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British Columbia Technology Report Card

2014 Edition

Bordering on the big play: taking our tech sector to the next level

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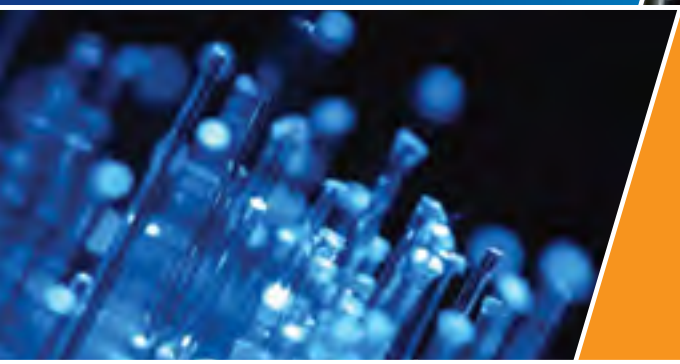

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Foreword

Bill Tam
President and CEO
British Columbia Technology
Industry Association (BCTIA)

In today's British Columbia, technology has become a critical economic engine, not only driving tech industry growth beyond the $23 billion mark, but contributing to innovation and success in a range of provincial markets and industries. As one of the largest contributors to the BC economy, the tech sector is poised to play an essential role in the province's growth strategies and economic fortunes for the foreseeable future.

We have, however, already seen the challenges this will entail. In 2012, we collaborated with KPMG on the first edition of the *British Columbia Technology Report Card* – an in-depth study examining the relative performance of BC's tech sector. While we learned that it was provincially strong, outperforming other BC industry sectors, we also learned that our performance against other national and international tech sectors was below both our hopes and expectations.

As a result, we took our commitment to helping the industry fulfill its potential even further. On the heels of the 2012 report, we consulted extensively with technology sector leaders, post-secondary institutions, business leaders, investors and government colleagues to develop *A 4-Point Plan for Growing the BC Tech Industry*. This initiative outlined the actions and activities necessary to significantly change the shape and growth of BC's technology industry.

Now, the *2014 British Columbia Technology Report Card – Bordering on the big play: taking our tech sector to the next level* provides an important progress check, analyzing the sector's economic impacts across multiple dimensions and offering further, deeper insights from industry leaders. What did we find? How far have we come? The positives remain positive, with BC's technology sector outperforming other provincial sectors and growing substantially in GDP, industry revenues and wages. And there have been a healthy number of new companies formed, as well as an increase in the number of mid-sized companies. However, while we have narrowed the gap when compared with tech sectors in other jurisdictions, the data shows that we still lag in several important areas, such as access to venture capital and talent availability – themes that were consistent with the recommendations outlined in the 4-Point Plan.

This is a critical juncture for the technology industry in BC. The road to greatness requires deliberate, strategic investments that support the vision of a vibrant, diversified economy. We are on the cusp of creating meaningful jobs and opportunities for generations of British Columbians to come, if only we can meet the challenges at hand and continue to grow and improve. We look forward to working with our industry, academic and government colleagues to ensure this vision becomes reality.

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Executive Summary

Anthony Lindsay
Partner, Greater Vancouver Area
Market Leader, Technology, Media
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The technology industry is a leader in British Columbia today, contributing significantly to the province's GDP and hosting a new crop of global stars like Avigilon, Build Direct, Global Relay, Hootsuite, Vision Critical and Westport. Indeed, the *2014 British Columbia Technology Report Card – Bordering on the big play: taking our tech sector to the next level* suggests that on the provincial stage, the industry is reaping the benefits of deliberate, long-term investments made by all levels of government and is performing strongly compared to other BC sectors. However, while this strength has been consistent over time (the same positives emerged clearly in the 2012 report card), the BC tech industry is still catching up to its peers in the rest of Canada and faces significant challenges to becoming globally competitive.

Given the advantages at hand – a strong tech infrastructure, a vibrant start-up community, a wealth of ideas and innovation, proximity to major tech markets – it's critical that we realize the full potential of BC tech through a renewed focus on, and investment in, the sector. This is no time to falter. Tech literally drives the world, from the way businesses compete at the highest levels to the way individuals play and communicate, and there is no end in sight. While strength across all sectors is important (BC's burgeoning resource industries provide a prime example), the strongest economies have a fundamentally strong tech component, and BC is on the cusp of taking that strength to the next level. With an abundance of technology companies already operating in BC, now is the time to lay the groundwork for their future success and begin reaping the resulting benefits to the BC economy.

BC Technology Industry – 2014 Report Card

	Versus Other BC Industry Sectors		Versus Other Provincial Tech Sectors	
	2014	2012	2014	2012
Economic Performance Indicators	A	A	C+	C
Industry Input Indicators	N/A	N/A	C–	C–
Overall	A	A	C+	C

Overall, this report card examines the performance of the BC technology industry relative to other industries in BC and to the technology industries of other provinces and countries. We take a deeper dive into the trends reflected in the data by incorporating insights from some of BC's leading corporate tech sector executives. Finally, we estimate the economic benefits the province could obtain from growth in the technology industry's output.

The collected data also supports a number of key conclusions:

The BC technology industry is reaping the benefits of past investments. An engine of growth in BC today, the technology sector is one of the strongest contributors to provincial GDP and creates jobs that pay 66 percent higher wages than the industrial average. BC's technology sector also has a significantly higher overall economic impact than the province's primary resource industries. By incenting private investment in the sector, the introduction of programs such as the Small Business Venture Capital tax credit, the angel tax credit, Scientific Research & Experimental Development (SR&ED) tax incentive, the Interactive Digital Media tax credit and the BC Renaissance Capital Fund have all played significant roles in driving the successes we see today.

Provincial investment and sector focus are more important than ever. While the aforementioned capital investment and tax credit programs have helped the growth of the technology sector to date, renewing and augmenting these programs would play a significant role in taking our tech sector to the next level. The tech industry is working hard to improve, and with the BC government and technology minister currently refreshing the province's technology strategy, there is strong room for optimism in our tech future and in the opportunity for all parties to work together to address some key challenges.

Government support in the following three critical areas could have a significant impact on the continued growth of the technology industry and its companies:

- **Revitalizing access to early stage venture capital. A local supply of early stage venture capital is largely absent in the province**. Early stage venture capital is an essential ingredient to the most successful tech companies. Without it, companies falter, stall or worse fail outright in capturing the market opportunity before them. The decline of local venture capital not only deprives companies of adequate risk capital, but also of the guidance and networking support that are essential to early stage growth. Moreover, an over-reliance on foreign venture capital increases the risk that successful companies will eventually relocate to other jurisdictions.
- **Expanding talent availability. There is a dearth of seasoned senior management, while upcoming talent is currently lacking in specific fields, such as engineering, sciences and marketing.** The talent needed to fill senior roles is typically cultivated organically as firms grow in size to medium and large enterprises. With relatively few medium and large enterprises in BC, the available pool of senior management is noticeably constrained. At the staff level, companies are increasingly challenged to fill roles locally as a result of fewer students enrolling in key areas – including engineering, sciences and marketing – compared to other provinces in Canada.
- **Growing the size of firms. The BC technology industry faces the challenge of growing the average size of tech firms and growing the number of medium and large anchor companies in the province.** Organic growth and start-up success are the lifeblood of a vibrant, sustainable tech sector, but currently the vast majority of BC tech companies employ fewer than 50 people. Given the degree to which medium and large firms benefit the economy through R&D, employment, community involvement and other spinoff effects, a commitment to a growth strategy to both grow existing ones and attract larger companies is essential.

While these are difficult issues, BC tech is holding its own in many ways, contributing significantly to the BC economy, making strides to catch up with other provincial tech sectors and attracting an increasing number of global players. If all BC tech stakeholders, from companies to governments to academic institutions, continue to pool not only our intellectual and financial resources but our commitment to meeting the challenges above, long-term success should be ours for the taking.

Slavi Diamandiev
Greater Vancouver Area
Economics Practice Lead,
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Industry Profile and Comparative Analysis

Introduction

The BC technology industry comprises a number of complementary sectors, with over 9,000 companies operating in the province.[1] The majority of these are small enterprises, with 90 percent of their output being services. Overall, the technology industry generates $15 billion in GDP and creates over 84,000 jobs in BC.

This report card paints a detailed statistical portrait of the BC technology sector, comparing it to other industries in BC and to technology industries across Canada and globally. We then rate the performance of the BC tech industry today, review its progress since the 2012 report card and highlight themes for collective action going forward.

We would like to acknowledge the contribution of BC Stats in developing a rich collection of data and analysis for the high technology sector in BC, making our detailed assessment possible.

[1] There is no universally adopted definition of what the tech (or "high-tech") industry should encompass, and 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 Statistics, which allows us to leverage the rich dataset published by the agency and ensures consistency with the definition used in the 2012 edition of the Tech Report Card published by KPMG. The high technology sector, as defined by BC Stats, is comprised of "standard industries that produce high technology goods and services as their ultimate outputs." In 2014, a total of 39 standard industry categories have been included in the high technology sector, representing a mix of manufacturing and service producing sectors.

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The Technology Industry at a Glance

INPUTS

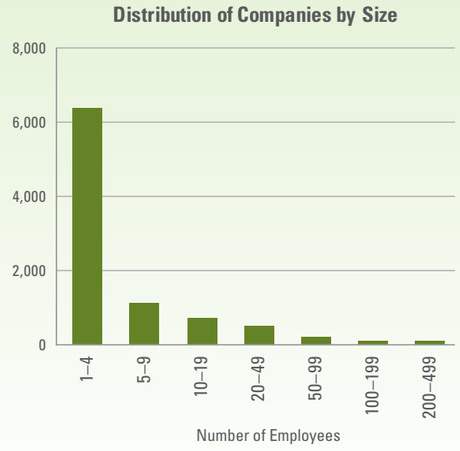
LABOUR
- Jobs: 84,000
- Avg. Wage: $1440/wk

CAPITAL
- VC Investment: $201M
- Angel Investment: $97M

INTELLECTUAL CAPITAL
- R&D Investment: $3B
- # patents: 165/yr
- # university licenses: 116/yr

PRODUCTION

INDUSTRY STRUCTURE



OUTPUTS

- GDP: $15 B
- REVENUES: $23 B

Services 90%
Goods 10%

- EXPORTS: $3 B

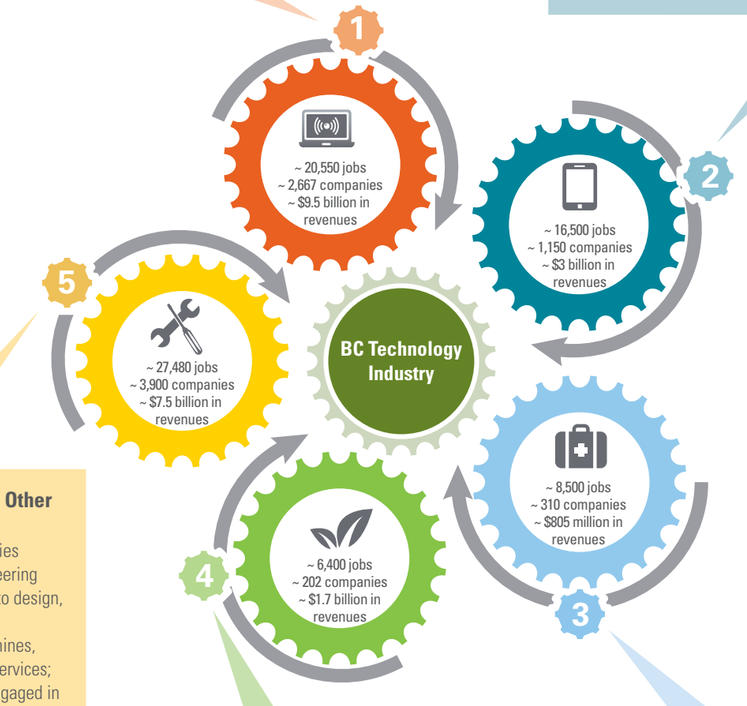
Services 66%
Goods 33%

Source: KPMG Industry Analysis Framework and analysis of data from BC Stats Profile of the British Columbia High Technology Sector, BC Stats, March 2014

Although this complex industry comprises approximately 9,000 companies, delivering products and services across a number of complementary and overlapping sectors, the BC Technology Industry Association recognizes five distinct industry segments:

Information & Communications Technology
Featuring companies in telecommunications, software development, computer services, manufacturing and wholesaling, but excluding wireless and digital media, which have been presented separately for the purposes of this report.

Digital Media & Wireless
Digital media features companies in video gaming, animation and visual effects, social media, interactive marketing and e-learning. Wireless features companies in all areas of the mobile ecosystem, including mobile operators, platform providers and device manufacturers.



Engineering & Other Services
Featuring companies engaged in engineering activities related to design, development and utilization of machines, instruments and services; and companies engaged in scientific research, development and consulting services.

Cleantech
Featuring companies in energy generation, energy transmission and storage, energy use in transportation, energy efficiency and resource management.

Life Sciences
Featuring companies involved in biopharmaceuticals, medical devices, bioproducts and bioenergy, and greater life sciences.

Source: BCTIA Analysis[2]

[2] The jobs, company count and revenue figures reported in this schematic are not directly comparable to those in the 2012 report card, since the technology industry has been broken up differently to align total figures with those reported by BC Stats. Notably, the Digital Media & Wireless sectors have been grouped together, and the Engineering & Other Services sector has been extracted from the Information & Communications Technology sector.

