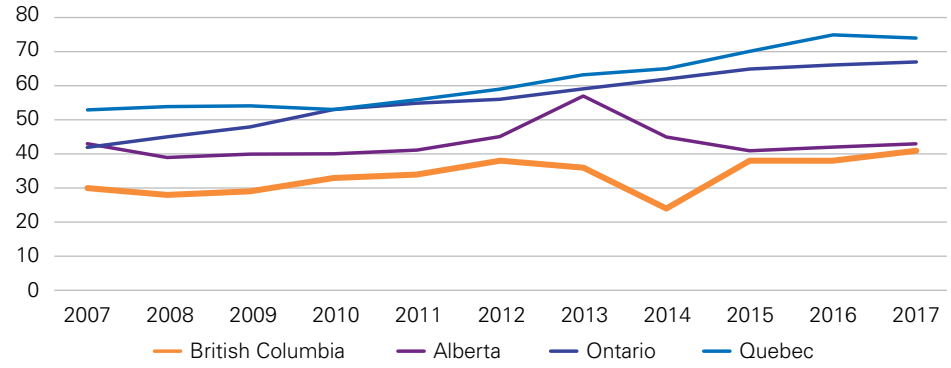
Undergraduate tech degrees per 100,000 population



Source: *Statistics Canada*

Although the number of tech degrees in BC continue to increase, BC still lags behind Ontario, Quebec, and Alberta in tech graduate degrees per capita.

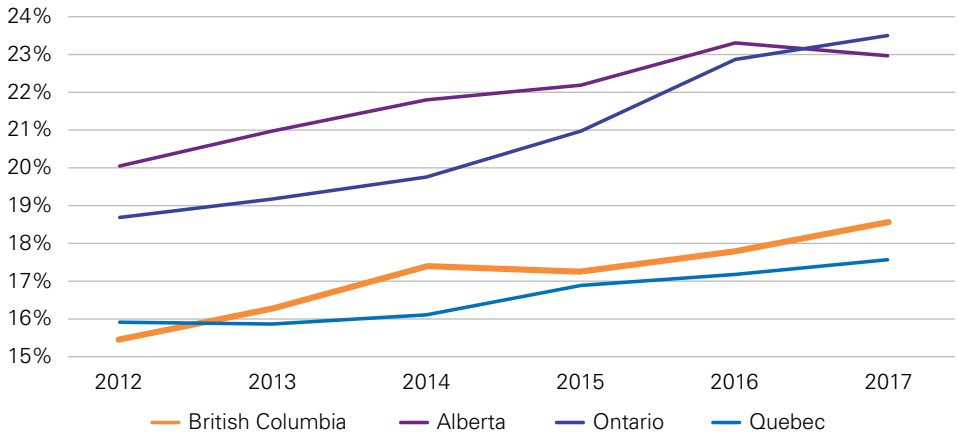
Graduate tech degrees per 100,000 population



Source: *Statistics Canada*

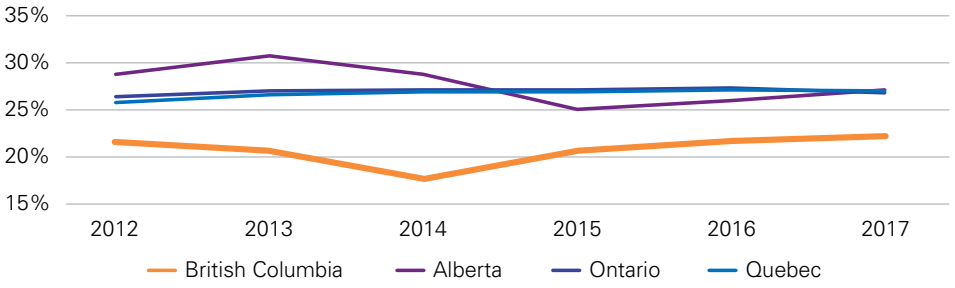
The tech focus of BC students lags behind other provinces with only 18.6% of BC undergrad students focusing on tech. This is compared to 22.9% of students who focus on tech in Alberta, 23.4% in Ontario, and 17.6% of students in Quebec. The data for graduate studies only serves to widen this issue, with BC at 21.9% compared to 26.8% in Alberta, 26.5% in Ontario, and 26.8% in Quebec. However, on an absolute basis, the overall number of tech undergraduate and graduate students has also increased in recent years, showing that BC's tech talent pool has been improving.

Percent of total undergraduates with technology degree



Source: *Statistics Canada*

Percent of total graduates with tech degree

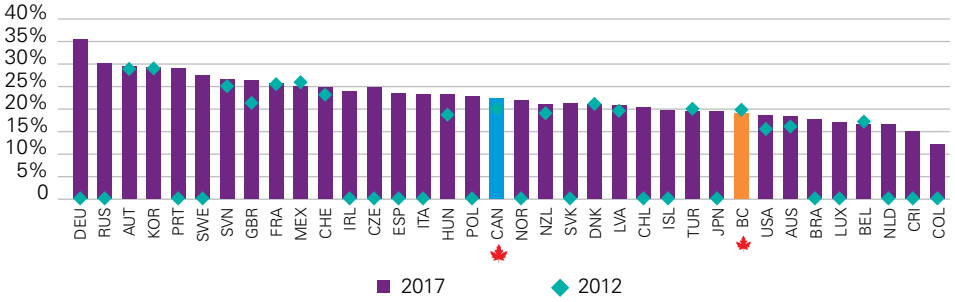


Source: *Statistics Canada*

Between 2015 and 2017, there has been significant growth in Math, Computer and Information Sciences undergraduate degrees in BC (more than 30%). Architecture and Engineering and Physical and Life Science have also increased over the same time period (7.1% and 9.2%, respectively). There has been strong growth in math, computer and information sciences, and architecture and engineering graduate degrees between 2015 and 2017 (15% and 17.1%, respectively).

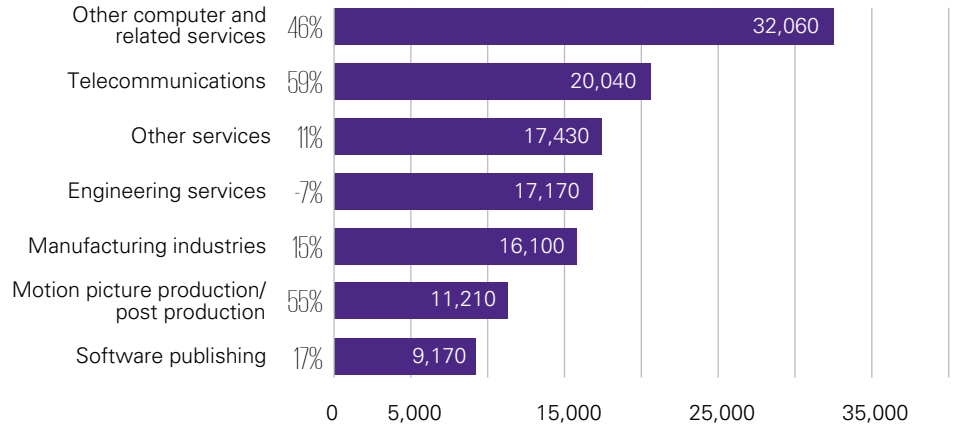
Globally, Canada performs slightly below the OECD average for granting tertiary degrees that are technology related, as a percentage of total tertiary level graduates. However, KPMG analysis indicates that BC has increased since the last report, surpassing the US at 19.4%.

Technical post-secondary graduates as a percent of total post-secondary graduates