Part A: Economic Performance Indicators

Since the last report card, the BC technology industry has outperformed other industry sectors in the province, particularly in terms of revenues and GDP growth. There has also been significant growth in wages relative to other industries. While this overall growth has led to some sector gains, it has yet to catch up with the performance of the technology industries in some of the other provinces.[3]

BC Technology Industry – 2014 Report Card

	Versus Other BC Industry Sectors 2014	Versus Other Provincial Tech Sectors 2014
Economic Performance Indicators		
Gross Domestic Product	↗	→
Industry Revenues	↗	→
Employment	↗	→
Wages	↗	↗
Exports	→	Data Unavailable
Grade	**A**	**C+**

Highlights

Versus other BC industry sectors:

- **Strong economic contribution** – Contributes more to the economy than resource-based sectors, with one of the highest GDP generated of all industries in BC ($15.5B in 2012).
- **Strong growth** – Grew by double the rate of the BC economy, having the second highest GDP growth among all industries in BC.
- **Large labour force** – Employs 84,000 people, more than the forestry, mining, and oil and gas sectors combined.
- **High paying jobs** – Wages are 66 percent higher than the BC industrial average.

Versus other provincial tech sectors:

- **Lagging economic contribution** – Per capita GDP continues to be lower than provinces with significant technology sectors, however BC has been catching up in recent years.
- **Lagging employment** – Per capita employment is lower than provinces with significant technology sectors.

[3] Consistent with the 2012 report card, the economic performance of the BC technology industry was reviewed on the basis of five key economic performance indicators: GDP, revenues, employment, wage levels, and exports of goods and services.

Gross Domestic Product

The technology industry is responsible for 7.6 percent of the BC economy and contributes $15.5 billion to the provincial GDP. However, despite gains in terms of GDP per capita, BC continues to trail the performance of other provinces and states.

Comparison of GDP

	Versus Other BC Industry Sectors	Versus Other Provincial Tech Sectors
Industry GDP	↗	→
Industry GDP Growth	↗	↗
Summary	↗	→

Going deeper

Consistent with the findings of the 2012 report card, BC tech continues to be one of the top three contributors to the provincial economy, outperforming traditional sectors such as forestry, mining, oil and gas, and transportation in GDP contribution.[4]

GDP Contribution 2012 (chained 2007 dollars) and Change since 2009

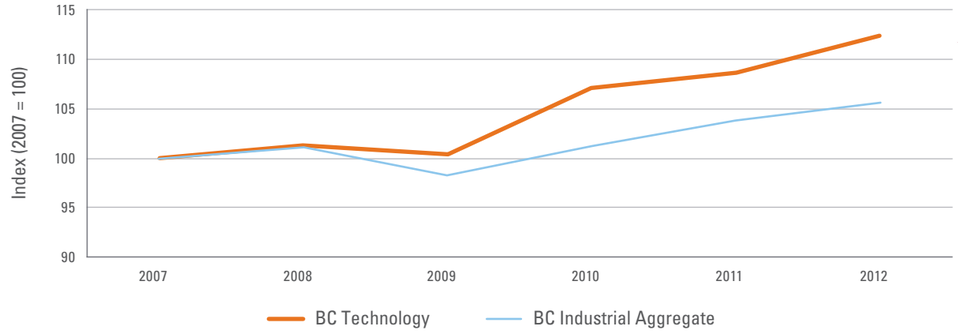
BC's tech industry maintains its position among the top contributors to the provincial economy.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

[4] Dollar figures are not directly comparable to the 2012 report card due to a difference in the base year ("chained" dollar calculation) used by BC Stats. Also, GDP figures are not additive, since the technology industry GDP figure is derived by BC Stats and is not mutually exclusive with the GDP figures of other industries.

Moreover, technology has grown at double the rate of the overall BC economy over the last five years, having the second highest rate of GDP growth of all BC industries.

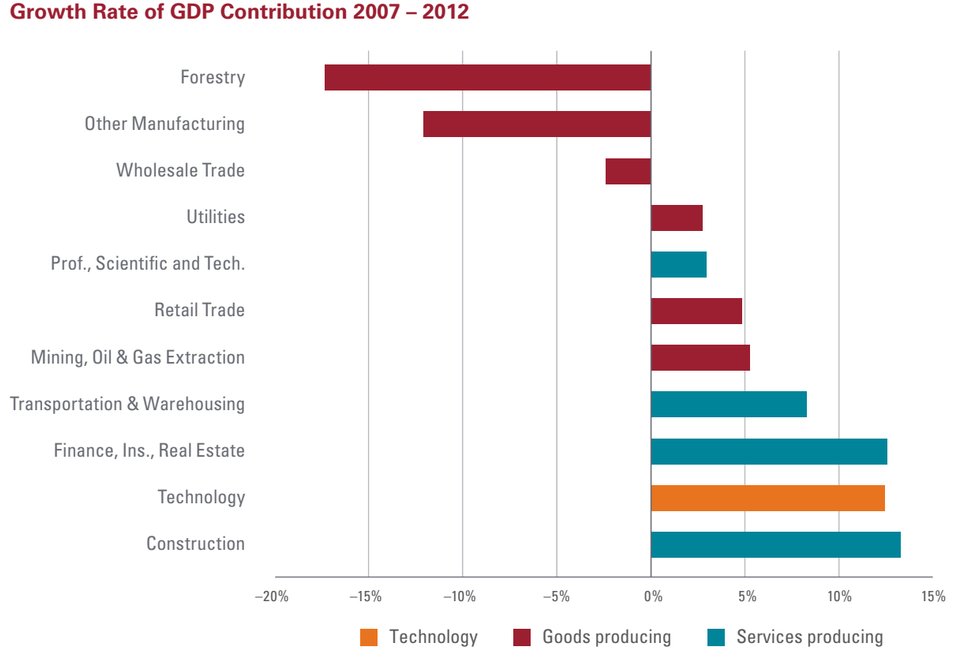
Index of GDP Contribution (2007 = 100)



BC's tech GDP has grown by 12 percent since 2007 while the total BC GDP grew by 6 percent.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

Growth Rate of GDP Contribution 2007 – 2012



Having grown by 12 percent since 2007, BC's tech industry experienced the second highest growth rate of all BC industries.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

In addition to its **direct** contributions to the BC economy, the tech industry has **indirect impacts** created by industry suppliers and **induced impacts** from the spending of the labour income generated in technology and supplier industries. In total, these represent the **total economic impacts** of the industry, and this number proves to be significant. Our analysis finds that **per dollar of revenues, the technology industry in BC has a higher total GDP impact** than BC's primary resource industries, as well as the construction industry. High GDP per dollar of revenue is indicative of high value added during the production process (as measured by a relatively high value of the final product/service net of the intermediary inputs in production). From an income perspective, high GDP per dollar of revenue is associated with high levels of labour income and company profits generated by the industry (net of depreciation, interest, taxes and subsidies).

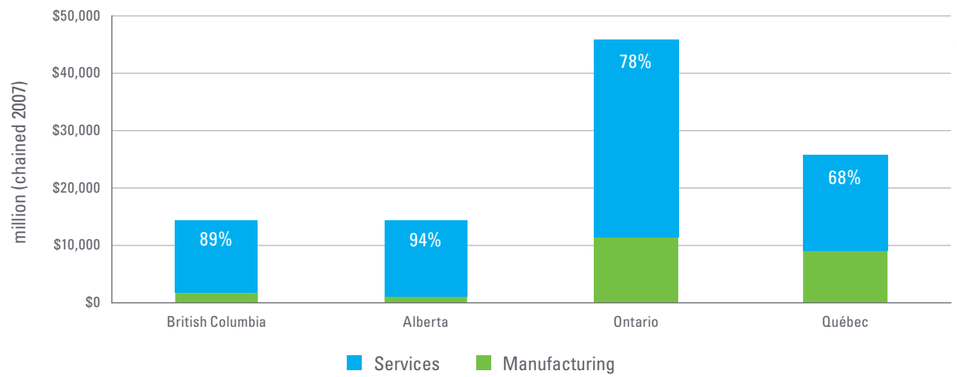
Comparison of GDP Impacts Across BC Industries

Source: KPMG Analysis of Statistics Canada's Inter-provincial Input-Output Multipliers

Note: For a more detailed description and analysis of the economic impacts of the BC technology industry on the overall economy, please refer to the Economic Impact Analysis section of this report card.

The technology industry in BC is comparable to that in Alberta in both absolute size and composition; in both provinces, nearly 90 percent of the industry's value-added output is generated by its services sector. In contrast, the technology industries in Ontario and Québec are much larger in absolute size and manufacturing plays a greater industry role.

Tech GDP Contribution and Share of Services and Manufacturing Sectors 2012

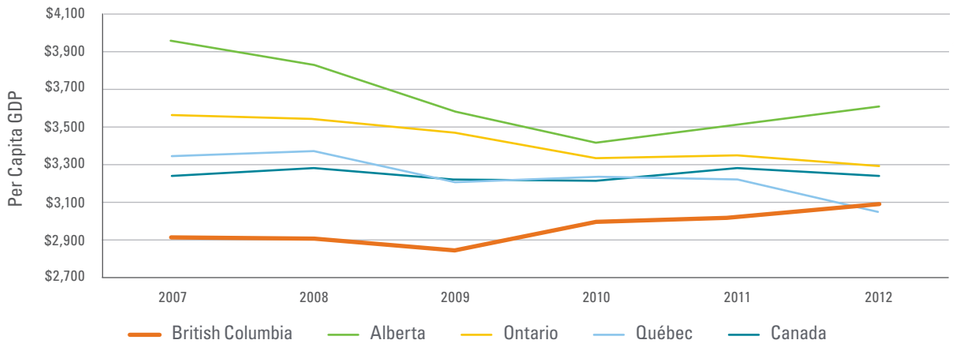


The majority of BC tech output is generated by the services sector.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

When the population size of each province is taken into account, enabling a more reasonable performance comparison, we find that BC's technology industry has historically generated the lowest GDP on a per capita basis. However, over the last five years, BC's technology sector has had the highest compound annual growth rate among all the provinces, significantly reducing the GDP per capita gap.

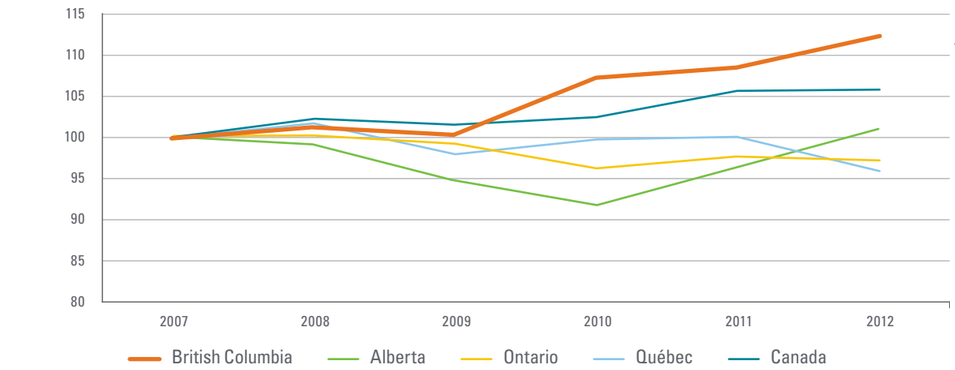
Tech GDP Per Capita (chained 2007)



BC's tech industry trails other provinces in per-capita GDP contribution but is closing the gap.

Source: KPMG analysis of data from the Profile of the British Columbia High Technology Sector, BC Stats, March 2014, and Statistics Canada's CANSIM Table 051-0001.

Index of Technology Industry GDP (2007 = 100)

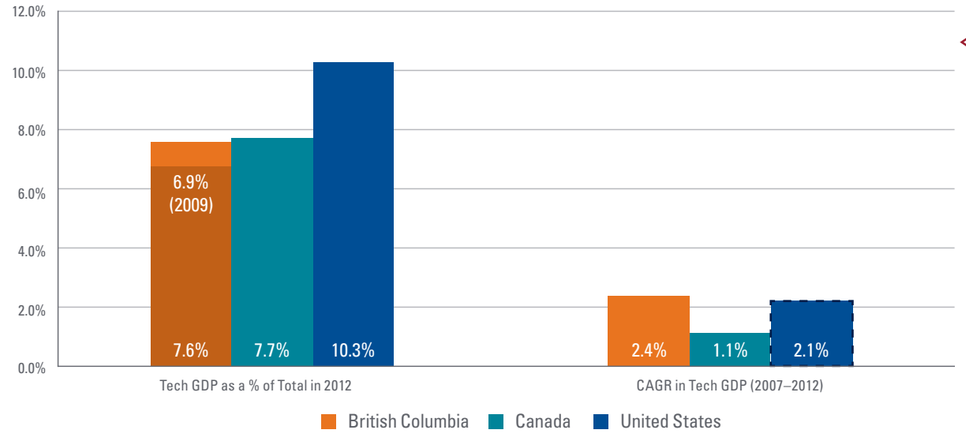


BC tech has the highest annual growth rate among all the provinces.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

In fact, at 2.4 percent, BC's technology industry GDP is growing faster than the Canadian and US averages and BC's technology sector now accounts for the same proportion of the overall provincial GDP as does the technology industry for Canada as a whole.[5,6] That said, BC's technology industry is still 30 percent behind that of the US in terms of its contribution to total GDP, highlighting a significant upside potential.

Technology GDP as a Percent of Total GDP



While BC tech's GDP as a percentage of total GDP is at par with Canada and 30 percent behind the US, its GDP contribution is growing faster than both.