Source: *KPMG analysis of Statistics Canada and OECD data*

BC technology sector employment and growth 2013 – 2018

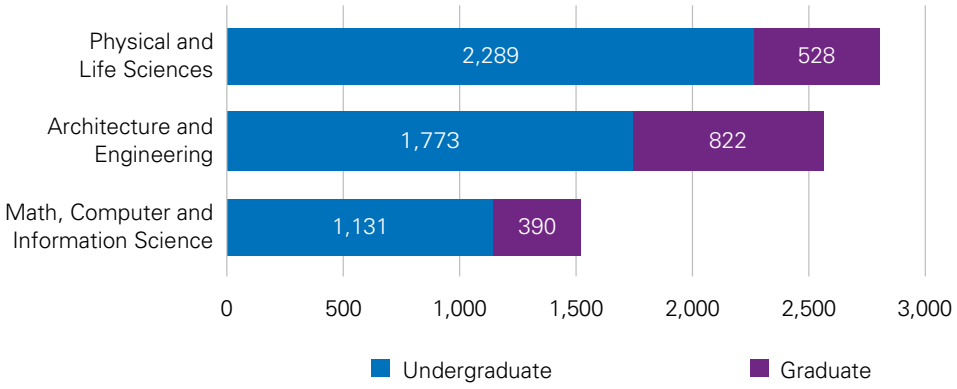


Source: *Profile of the British Columbia Technology Sector: 2019 Edition, BC Stats*

One of the largest areas of employment in BC tech is other computer and related services, growing 46% since 2013 to employ 32,060 people in 2018. Local talent growth in math, computer and information science has significantly picked up since the last report, producing 1,521 degree holders in 2017, 315 more than in 2015. Architecture, engineering, and tech-related bachelor degrees have increased by 237 over the same period while physical and life sciences degrees have increased by 222.

In total, high tech employment has increased by close to 11% between 2015 and 2017, while graduate and undergraduate degrees in technology have increased by 12.6% over the same time period. Supply increase outpacing the demand may help to explain the stagnation in wages.

BC technology graduates in 2017



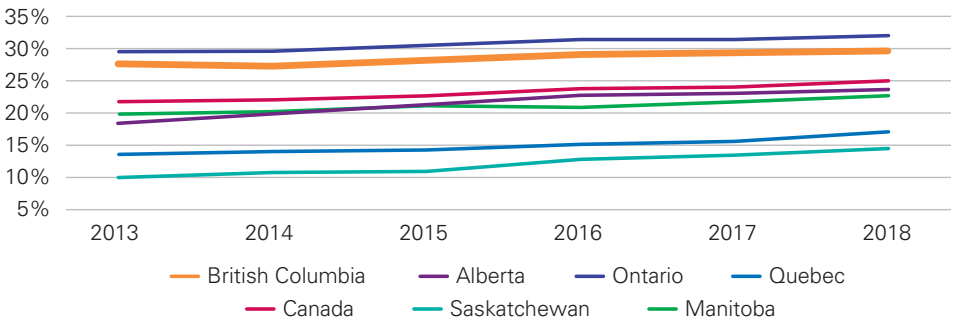
Insights on talent availability[18]

Talent is a critical resource for the technology sector. From IT to engineering, and software development to life sciences, the success of each tech sub-sector pivots on its ability to recruit from skill-specific talent pools to meet evolving demands, fuel growth, and pursue innovation.

Currently, BC technology firms source talent locally from new grads of BC tech programs, bring in talent through inter-provincial or international immigration, or retrain existing BC residents. Tech sector companies overwhelming note that Canadian immigration policies have allowed unique and skilled talent to immigrate to the country within a few weeks (as opposed to several months when compared with the US). This gives Canada the unique advantage of being able to win-over top international tech talent. This diverse tech workforce can then foster innovation and unique collaborative thinking.

Relative to the other provinces, British Columbia ranks second only to Ontario, in the percent of landed immigrants that comprise the employed population in the Province. This allows for BC to have unique access to a diverse labour pool.

Percentage of landed immigrants / total employed population



18 Based upon Focused Discussions held during October 2020

"Canada excels at R&D funding, but not so much when it comes to providing access to deployment funding that will get them to market. We lack the types of government financing programs and procurement chains that are helping US firms go from concept to widespread implementation."

Steve Oldham
Carbon Engineering

Research and development

R&D expenditure is a long-term investment that supports the sector's future economic performance. BC's R&D expenditure remained stagnant for years around $3 billion, but has now started to increase, with R&D expenditures totaling $4.2 billion in 2017.

This growth notwithstanding, BC continues to rank lower than Ontario and Quebec when comparing R&D as a share of GDP. The mix of sources of R&D expenditure (business, higher education/non-profit, government) in BC has also remained relatively constant, with just over half originating from business enterprises, followed by higher education and private non-profit.