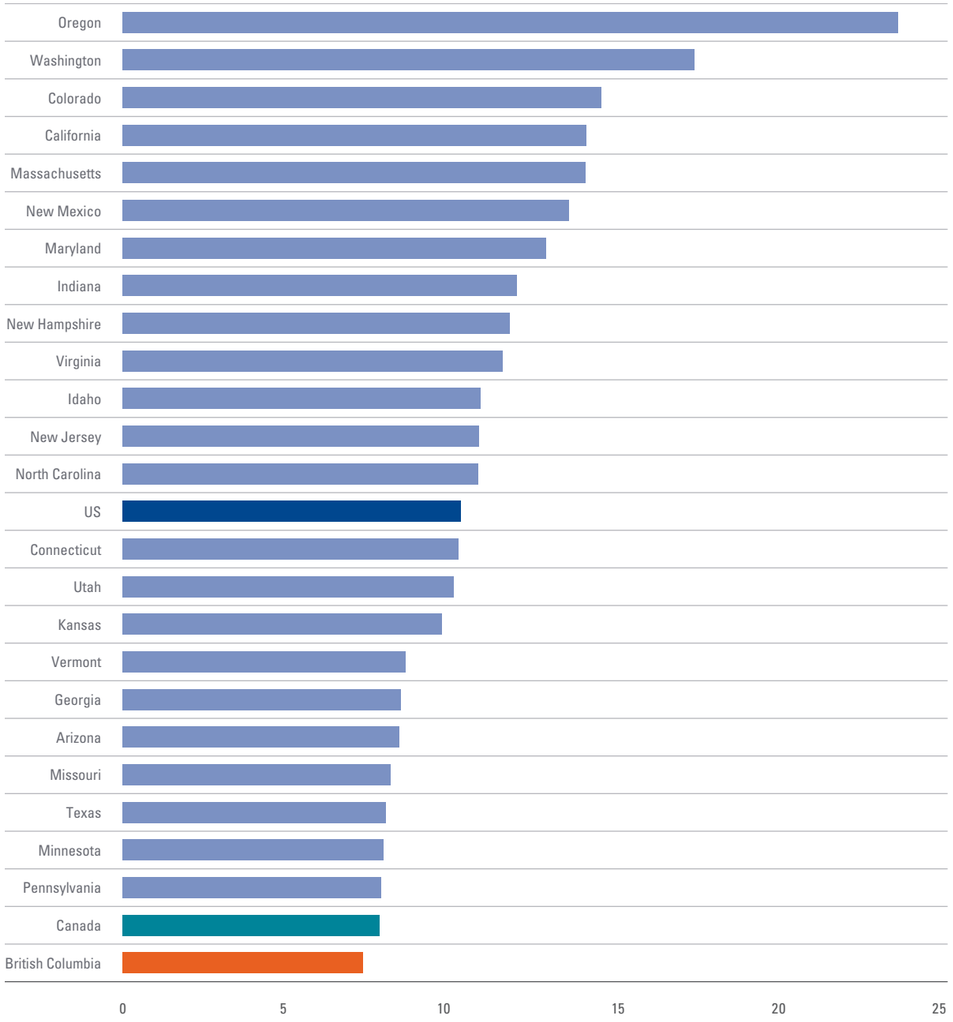
Source: KPMG analysis of data from the Profile of the British Columbia High Technology Sector, BC Stats, March 2014 and World Bank National Accounts

[5] This analysis uses nominal values to calculate Compound Annual Growth Rate (CAGR) for the US's Tech GDP (deflated numbers are unavailable). The gap between the growth rates of BC and US technology industries will be even larger if the US GDP is adjusted for inflation.

[6] The data for BC tech GDP from the 2012 report card has been revised. In 2009, BC tech GDP as a share of its economy was 6.9 percent and not 5.9 percent as previously reported.

While BC has made progress since 2012 in terms of the size of the technology industry relative to the overall economy, there remains a significant opportunity for growth as evidenced by comparison to both individual US states as well as the US average.

% GDP originating in the technology sector, 2011



Source: Profile of the British Columbia High Technology Sector, BC Stats

Industry Revenues

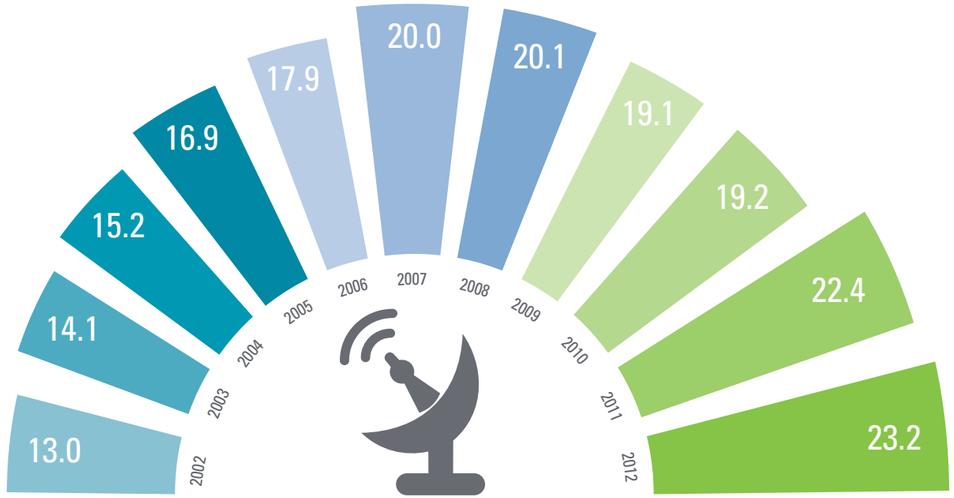
The technology industry generates a significant revenue base in BC that has grown substantially over the last few years. However, on a per capita basis, technology continues to trail other provinces.

Comparison of Industry Revenues

	Versus Other BC Industry Sectors 2014	Versus Other Provincial Tech Sectors 2014
Industry Revenues	N/A	→
Industry Revenue Growth	↗	↗
Summary	↗	→

Going deeper
BC's technology industry revenues have rebounded since the 2008 recession, showing a higher compound annual rate since 2009 (6.7 percent) than it did prior to 2009 (5.5 percent).[7,8]

BC Technology Revenues



Industry revenues have grown at 6.7 percent on an annual basis since 2009.

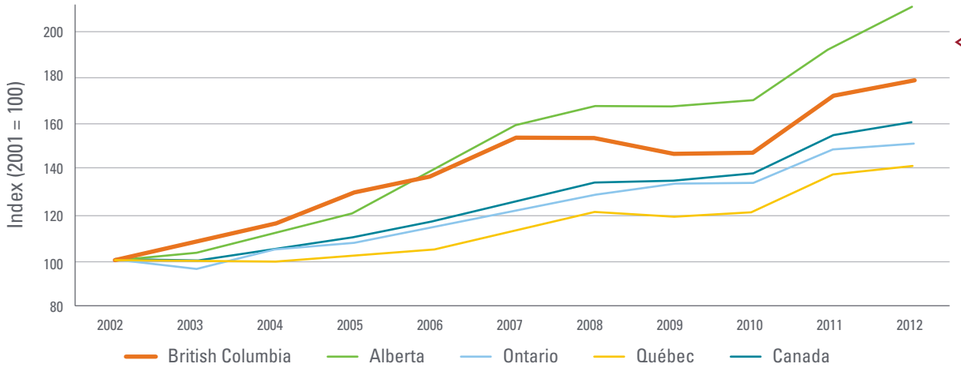
Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

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

[8] Industry revenue figures for BC were generated using revenue data by establishments. That is, for firms headquartered in BC, only the revenues generated from their BC operations are included in the revenue calculations.

Moreover, the sector's revenue growth rate continues to outperform the Canadian average, although BC has been surpassed by Alberta in this regard.

Index of Technology Industry Revenue (2002 = 100)

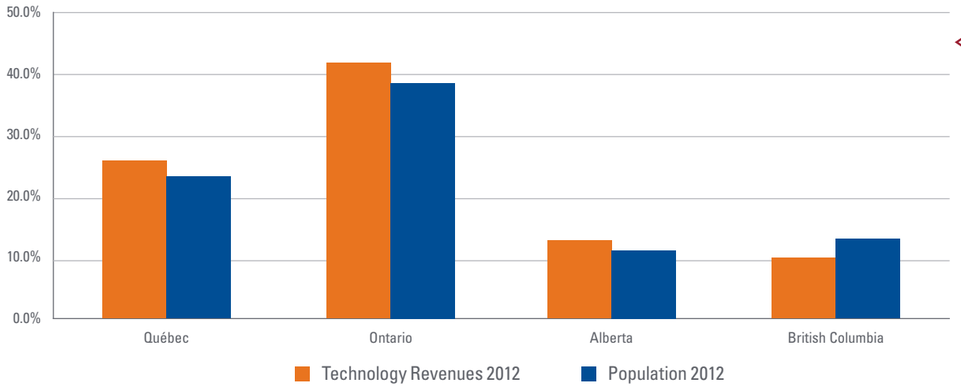


BC tech revenue growth continues to outperform the Canadian average.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

However, BC's technology industry revenues continue to account for a lower share of overall Canadian technology industry revenue, as compared to BC's share of the Canadian population. While the gap has slightly narrowed compared to our 2012 findings, BC remains the only province among Québec, Ontario and Alberta to show such a trend.

Population and Technology Revenues as a Percent of Canadian Totals 2012



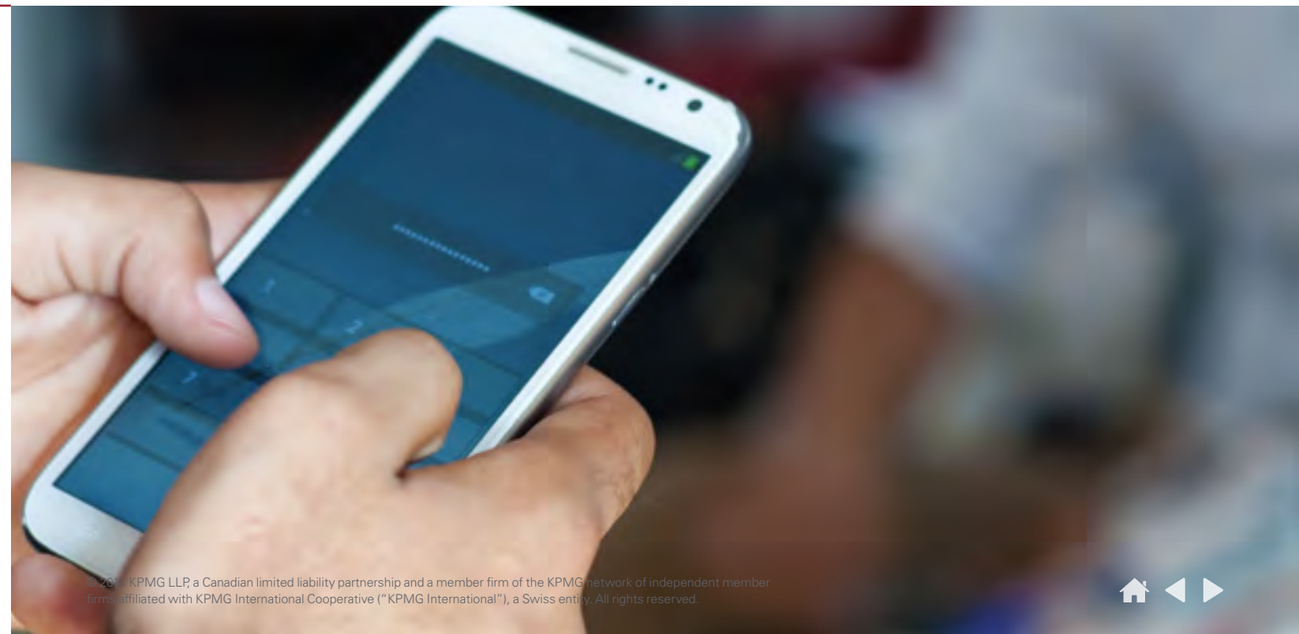
BC tech continues to trail other provinces in per capita revenue. This gap has narrowed slightly since the 2012 report card.

Source: KPMG analysis of data from the Profile of the British Columbia High Technology Sector, BC Stats, March 2014, and Statistics Canada CANSIM Table 051-0001

Industry insights on output growth

Industry leaders interviewed by KPMG observed that a number of external factors have helped to augment the growth of BC's tech industry.

- Government programs such as the National Research Council's Industrial Research Assistance Program (IRAP), the Scientific Research and Experimental Development (SR&ED) program and the Small Business Venture Capital program are significant industry drivers as they incent investment in innovative technologies and create a healthy start-up climate. Other agencies such as the BC Bioenergy Network, BC Innovation Council, BC Trade & Investment, NRC-IRAP, the Natural Sciences and Engineering Research Council (NSERC), Export Development Canada, Sustainable Development Technology Canada (SDTC), Western Economic Diversification (WED), and the Department of Foreign Affairs and Trade Development (DFATD) provide funding support and program resources to assist local start-ups.
- BC is a more cost effective place to do business. The corporate income tax regime and security and privacy regulations create a favourable investment environment and are attractive to companies looking to set up operations.
- The close proximity of BC tech to US markets such as Seattle and Silicon Valley is seen as an advantage and a major growth driver.
- In certain technology sectors (e.g., financial and business software, mobile/wireless technologies, and web-based and gaming technologies), growth has been supported by rich talent pools available at a lower cost relative to US clusters such as Silicon Valley. BC tech companies have also demonstrated stronger employee retention rates when compared to other jurisdictions in the US and globally.
- Last but not least, there is a perception within the industry that the technology sector in BC is a tightly knit, cohesive community, which helps attract creative people to grow their businesses in this province.



Employment and Wages

The number of jobs sustained by BC's technology industry has grown significantly over the last decade. However, this growth has slowed in recent years, placing BC behind other provinces in terms of technology jobs per capita. This slowdown in employment growth may be the result of gains in productivity where higher value is being created by each job in the province, or it may be because a greater proportion of out-of-province employees are being employed by BC companies.

The real wage in BC has grown significantly. Although this is potentially consistent with growth in productivity, there are likely other important contributing factors, such as the high cost of living in BC, wage inflation caused by the arrival of new multinationals and the significant competition for certain types of talent. In any case, BC technology offers high paying jobs – not only relative to other BC industries, but also to the Canadian average for technology.

Comparison of Employment

	Versus Other BC Industry Sectors 2014	Versus Other Provincial Tech Sectors 2014
Industry Employment	↗	↘
Industry Employment Growth	→	→
Summary	↗	→

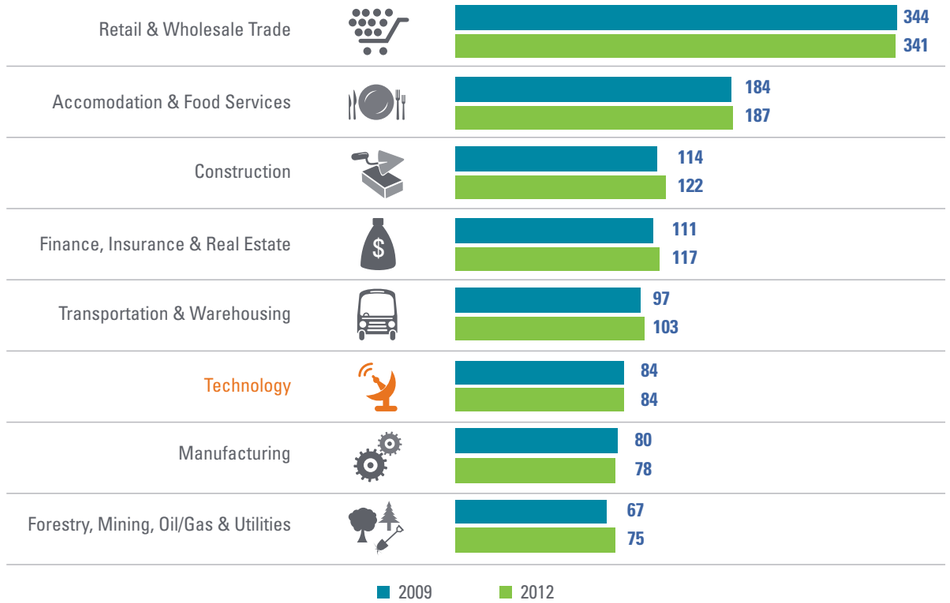
Comparison of Wages

	Versus Other BC Industry Sectors 2014	Versus Other Provincial Tech Sectors 2014
Industry Wages	↗	↗
Summary	↗	↗

Going deeper

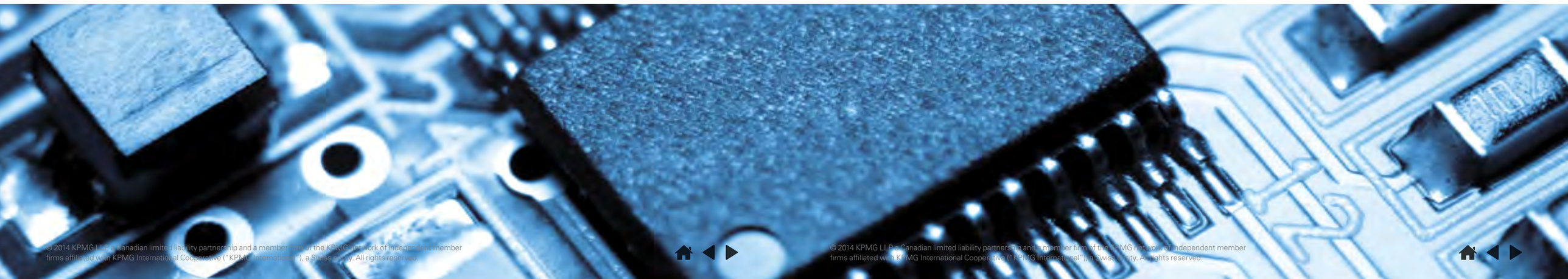
Employment
Employing 84,000 people in 2012, the BC technology industry continued to outperform resource-based industries such as forestry, mining, and oil and gas.

Employment in 2009 and 2012



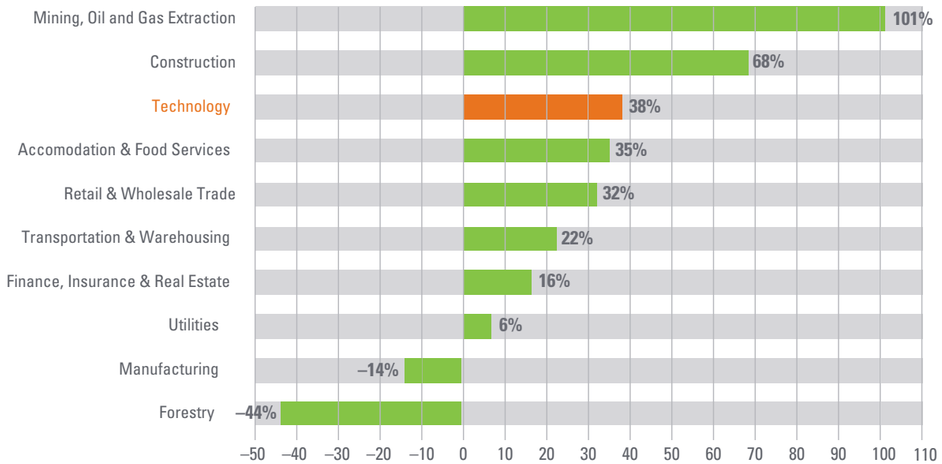
In 2012, BC tech employed more people than the forestry, mining, oil and gas, and utilities industries combined.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014



However, while the technology sector experienced the third highest growth in employment among all the industries in BC between 1999 and 2012, employment has been flat since 2009.[9]

Employment Growth between 1999 and 2012



The tech sector has experienced the third highest growth in employment in the province since 1999. However, growth has been minimal since 2009.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

Industry Insights on Employment Trends

Some companies suggested that employment had in fact grown in more recent years and that the demand for talent is as high as ever, assertions which would not be reflected in data ending at 2012. It was also suggested that companies have been employing personnel outside the province, due in the part to limited talent availability in certain areas – another factor which is not captured by the analysis. On the other hand, leaders from larger BC technology companies supported the view that employment growth has slowed, driven by productivity gains and a focus on better utilizing existing employees.

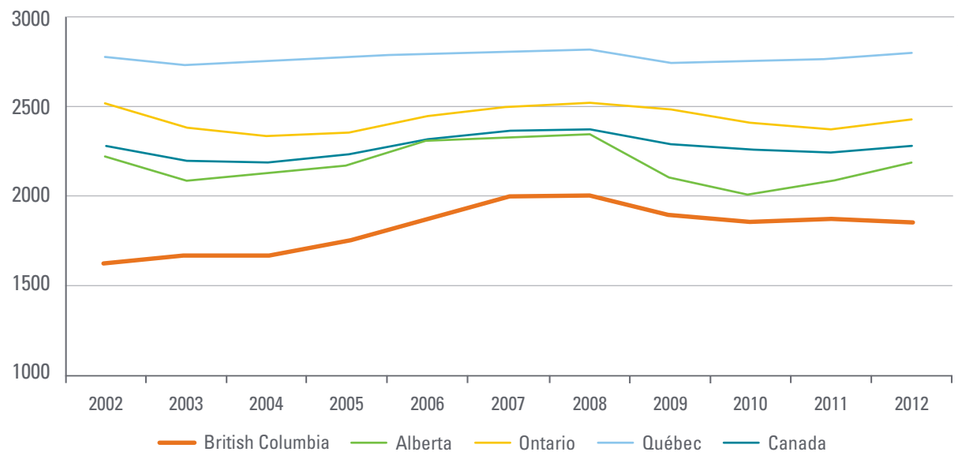
Deeper analysis of the employment data suggests variation in the employment trend by industry sector and firm size. For example, between 2009 and 2012, there was a notable decline in employment in BC's "motion picture and post-production" sector. This was compensated for, however, by healthy employment growth in other tech sectors, such as "engineering and other services."

Industry leaders have also predicted industry growth since 2013, again, an assertion which our data would not reflect.

[9] For reference, the mining, oil & gas and extraction industry, which experienced the highest growth in employment between 1999 and 2012, started at one-sixth the employment level of the technology industry in the base year 1999 and remains significantly lower in 2012, at 22,000 employees.

On a per capita basis, BC's technology sector employment has remained stable since 2009 at approximately 18 percent below the Canadian average.

Technology Jobs per 100,000 Population

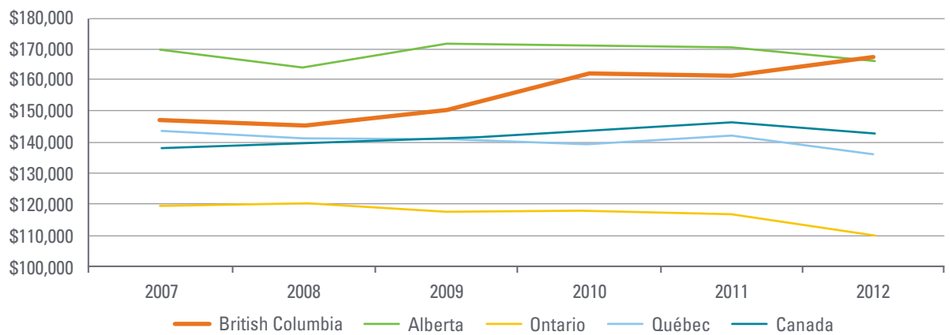


BC tech employment per capita has been steady since 2009.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014.

The improvement in GDP concurrent with flat employment numbers implies that BC is the only province where technology labour productivity has potentially improved over the last five years.

Canada Tech Industry GDP per Person Employed

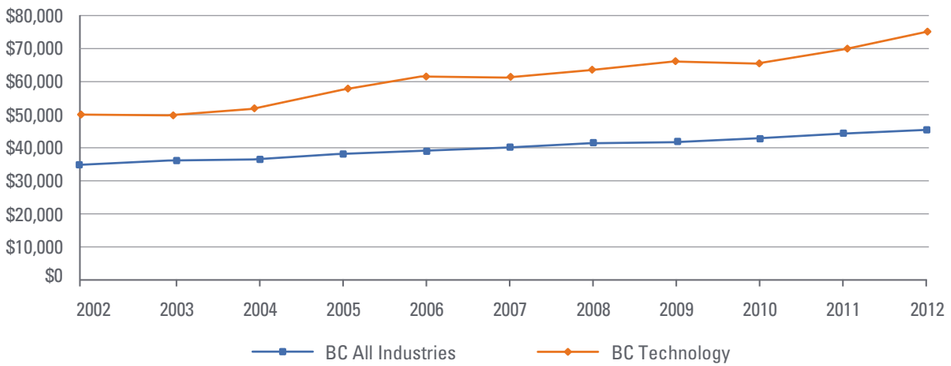


Source: KPMG analysis of data from Profile of the British Columbia High Technology Sector, BC Stats, March 2014

Industry Wages

Since the 2012 report card, BC's technology industry has seen rapid wage growth relative to the average wage in all other provincial industries. In 2012, the average tech wage was 66 percent higher than the average for the economy as a whole, compared with 58 percent in 2009.

Average Earnings – BC Technology versus BC

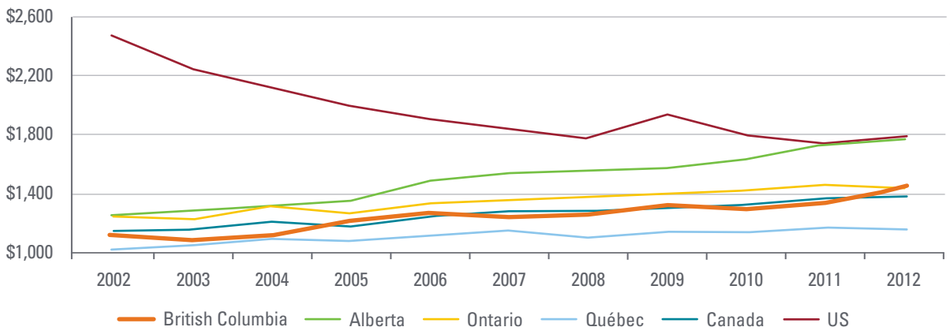


BC tech jobs earn 66 percent more than the BC average salary.

Source: KPMG analysis of data from Profile of the British Columbia High Technology Sector, BC Stats, March 2014

Nationally, the real weekly wage in BC's technology industry has grown by twice as much as the Canadian average. Moreover, in 2012, BC's technology industry wage was higher than the Canadian average and comparable to the level in Ontario. However, BC continues to trail Alberta in this regard, where technology jobs pay 20 percent higher and are comparable to US levels. This is consistent with the overall trend in wages in Alberta, which are typically higher than BC's across most industries.

Real Weekly Wages (in 2012 prices)



BC has higher paying tech jobs than the Canadian industry as a whole.

Source: KPMG analysis of data from Profile of the British Columbia High Technology Sector, BC Stats, March 2014 and Statistics Canada CANSIM Table 326-0021

Industry Insights on Wage Trends

While in theory the rise of the real wage reflects rising productivity, there are likely other factors at play in BC's tech industry. Some industry leaders interviewed by KPMG suggested that the rising cost of living in BC is putting significant upward pressure on compensation. Others pointed to market distortions in specific types of jobs, such as software development, caused by the entry of multinational firms that are willing to pay above-market rates to attract talent.