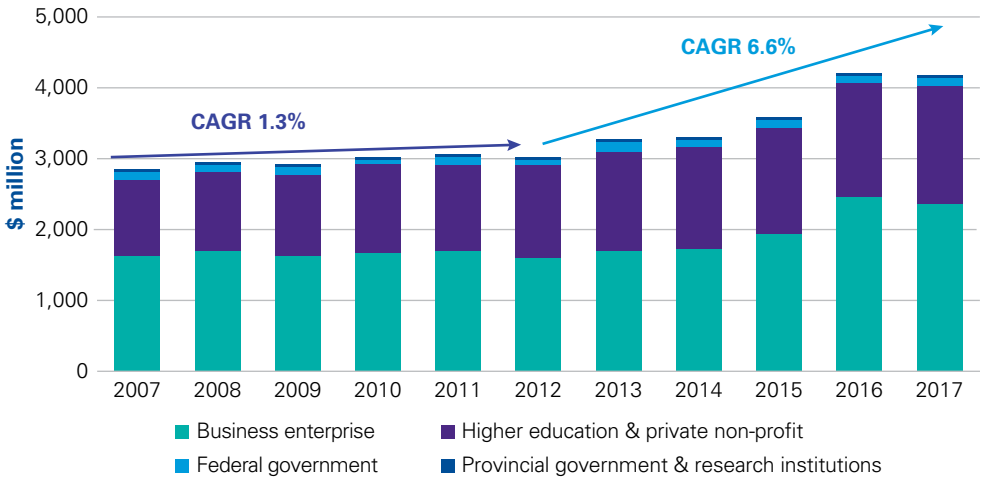
Research and development

	Versus other provincial tech sectors
R&D as a percentage of GDP	→
Business Expenditure R&D as a percentage of GDP	→
Summary	→

Going deeper

Since 2008, total R&D expenditures in BC have steadily increased, with the largest growth occurring in the years between 2014 and 2017. Contributors to R&D have remained steady throughout this time; however, since the previous report, business enterprise contribution to R&D has increased to 56.9% in 2017. Over the same period, the higher education and private non-profit share declined slightly to 39.8%. Elsewhere, federal government, provincial government & research institutions contributions have remained stable between 2% to 3% and between 0.5% and 1%, respectively.

R&D expenditures in British Columbia

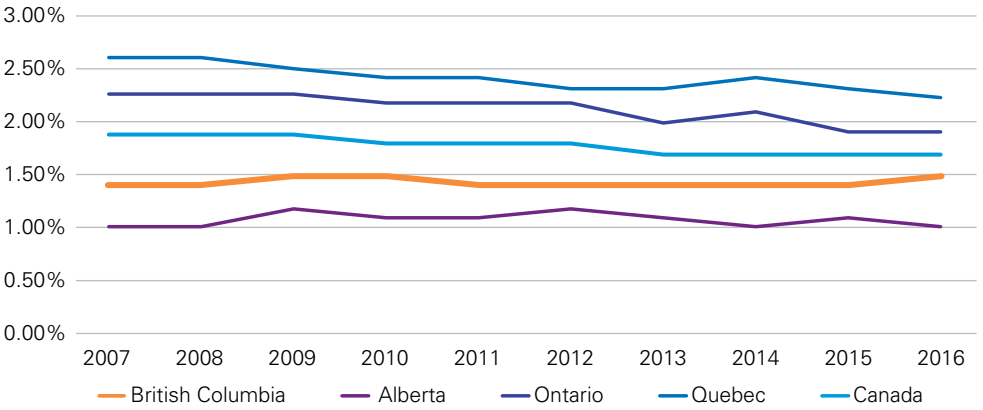


Source: *Statistics Canada*

Reviewing Canada at large, R&D expenditure as a percentage of GDP has been on a slight decline since 2009. This seems to be due to flat R&D expenditures and an ever-growing economy. BC remains ahead of Alberta for R&D as a percentage of GDP, and has been showing a positive trend in recent years while other provinces have remained relatively stagnant or shown a decline.

BC has been experiencing a positive trend in R&D expenditure as a percent of GDP, while other Canadian provinces and Canada as a whole have been relatively stagnant.

R&D as a percent of GDP[19]



Source: *Statistics Canada*

19 Data was missing from StatsCan Table: 27-10-0359-01 for 2017. Therefore, this chart estimates Gross R&D expenditure as a percent of GDP at market prices for 2017

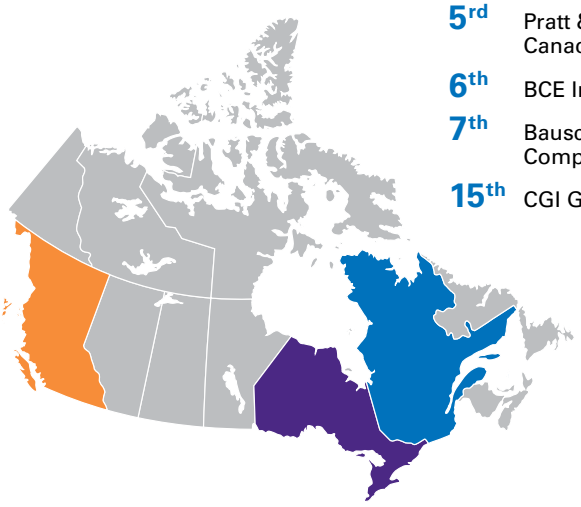
Top 2019 high tech R&D spenders in Canada by firm location

British Columbia

		R&D spend ($M)
14th	TELUS Corporation	307
26th	Sierra Wireless Inc.	122
38th	Arbutus Biopharma Corporation	75
39th	Zymeworks Inc.	73
44th	Aurinia Pharmaceuticals Inc.	54

Ontario

		R&D spend ($M)
2nd	Magna International Inc.	762
4th	Constellation Software Inc.	585
8th	IBM Canada Ltd.	512
9th	Shopify Inc.	453
10th	Open Text Corporation	419



Quebec

		R&D spend ($M)
1st	Bombardier Inc.	1,417
5rd	Pratt & Whitney Canada Corp.	552
6th	BCE Inc.	537
7th	Bausch Health Companies Inc.	535
15th	CGI Group Inc.	288

Source: *Adapted from Canada's Top 100 Corporate R&D Spenders, Canada's Innovation Leaders, 2019*

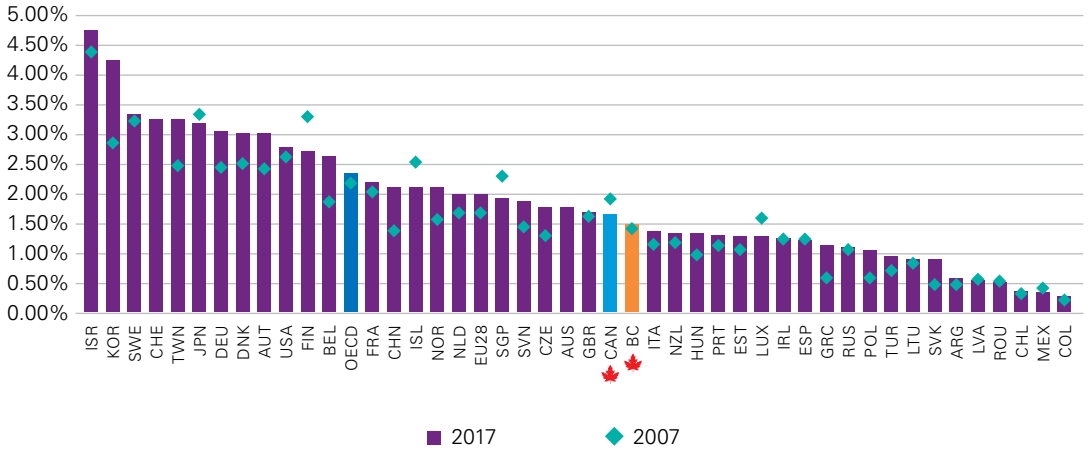
A lack of large firms in BC reduces the level of R&D spend in BC relative to other provinces.