Exports

BC tech industry exports have experienced growth since the 2012 report card, however, there is room for significant improvement when it comes to accessing new markets. Globally, the technology industry tends to be highly mobile; since enterprises need not have operations in close proximity to their product and service markets, international trade becomes very important. BC tech has the potential to make significant progress on the global front since its current export performance is poor relative to the Canadian industry as a whole, and it has not experienced any significant growth over the last decade.[10]

Comparison of Exports

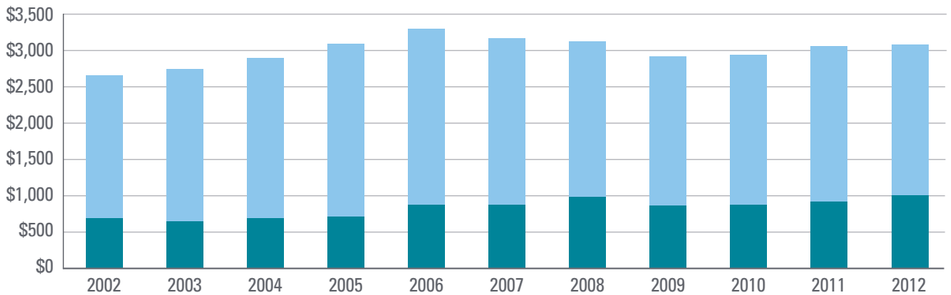
	Versus Other BC Industry Sectors 2014
Industry Exports	→
Industry Exports Growth	↘
Summary	→

[10] The data and analysis presented in this section is based on the best available data to date. However, service exports data may be an underestimate of the true level of service exports. As noted by BC Stats, data for service exports is challenging to measure since it cannot be tracked through customs databases. Instead, it is estimated using surveys and other information available to BC Stats (Profile of the British Columbia High Technology Sector, 2013).

Going deeper

In 2012, the BC technology industry exported $3 billion in goods and services, with services accounting for two-thirds of this amount – a ratio that has remained fairly constant over time.[11] Over the last decade, technology exports have grown very slowly, and this growth has been notably poor in the years since the recession. Between 2009 and 2012, while total exports from BC grew by 20 percent, BC technology exports grew by only 5 percent.

BC Technology Exports

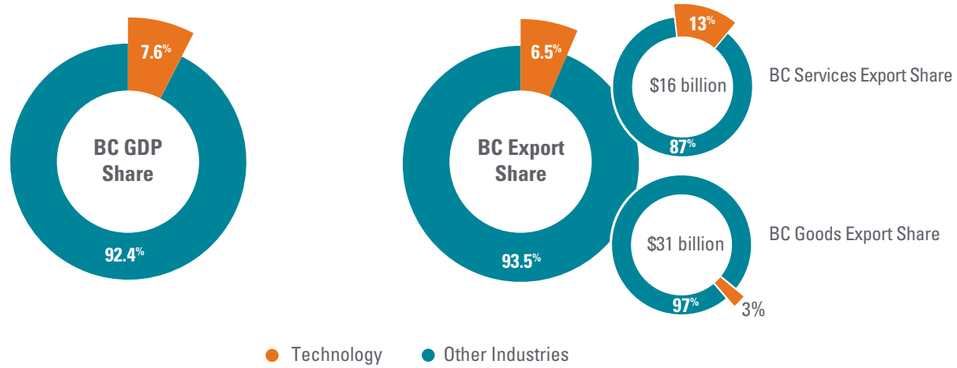


Exports of BC tech goods and services have been relatively stable.

Source: Profile of the British Columbia High Technology Sector, BC Stats, July 2011

[11] Data for BC's technology services exports have been revised significantly downwards by BC Stats for the years since 2006. Therefore, the updated analysis of exports may not be consistent with the findings of the 2012 report card.

The technology industry comprises 6.5 percent of BC's total exports – a figure relatively proportional to its share of the provincial GDP. Of the total goods and services exported, the tech industry's share of services is much higher than that of goods, although its share has declined by 35 percent compared to 2012 findings.[12]

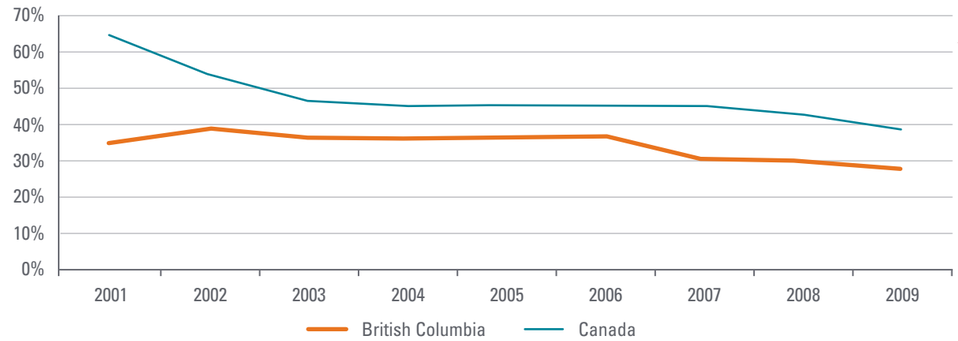


BC tech's share of provincial exports is proportional to its share of the provincial economy.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

However, as a percentage of its output, BC tech exports a smaller share than the Canadian tech industry as a whole, which implies that our export intensity is lower than that of tech industries in other provinces.

Tech Exports (as a % of Tech GDP)



BC tech exported 28 percent of its total output in 2009, as compared to 40 percent output exported by the Canadian technology industry.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

[12] Based on the revised services export data published by BC Stats, it is found that BC technology's share of total service exports in 2009 was lower than the figure reported in the 2012 report card (it was 20 percent instead of 32 percent)

While detailed trade data for technology services is lacking for BC, a closer examination of technology goods data reveals further insights.

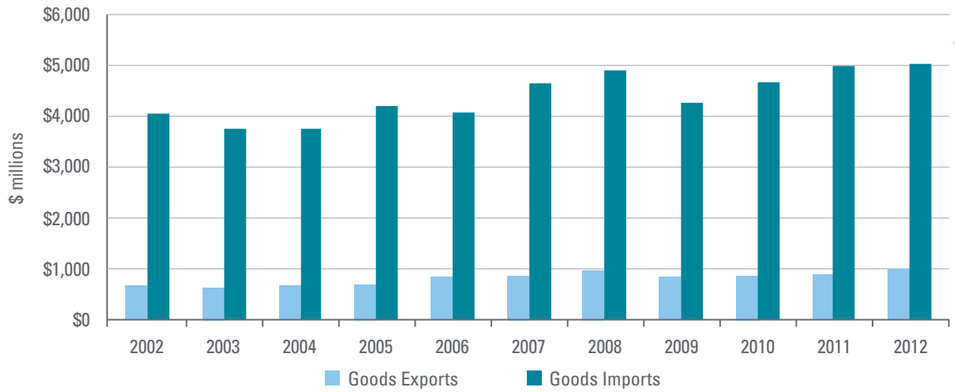
In terms of exports, while the US continues to be the largest consumer of BC technology goods, there has been a significant trend in market diversification towards the Pacific Rim and other countries over the past decade.

The share of technology goods exports from BC to the US has been declining.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

From a trade balance perspective, BC continues to be a significant net importer of technology goods, with the majority originating in the Pacific Rim. The magnitude of these imports indicates there is local demand for certain types of technology goods not being met by local supply.

BC Tech Goods Exports and Imports



BC imports $5 billion worth of technology goods while generating only $1 billion in exports.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

Industry Insights on Exports and Market Access

Export readiness and the ability to successfully access new markets are closely correlated to firm capacities. Smaller companies often lack the resources, capital and expertise necessary to readily exploit new markets.

The underperformance in BC tech exports relative to other provinces is likely related to the overweighting of small and very small technology companies in BC. Industry leaders observed that smaller companies often require access to local, early-adopter customers as a proving ground before expanding to new markets. As such, both corporations and government agencies can play an important role by helping improve product design/marketing processes and serving as a critical reference customer.

Despite this, many BC tech companies find their products/services are better received in foreign markets than at home. Even among leading companies, very few indicate they have much or any business with BC-based customers.

Unlike the US, there is as yet no funding set aside by provincial or federal governments to procure locally from small businesses. In fact, in some cases, the government procurement process has minimum requirements that are beyond the capabilities of smaller companies.

The tech industry is global and in many segments, fiercely competitive. Successfully growing exports requires both financial capacity and management expertise – issues that BC tech companies face regularly.

Economic Performance Indicators – Summary

Current economic performance indicators largely confirm the findings of the 2012 report card: BC technology performs strongly compared to other provincial industries, but continues to trail the technology industries in other provinces. To gain more perspective around the "why" of these results, the following section analyzes inputs to the BC tech industry and highlights the root drivers of its economic performance.

Part B: Industry Input Indicators

While the BC technology industry continues to perform well compared to other BC industries, it continues to underperform relative to the technology industries in other provinces – although the gap is being closed. It is also generally behind the tech sectors of the countries in the Organization for Economic Co-operation and Development (OECD), particularly in the areas of talent, venture capital investment, and research and development (R&D), all of which are necessary growth drivers. A closer assessment of BC's technology industry inputs offers a glimpse into key areas of weakness and highlights areas where appropriate, targeted investment may serve to underwrite the sector's future performance.

Part of the noted underperformance can be attributed to the capacity constraints of BC firms. Populated with small enterprises, BC tech firms have a limited ability to raise capital investment, invest in R&D, increase the available talent pool, collaborate with post-secondary research institutes and build intellectual property.

BC Technology Industry – 2014 Report Card

Industry Input Indicators	Versus Other Provincial Tech Sectors 2014
Talent Availability	↘
Access to Capital	→
Research and Development	↘
Intellectual Property	↘
Grade	**C–**

Highlights

- **Low talent availability** – BC lags other provinces in granting engineering and sciences degrees at both the undergraduate and graduate levels and is well below the OECD average in granting technical doctoral degrees.
- **Lack of venture capital investment** – While BC has a relatively healthy level of angel investment, venture capital investment is largely lacking or insufficient.
- **Lagging R&D investment** – BC fares poorly compared to other provinces and OECD countries on the level of R&D invested as a percentage of output. Of particular concern is the declining level of business expenditure on R&D, which is already behind other jurisdictions.
- **Fewer patents** – BC's level of patents granted lags other provinces and OECD countries on both a per capita basis and as a percent of applications filed.

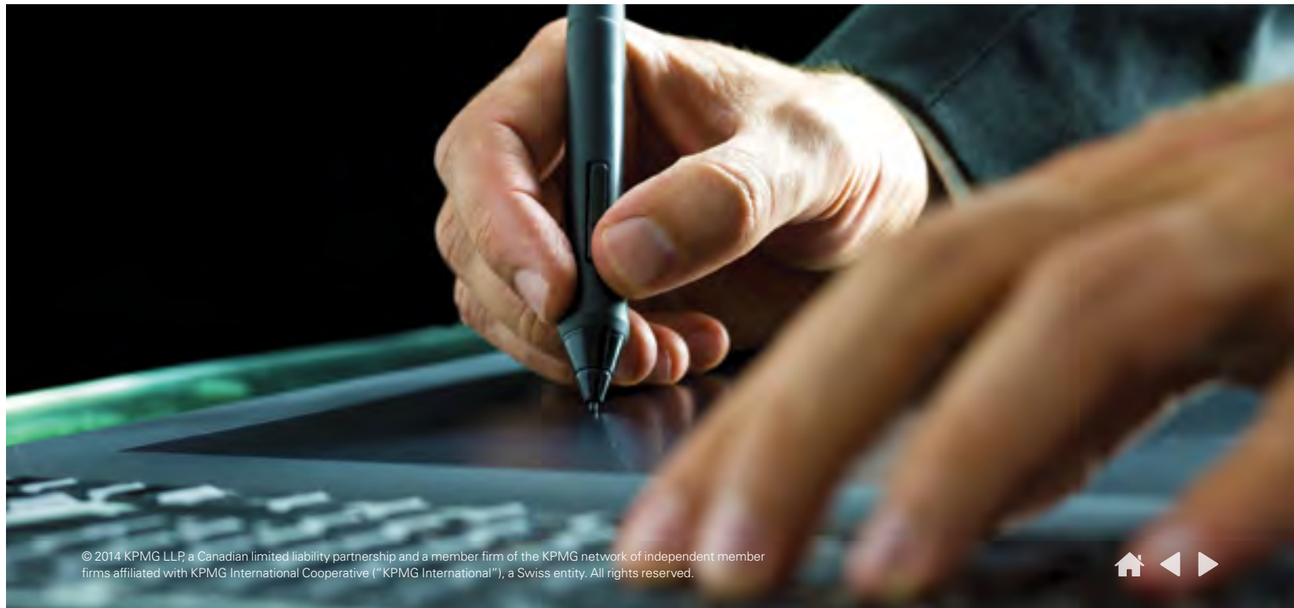
Talent Availability

Talent is a critical resource for the technology sector, feeding the innovation and creativity that in turn drive the global industry. From information & communications technology, to engineering & other services, to life sciences, each sector relies on the availability of a skill-specific talent pool to meet existing business demands and generate new growth ideas. The technical skills required by the industry are primarily developed at higher education institutions then nurtured within the industry. The number of degrees awarded in a province is, therefore, a useful measure of the technical talent available for firms to draw on.

While there has been an improvement in the granting of degrees in math and computer science in BC relative to other provinces, we continue to lag in the granting of degrees in other technical fields. BC fares particularly poorly in the architecture and engineering fields and underperforms the Canadian average in life sciences. Moreover, BC's performance has fallen relative to other OECD countries in the granting of technical PhDs.