R&D expenditure

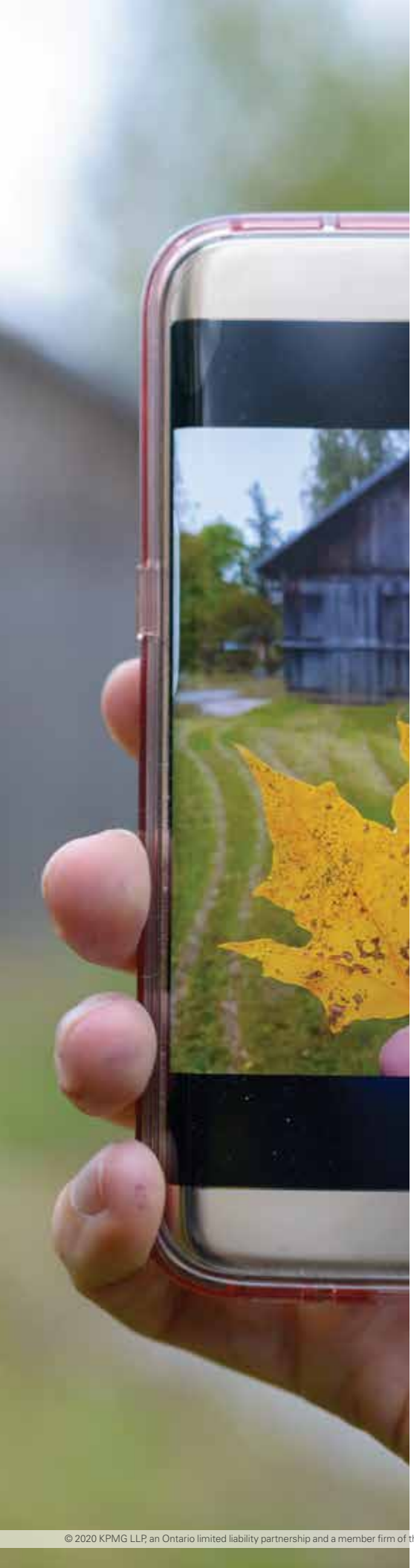
While BC's R&D expenditure has improved slightly, it continues to lag in comparison to OECD countries. R&D expenditure is important as it leads to innovation, leading edge technology and approaches that propel a tech sector forward. BC would benefit from targeting at least the OECD average in order to foster an environment of innovation.

Importantly, as a result of increasing R&D investment in recent years, this gap is closing.

R&D expenditure as a percent of GDP

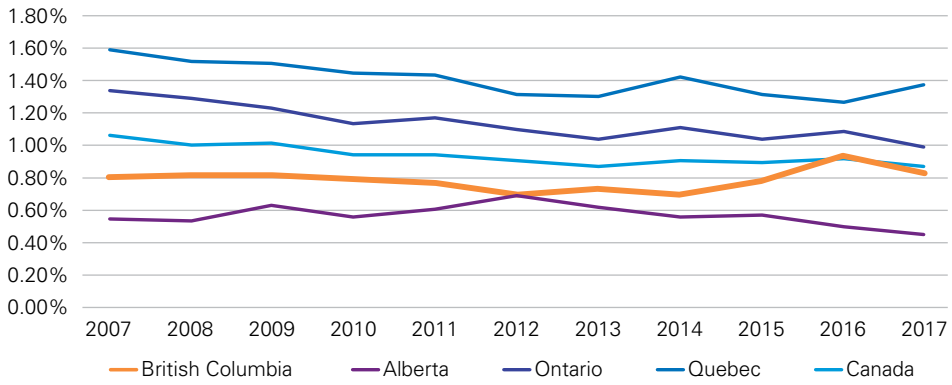


Source: *KPMG analysis of OECD data and Statistics Canada data*



BC continues to be positioned behind other provinces when it comes to Business Expenditure on R&D (BERD), significantly trailing Ontario and Quebec. However, the province's BERD as a percent of GDP has increased from 2014 to 2017, from 0.71% to 0.84%.

Business expenditure on R&D as a percent of GDP

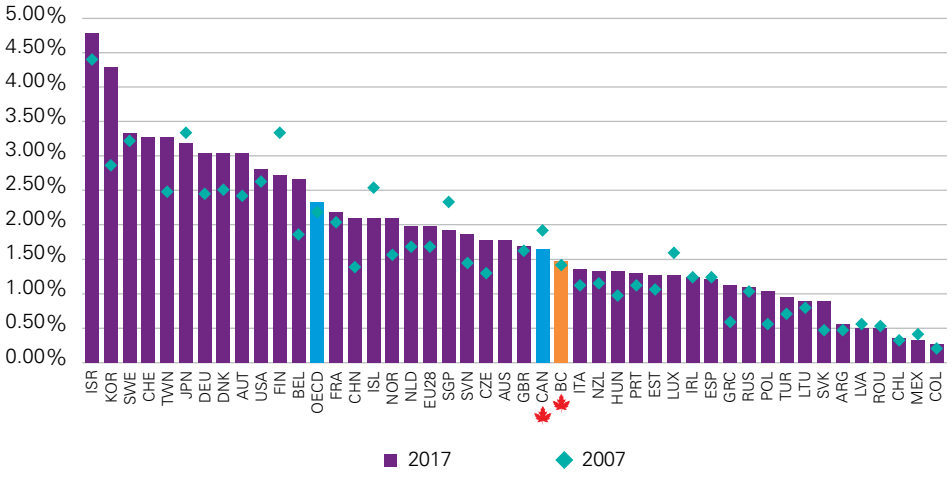


Source: *Statistics Canada*

Business expenditure on R&D as a percent of GDP

This trend continues on the international stage where Canada performed at near half of the OECD average on business expenditure on R&D as a percent of GDP. The same can be said of BC, itself which trails directly behind the Canadian average. Policy incentives that promote business expenditure on R&D could help increase private sector focus and energy on research.

Business expenditure on R&D as a percent of GDP



Source: *KPMG analysis of OECD data and Statistics Canada data*

Intellectual property

Intellectual property is a reflection of successful R&D expenditure and potential commercialization. While IP also includes copyrights, trademarks and trade secrets, this study narrows in on patents since they are a useful measure for the level of innovation in the technology sector, and are particularly important to life sciences firms.

For Canadian patents, BC lags in comparison to other provinces on both an absolute and per GDP basis.

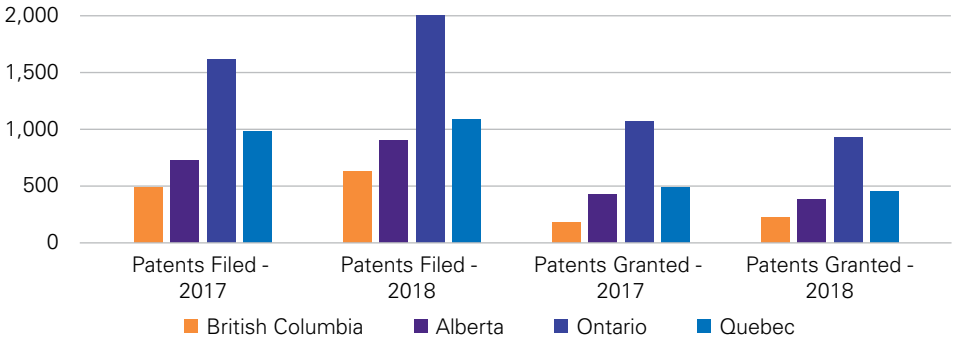
Intellectual property

	Versus other provincial tech sectors	Versus Ontario
Canadian patents granted (% awarded)	↘	↘
Canadian patents granted (per $ GDP)	↘	↘
Summary	↘	→

Going deeper

For patents granted through the Canadian Intellectual Property Office, BC continues to rank below Ontario, Alberta, and Quebec with the fewest applications and, as a result, the fewest patents granted. As Canadian patents are concentrated in construction, utilities, and more recently, electronic product manufacturing, it may explain the other provinces' relatively stronger activity. All things considered, it is important to note that there has been a nationwide decrease in percent of patents granted in recent years.