Talent Availability

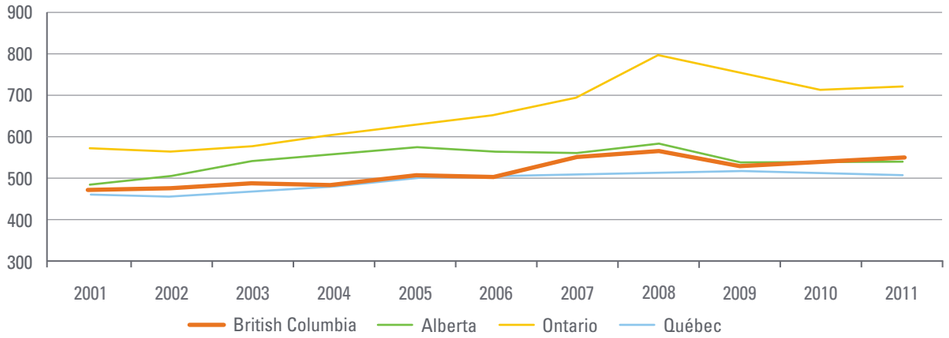
Industry Input Indicators	Versus other Provincial Tech Sectors 2014
Undergraduate Degrees	↘
Undergraduate Technology Degrees	→
Graduate Technology Degrees	↘
Summary	↘



Going deeper

Skilled labour availability in BC, as measured by the level of undergraduate degrees granted per capita, trailed only Ontario in 2012, having grown steadily over the last three years.[13]

Undergraduate Degrees per 100,000 Population

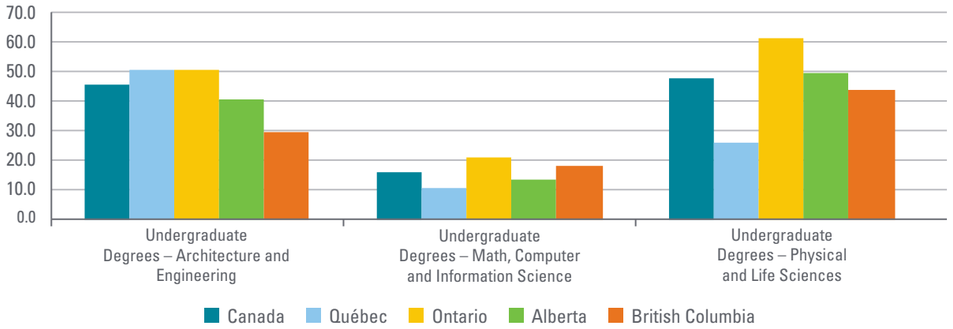


BC produces the second highest number of undergraduates on a per capita basis but continues to trail Ontario significantly.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

However, in terms of the relevance of those degrees to the technology industry, BC continues to trail other provinces on average. For both undergraduate and graduate degrees, BC is well behind the Canadian average and the degree rates of other provinces in the fields of architecture and engineering. The province is also behind the Canadian average in the granting of undergraduate and graduate degrees in the physical and life sciences disciplines. Only in the fields of math, computer science and information science has there been a positive trend since 2009, with BC now second only to Ontario in granting both undergraduate and graduate degrees in these disciplines.

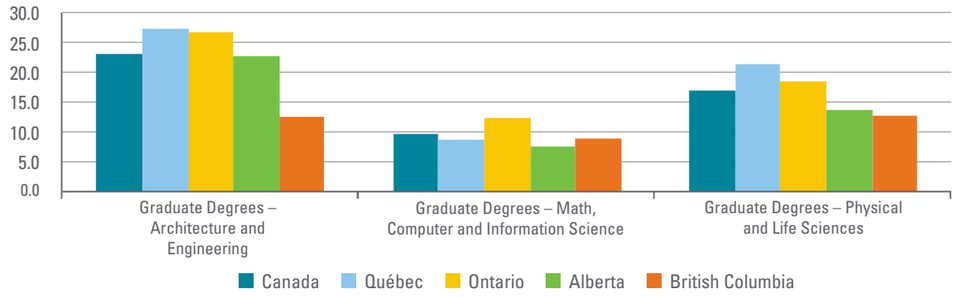
Annual Undergraduate Degrees per 100,000 Population 2011



Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

[13] Data for Québec has been revised downwards significantly by BC Stats. Undergraduate degrees per 100,000 population was lower than the level in BC up to 2008, and remains that way till 2011

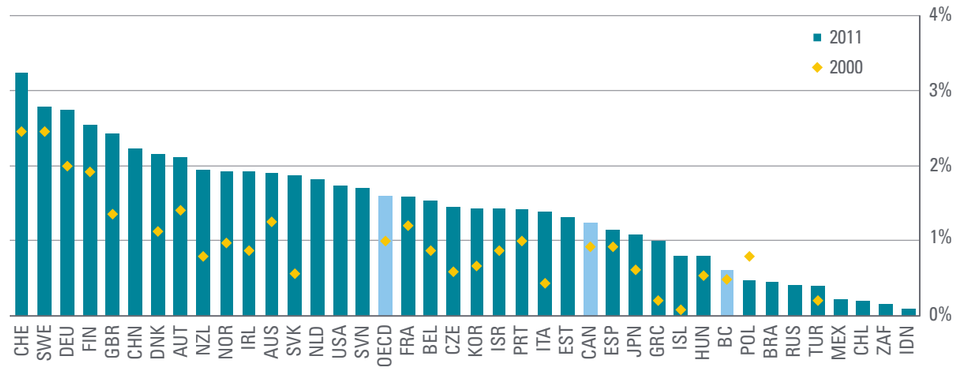
Annual Graduate Degrees per 100,000 Population 2011



Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

Globally, Canada's rate of granting technology-related doctoral degrees per 1,000 population in the reference age cohort is well below the OECD average. Since 2009, the level in Canada remained the same at 1.2 percent, while the OECD average improved slightly to 1.6 percent. KPMG estimates that BC's rate of doctoral degrees of 0.6 percent also did not change since the last estimate in 2009, meaning a deficit of 60 percent versus other OECD jurisdictions. More concerning yet is that many of the countries that trailed Canada and British Columbia in 2000 had surpassed us by 2011 (e.g., Italy, Iceland and Greece).

Technology Related Doctoral Degrees as Percentage of Population in Reference Age Cohort



Source: KPMG Analysis and OECD Science, Technology and Industry Scorecard 2013, OECD, 2013

Industry Insights on Talent Availability

Industry leaders almost universally agreed that access to talent has become the most significant issue facing their firms. They cite a tightening of talent availability over the past few years; growing shortages in certain key technical areas, including software and web development; and a need to expand the available talent pool in areas such as industrial technologies and sales and marketing as critical issues.

The challenges in talent availability have been exacerbated by the arrival or impending arrival of several multinational firms on the BC tech scene. With a relatively constrained talent pool, the competition for available resources has increased, and with it, compensation levels have risen. Several of the larger US-based multinationals are offering compensation packages at significant premiums over the average compensation levels in the BC market, leading to growing talent development, attraction and retention challenges for smaller BC companies. In some cases, this has led to BC-based companies establishing or growing their operations outside of BC where talent is less expensive and more available.

Leaders agreed that long-term industry success will require an expanded talent pool, developed by improving the quantity and quality (job-readiness) of post-secondary degree programs, as well as by attracting talent from outside of BC and Canada.

The high cost of real estate was cited as a primary barrier to attracting outside talent, particularly where mid- and senior-level management must be relocated. As a result, companies are looking at alternative ways of addressing relocation costs and at targeting talent markets where the cost differential or the expectation of home ownership are less.

Access to Capital

Access to risk capital throughout the growth cycle is one of the most significant determinants of tech sector success. It has been empirically established that companies that receive risk capital have a significantly higher survival rate; experience stronger revenue, employee, wage and asset growth; and invest in higher levels of R&D.[14]

The BC technology industry has had a healthy growth in angel investment, which typically takes the form of seed capital that helps in the emergence of start-ups. However, early stage venture capital investment – a necessary fuel for growing start-ups into thriving companies – is deficient in BC and has been declining in recent years. And of the early stage venture capital that *is* invested, there has been a decline in the share invested by local funds, which deprives companies not only of adequate risk capital, but also of the guidance and networking opportunities that are essential in early growth stages. At the same time, BC companies attract a significant amount of foreign and extra-provincial investment at the later stages of growth. Together, these findings suggest that small technology firms in BC are limited in their ability to access timely risk capital that can propel their growth, and firms that successfully attract foreign venture capital may be at risk of relocating outside BC.

Access to Capital

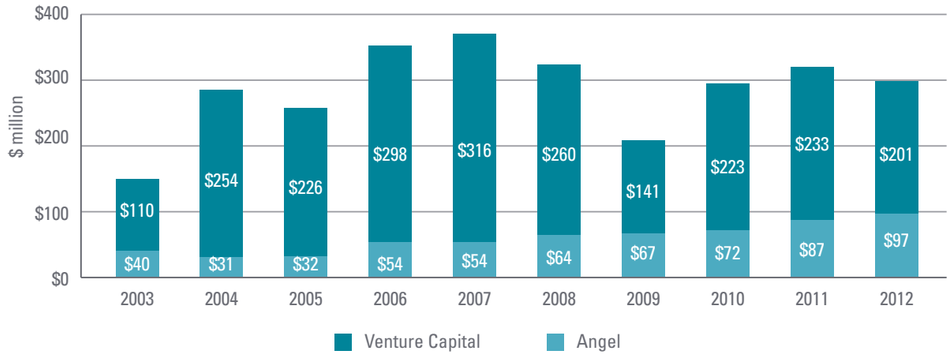
Are at	Versus Other Provincial Tech Sectors 2014
Access to Angel Investment	
Access to Venture Capital	
Summary	

[14] These findings can be explored in detail in the recent study by CVCA and Industry Canada titled "The Performance of Canadian Firms that Received Venture Capital Financing," published in June 2013.

Going deeper

BC has experienced steady growth in the level of angel investments in the province since the mid-2000s. Venture capital investment, on the other hand, has been more volatile.

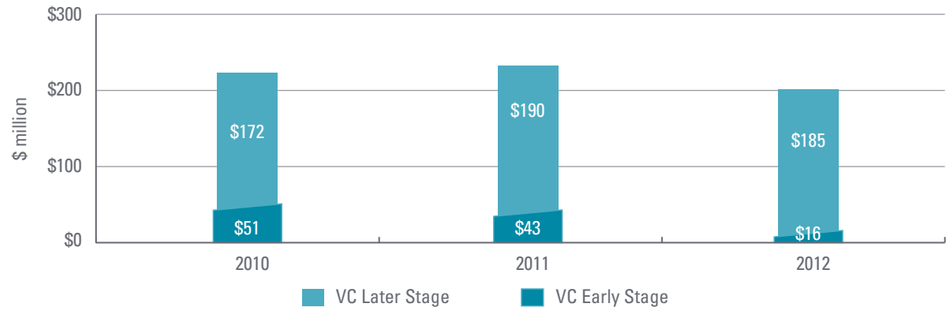
Capital by Stage of Investment



Source: CVCA and BCTIA analysis of Thompson Reuters Data

In recent years, the vast majority of venture capital invested in BC was in later stage financing. Early stage venture capital is significantly more limited and has been declining over the last few years.

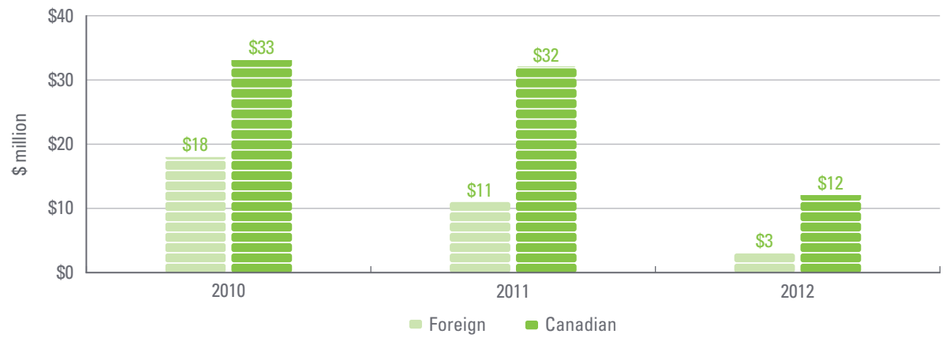
Venture Capital by Stage of Investment



Source: CVCA and BCTIA analysis of Thompson Reuters Data

The decline in locally sourced early stage capital is particularly concerning, given its importance. At the same time, a significant share of later stage investment originates from foreign sources, which presents a potential risk that firms may subsequently relocate outside of BC.

Early Stage VC Investment by Source

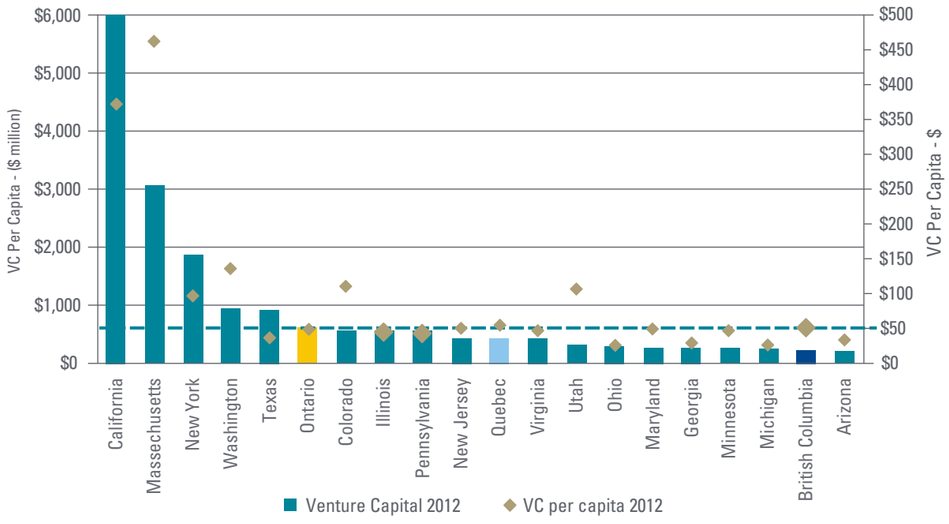


Locally sourced early stage VC investment has been declining.

Source: CVCA and BCTIA analysis of Thompson Reuters Data

Overall, BC placed second to last in the level of total venture capital invested among the 20 North American jurisdictions examined. This is particularly concerning, as the technology industry is inherently mobile and decisions regarding the location of operations can be significantly influenced by structural factors such as access to capital, rather than the presence of local demand.

Venture Capital Investments 2012



Source: KPMG Analysis of Thomson Reuters Data

Industry Insights on Risk Capital Investment

The technology industry leaders interviewed recognized that there is a healthy local angel network in BC. However, early stage venture capital financing in BC is seen as either absent or modest, making it difficult for small companies to grow. There is a sense that attracting venture capital from out-of-province is also challenging because physical proximity is an important investment factor.

Overall, the opinion was that the limited presence of venture capital in BC leads to an absence of investment competition, which impacts competitive valuation and terms. Industry leaders also noted that local venture capital funds often take a revenue-based valuation approach. Paradoxically, this may mean that a company can be valued higher by an angel investor prior to earning any revenue than by an institutional investor once it starts generating revenue. Since angel investors typically expect high returns on initial investment, this may make it difficult for small companies to raise subsequent rounds of institutional financing, often leaving them with prospects of constrained growth due to limited capitalization or the option of selling early. This lack of breadth in the capital pool can lead to a vicious cycle of limited company growth and depressed valuations of small companies seeking funding.

Research and Development

R&D expenditure is the long-term investment in an industry's future economic performance. It measures commitment to using innovation and knowledge creation to enhance productivity and improve competitiveness.

Over the last few years, there has been little increase in overall R&D investment in BC. As such, it ranks below Ontario and Québec. However, the composition of R&D spending has changed over time, with the share of business investment in R&D experiencing a steady decline. The fact that the industry is populated with small firms with fewer than 50 employees can help explain this trend. BC is host to very few large, anchor companies that have the revenues and the capital to spend in significant ways on research for the purposes of enhancing competitiveness.

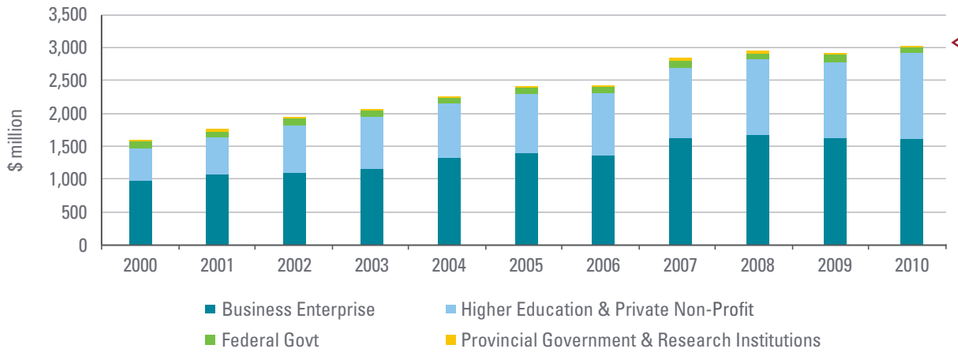
Research and Development

	Versus other Provincial Tech Sectors 2014
R&D as a Percentage of GDP	↘
BERD as a Percentage of GDP	↘
Summary	↘

Going deeper

At $3 billion, there was no significant increase in the total R&D expenditure in BC since 2008, although the composition of the spending changed. The share of higher education and private non-profit expenditure continued to grow from 39 percent in 2008 to 43 percent in 2010, while that of business enterprise shrank by an equivalent amount, to 53 percent in 2010.

R&D Expenditures in British Columbia

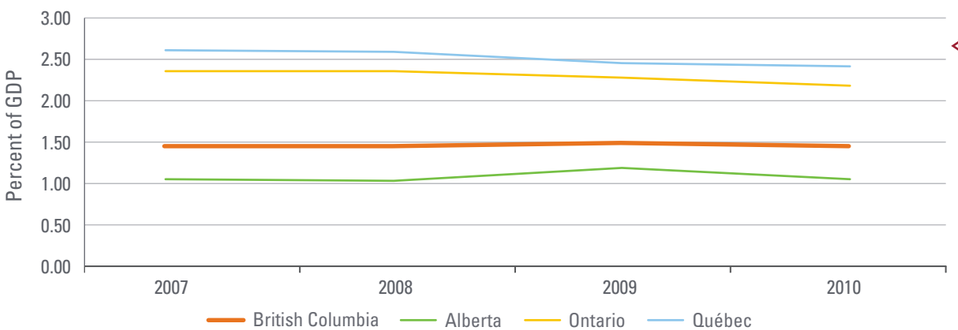


Overall R&D investment in BC has been constant, with an increase in higher education spending equal to the reduction in business investment in R&D.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

In BC, total R&D spending as a percent of GDP has remained relatively constant since 2008. Other provinces experienced a slight decline in this metric. While BC remains higher than Alberta in this regard, it still makes up only 60 percent of the R&D expenditure levels in Ontario and Québec.

R&D as a Percent of GDP

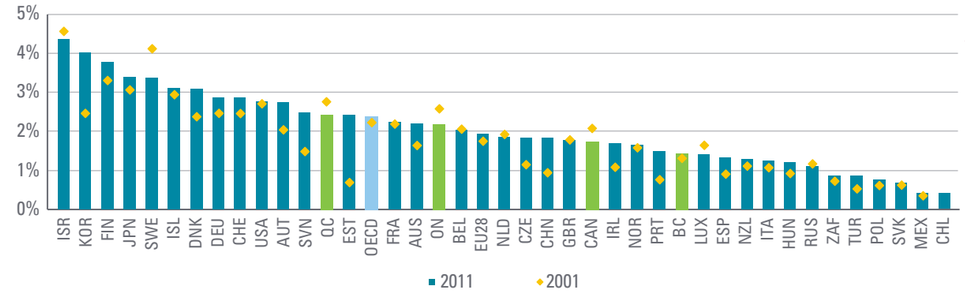


BC's level of R&D as a percentage of GDP has been constant, but remains 40 percent lower than Ontario and Québec.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

Since the last report card, BC did not improve its global standing in R&D intensity, as it continues to perform 40 percent below the OECD average.

R&D Expenditure as a Percent of GDP

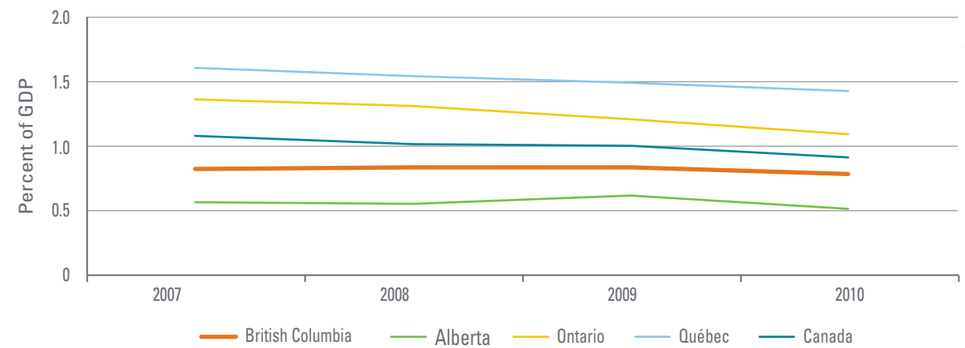


BC fell further below the OECD average in R&D expenditure as a percent of GDP.

Source: KPMG Analysis of BC Stats Data and OECD Science, Technology and Industry Scorecard 2013, OECD, 2013

The BERD (business expenditures on R&D) ratio – which reflects the level of industry commitment within the technology industry – has fallen for all provinces since 2008. BC still performs better than Alberta, with its businesses contributing 0.78 percent of GDP to R&D investment, but remains well below Québec and Ontario, which contribute 1.42 percent and 1.09 percent respectively.

Business Expenditure on R&D as a Percent of GDP

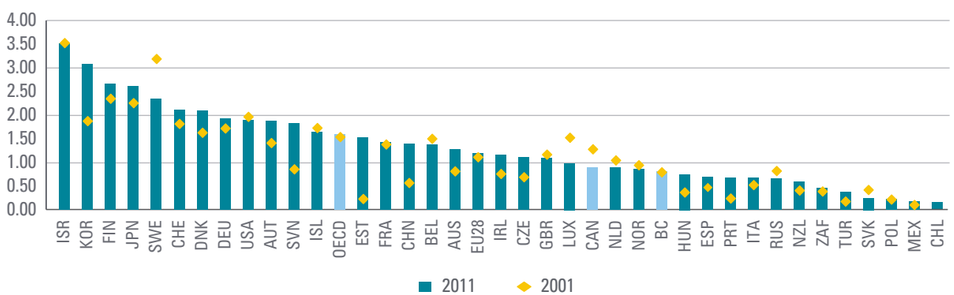


Business R&D as a percentage of GDP in BC is 20 percent lower than Canada overall.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

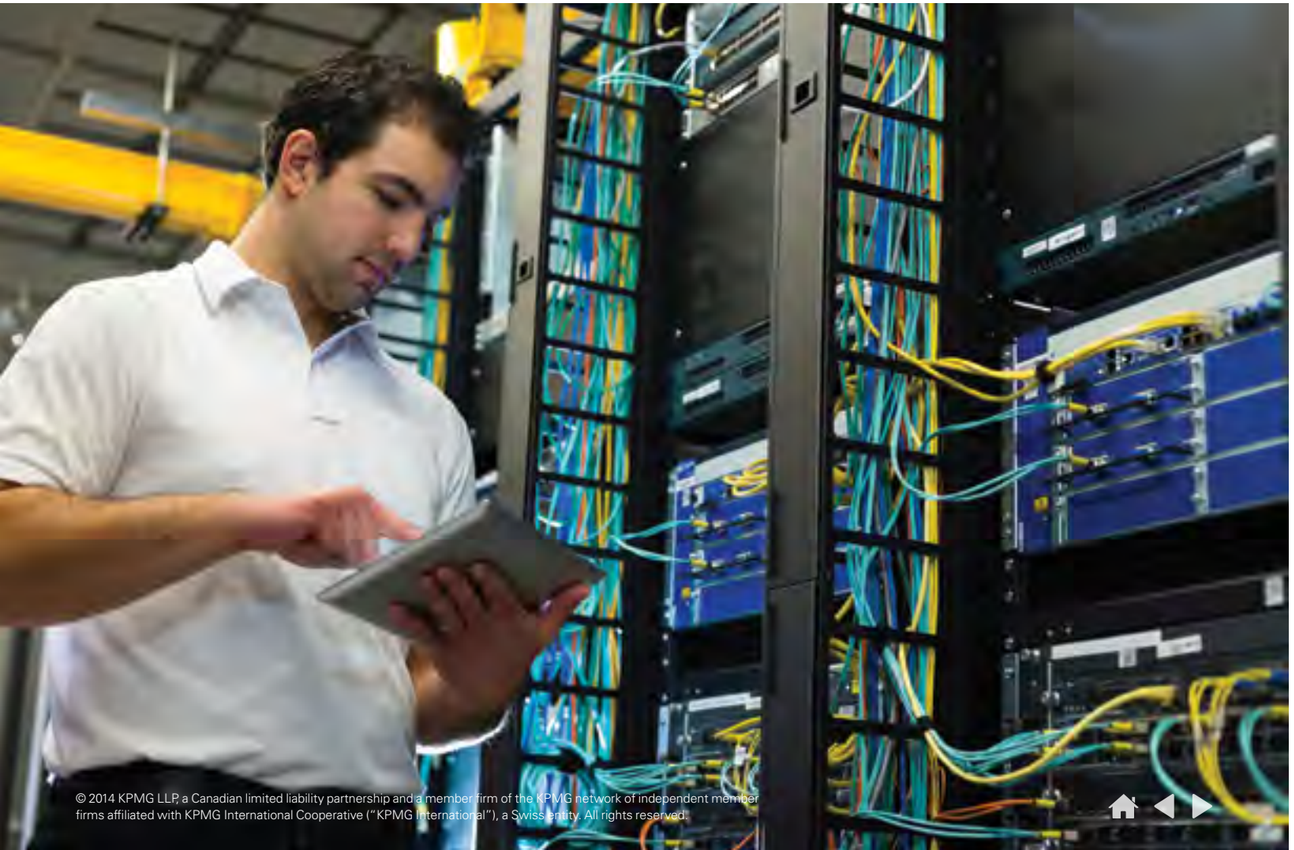
BC's BERD remained 50 percent below the OECD average and did not experience any change from the 2001 level. This means between 2001 and 2011, BC was surpassed by countries like China and Australia in their level of BERD investment as a percent of GDP.

Business Expenditure on R&D as a Percent of GDP



Business R&D in BC is one-third the level of leading OECD countries.

Source: KPMG Analysis of BC Stats Data and OECD Science, Technology and Industry Scorecard 2011, OECD, 2011



Intellectual Property

Intellectual property is a bellwether of the inventory of assets that can be commercialized to underwrite future economic performance. As measured by the number of patent applications submitted and granted, intellectual property reflects the success of R&D investment in the development of innovative products, provides an indication of the commercial viability of research and provides an indication of the competitiveness of the technology industry as a whole. Consistent with the findings of the 2012 report card, BC still ranks well below all other provinces with significant technology industries in the level of patents awarded, both on a per capita basis and as a percentage of applications filed.