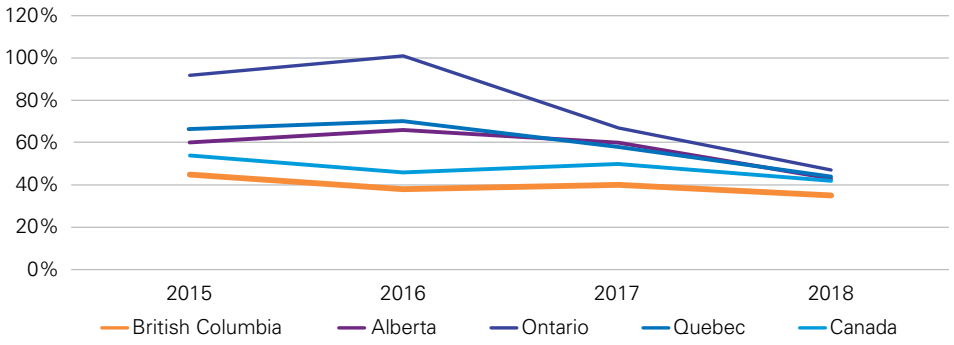
Canadian patents filed and granted



Source: *Canadian intellectual property office*

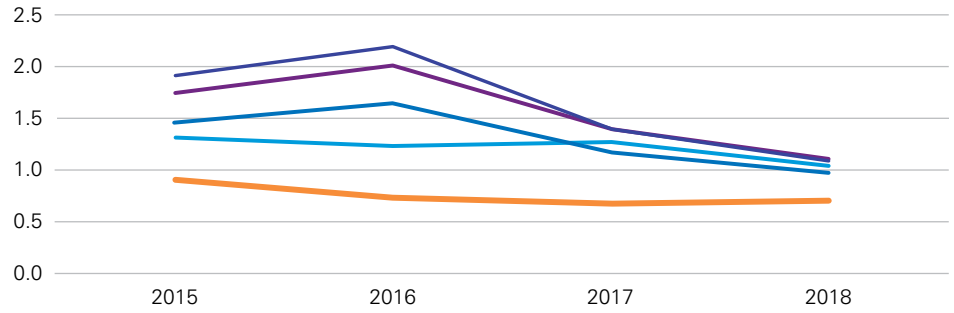
At 35%, BC's patent success rate is the lowest out of Canadian provinces with a significant tech sector. Similarly, BC issues the fewest patents per provincial GDP. With over 95% of high technology firms in BC having fewer than 50 employees, BC firms on the whole are small and may have limited ability to access the expertise needed to pursue patents.

Patents granted as a percent of patent applications



Source: *Canadian Intellectual Property Office*

Patents awarded per $1B GDP



Source: *KPMG analysis of Canadian Intellectual Property Office and Statistics Canada data*

Insights: Access to Capital[20]

Access to capital is an important input for any sector as it provides companies with the flexibility to pursue innovation. A robust capital market can provide greater access to the funding needed to pursue an idea or to help start-ups scale up as their products take hold in their respective markets.

Companies in the Province's tech sector noted that Canadian investors tend to be more conservative and risk-averse. This means that although capital exists, it is often invested in sectors that are more familiar (mining and oil & gas). Often, companies need to look outside of Canada to find investors who are willing to take a risk on their product. This is compounded by the fact that companies avoid Canadian capital because the terms offered by Canadian investors are less competitive and therefore less attractive.

20 Based upon Focused Discussions held during October 2020

Conclusion

Ample opportunities await BC's tech sector, both within Canada and beyond our borders. Seizing them requires a continued focus on talent and stronger scale-up supports.

The BC tech sector has much to celebrate. Companies are growing, creativity is thriving, and homegrown innovations are capturing global attentions. The events of 2020 may have added some challenges, but the global demand for digital transformation has put tech firms in a position to guide the way forward.

While the sector continues to grow, there are some speedbumps along its path. Talent sourcing and retention remain a critical priority, as does providing small to medium-sized companies with the domestic capital, R&D resources, and go-to-market supports to reach their full potential.

BC's tech sector has the potential to power BC's economic recovery and strengthen BC's future economy. Now is no time to take the foot off the pedal.

Acknowledgements

KPMG gratefully acknowledges BC Stats and the BC tech executives who participated in our focused discussions for their support during the development of this report. Our detailed analysis would not have been possible without the rich collection of data from the BC technology sector, along with the insights and perspectives provided throughout the course of our research.

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