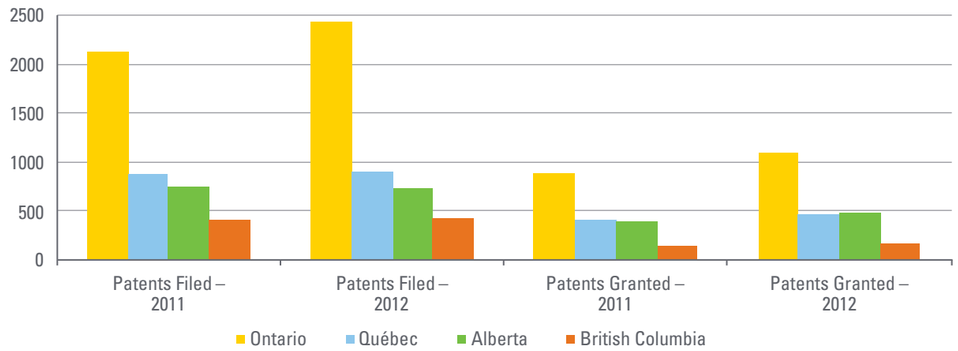
Intellectual Property

	Versus Other Provincial Tech Sectors 2014
Patents Granted	↘
Summary	↘

Going deeper

Compared to other provinces with significant technology industries, BC continues to trail in terms of both the number of patents filed and the number of patents granted, on both an absolute and per capita basis.

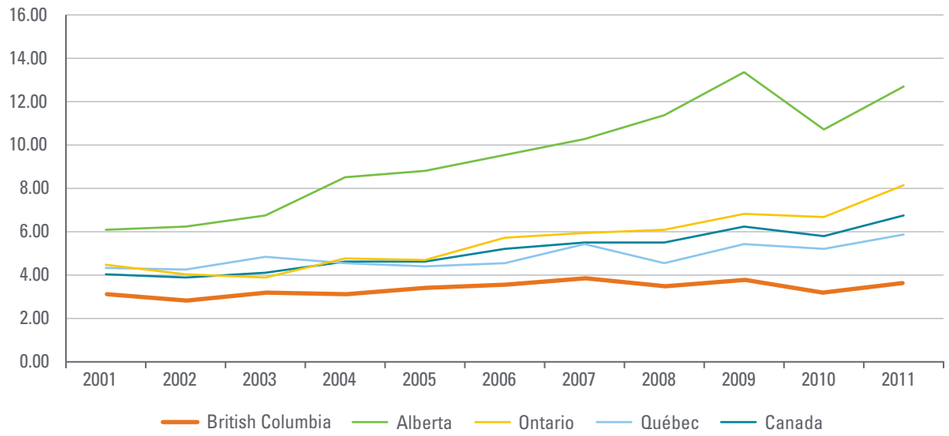
Canadian Patents Filed and Granted



Source: Canadian Patent Office

The prevalence of small firms in the BC technology sector has a direct impact on the capacity of companies to successfully pursue patents. Not only do they have limited capacity to invest in R&D to develop patentable innovations, but their capital constraints limit their ability to access the legal and administrative expertise needed to execute patent applications.

Patents Awarded per 100,000 Population

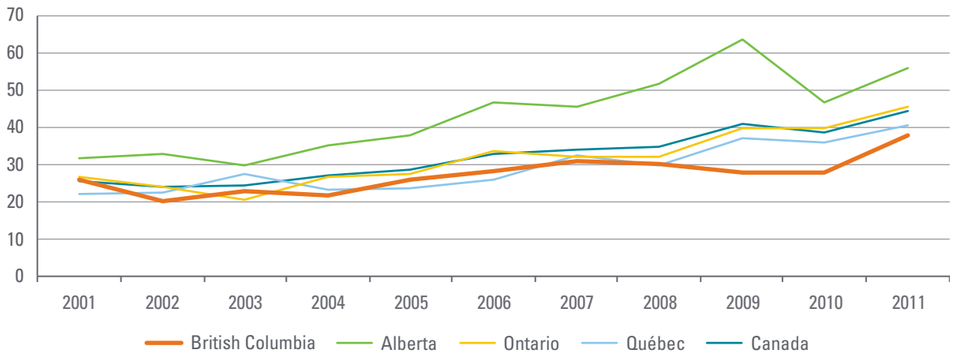


BC's patent performance significantly trails other provinces.

Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

More telling is the fact that BC has had the lowest level of patents awarded as a percent of applications over the last decade.

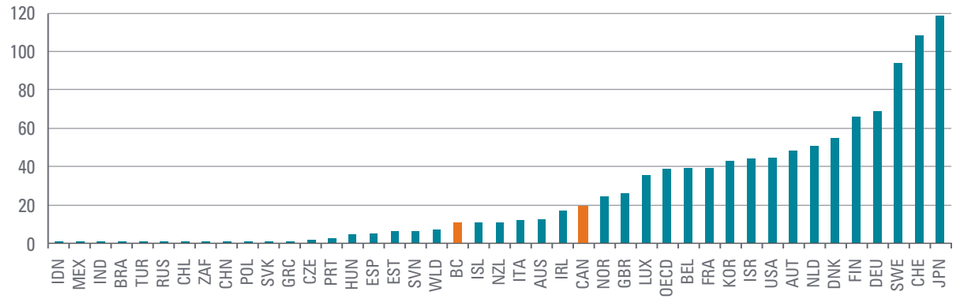
Patents Granted as a Percent of Patent Applications



Source: Profile of the British Columbia High Technology Sector, BC Stats, March 2014

Canada still ranks 18th, well behind the world's leading countries, in terms of the number of triadic patent families per million population – a measure of patents taken at three major patent offices in the world. KPMG's estimate for BC places it even further down the list than it was in 2008.[15]

Triadic Patent Families per Million Population 2010



BC's patent performance is one-fifth the level of leading OECD countries.

Source: KPMG Analysis of BC Stats Data and OECD Science, Technology and Industry Scorecard 2013, OECD, 2013

[15] KPMG estimated BC's ranking on the chart by considering the relative proportions of patents awarded in BC versus Canada as a whole, on a per capita basis.

Economic Impact Assessment

The technology industry not only generates GDP, employment and income within the technology sectors (referred to as **direct impact**), it also brings additional benefits to the overall BC economy by supporting suppliers to the industry (**indirect impact**) and through the re-spending of labour income earned in technology and supplier industries (**induced impact**).

Our economic impact analysis indicates that the overall impact of the technology industry on the BC economy is significantly magnified by the indirect and induced impacts. We estimate that based on current technology industry revenues of $23 billion, the total contribution to the BC economy is:

- **$23 – $26 billion in GDP**
- **165,000 – 188,000 jobs created or sustained**
- **$10 – $12 billion in total labour income**

These high levels of economic benefits are consistent with an industry that is high value-add, employs highly skilled workers, pays high wages and is well integrated in the economy.[16]

As noted earlier in the report, while the technology industry has made a significant contribution to the BC economy, our province still trails other Canadian provinces and US jurisdictions in this respect. For example, the BC technology industry currently comprises 7.6 percent of provincial GDP, compared to 10.3 percent contributed by the US technology industry to US GDP. So what would happen if the BC technology industry grew to comprise 10.3 percent of the provincial economy?

Our analysis indicates that growing to 10.3 percent of the provincial economy would bring an additional **$9.1B in BC technology industry revenues and an associated increase of $9.1B – 10.2B in total GDP, 65K – 74K additional jobs created or sustained, and a $4.1B – 4.6B increase in labour income**. These estimates include the combined benefits of the direct, indirect and induced impacts on the economy.

[16] Estimating the technology industry economic impact is challenging due to the lack of standard technology industry classifications and corresponding technology-specific impact multipliers. To estimate the impact, KPMG used weighted averages of standard industry sector impact multipliers, based on the definition of sectors comprising the tech industry. We have chosen to represent the impacts as ranges, using different sectoral weights. The use of ranges reflects the inherent variability in the technology industry, caused by the diversity of sectors that it comprises. For example, a dollar worth of output in the tech industry will have a different economic impact depending on whether it is generated by the software publishing sector, the telecommunication sector or the motion picture and post-production sector. In our analysis of direct impacts, we have used figures reported by BC Stats. To estimate the indirect and induced impacts we have used industry-standard multipliers developed by Statistics Canada.

Going deeper

Current BC Technology Industry Economic Impact

Given that the industry generated $23 billion in revenues, we estimate that the industry contributed $23 – $26 billion to total GDP, created or sustained 165,000 – 188,000 jobs and delivered $10 – $12 billion to total labour income. This impact breaks down in direct, indirect and induced impact as follows:

Current BC Tech Industry Impact

$23 B in Tech Industry Revenues

	Direct Impact	Indirect Impact	Induced Impact	Total Impact
GDP	$15B	$4B – 5B	$4B – 6B	$23B – 26B
JOBS	84K	43K – 52K	39K – 52K	165K – 188K
LABOUR INCOME	$6B	$2.3B – 3B	$2B – 3B	$10B – 12B

BC Technology Industry Economic Impact Multipliers

In order to compare the technology industry to other industries, as well as forecast the impact of industry growth, we have estimated the technology industry impact per dollar of revenue.

We find that for each dollar of technology industry revenue, the industry generates $1 – $1.12 in total GDP, and $0.45 – $0.5 in total labour income. Further, for each million dollars in technology industry revenue, the industry generates or sustains seven to eight jobs in BC. This impact breaks down in direct, indirect and induced impact as follows:

Economic Impact Multiplier Estimates

		Direct Impact	Indirect Impact	Induced Impact	Total Impact
For each $1 in Tech Revenues	GDP ($)	0.65	0.16 – 0.22	0.19 – 0.25	1.00 – 1.12
	LABOUR INCOME ($)	0.27	0.10 – 0.13	0.08 – 0.11	0.45 – 0.50
For each $1M in Tech Revenues	JOBS	3.62	1.86 – 2.28	1.68 – 2.26	7.16 – 8.17

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Economic Impact of BC Technology Industry Growth

To demonstrate the magnitude of potential economic benefit from growing the BC technology industry, we chose to estimate these benefits in the context of a specific growth figure. As shown in the GDP analysis section of this report, BC trails significantly many US states as well as the US average in terms of the share of the technology industry to the economy as a whole. We asked the question – what would be the economic impact if we caught up to the US average?

The US technology industry contributes 10.3 percent to the overall US GDP, as compared to 7.6 percent contributed by the BC technology industry to the BC economy. To reach the current contribution level in the US, the BC technology industry will need to add an additional $6B in GDP, corresponding to an additional $9B in technology industry revenues (given current industry multipliers).

Our analysis indicates that growing to 10.3 percent of the provincial economy would bring an additional $9.1B in BC technology industry revenues and an associated increase of $9.1B – 10.2B in total GDP, 65K – 74K additional jobs created or sustained, and a $4.1B – 4.6B increase in labour income. This impact breaks down in direct, indirect and induced impact as follows:

Economic Impact of Growing the BC Technology Industry Contribution to Match the US

Additional **$9.1 B** in Tech Revenues

	Direct Impact	Indirect Impact	Induced Impact	Total Impact
GDP	$5.9B	$1.5B – 2B	$1.7B – 2.3B	$9.1B – 10.2B
JOBS	33K	17K – 21K	15K – 21K	65K – 74K
LABOUR INCOME	$2.5B	$0.9B – 1.2B	$0.7B – 1.0B	$4.1B – 4.6B

Conclusion

Taking the next step together

While this report card clearly demonstrates the tech industry's importance to BC's economy, it's the *possibilities* revealed that most command our attention. And it's in our flaws that our future lies. Despite the industry's provincial strength, we trail our Canadian peers on a number of metrics, such as the availability of local venture capital, building field-specific talent pools and increasing firm size. But though these challenges are significant, identifying them – knowing what we have to do and where to apply our resources, investments and commitments – provides a clear roadmap for improvement and sustainable success.

We're in a very good place. The potential for BC tech to become a major national and global player is right in front of us. Indeed, a number of technology companies are already flourishing in BC, with significant operations owned or being built by:

- Canada's largest defense company: MDA
- Canada's largest cleantech company: Westport
- World's largest machine-to-machine wireless company: Sierra Wireless
- Canada's largest social media management company: Hootsuite
- The first commercial quantum computing company: Dwave
- And global leaders like Amazon, Best Buy, Boeing, Disney, Electronic Arts, Microsoft, IBM, McKesson, Samsung, Schneider Electric, Sony Imageworks and SAP.

As these and other companies have realized, BC is one of the most vibrant start-up ecosystems anywhere in the world – one that regularly translates great ideas, creative talent and audacious vision into some of the hottest tech companies around. It's a dynamic environment; teeming with brash, bold entrepreneurs who thrive on their peers' global aspirations. With this core of industry infrastructure, top talent and innovative thinking in place, BC is well positioned to exploit the tech industry's many emerging and evolving opportunities.

Every powder keg, however, needs a fuse. BC is a technology hot spot, but we have to keep stoking the fires of innovation, ambition and talent to ensure the positive gains made since 2012 become major leaps the next time we take stock. This means we have to work together – emerging tech start-ups and major corporate players, industry investors and trend-setters, policy makers and academic leaders alike. If we continue to improve in the key areas identified in this report, we can keep building the momentum BC tech needs to realize its provincial successes and gains on the national and global scales.

Acknowledgements

KPMG would like to gratefully acknowledge the support of BC Stats in the development of this report. Our detailed statistical analysis would not have been possible without the rich collection of BC industry data provided to us by BC Stats.

KPMG in Canada provides Audit, Tax and Advisory services. We work closely with our clients, helping them to mitigate risks and grasp opportunities.

KPMG in Canada is committed to our clients. We have made considerable investments in regards to personnel, research, and hard-won experience. Through these investments, we strive to be the best in everything we do, turning our experience and industry knowledge into real value for our clients. This is the KPMG Way.

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