



# ECONOMIC IMPACT OF THE TECHNOLOGY SECTOR IN GREATER VICTORIA

OCTOBER 2018

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# Executive Summary

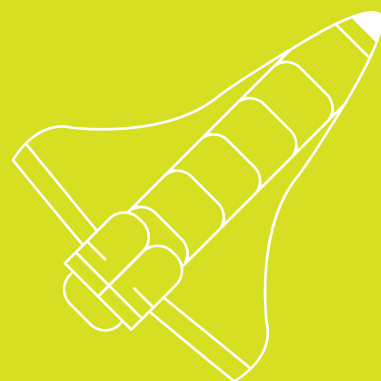
The technology sector in Greater Victoria contributes significantly to employment and economic output in both the local community, as well as throughout the Province of British Columbia. Growth in revenue and the number of technology firms for Greater Victoria outpaces the national average.

Greater Victoria is home to a vibrant, diverse, and successful technology sector that has been a major driver of innovation and economic growth for the B.C. economy. The technology sector in Greater Victoria has experienced significant growth over the past decade—with industry revenues (direct impact) increasing from \$1.0 billion in 2004 to \$4.06 in 2017. This represents a more than fourfold increase over this period.

The combined direct (\$4.06 billion) and indirect (\$1.16 billion) economic impact of the technology sector in Greater Victoria for 2017 was \$5.22 billion—a 30% increase from the \$4.03 billion estimated in 2013. The technology sector is responsible for a substantial portion of the region's employment. In 2017, there were 16,775 employees in the sector.

The technology sector in Greater Victoria is expected to continue to grow. The number of technology firms in Greater Victoria is expected to increase, reaching over 1,000 before 2020. VIATEC (Victoria Innovation, Advanced Technology, and Entrepreneurship Council) recently adopted a strategic plan focused on supporting the region's tech sector in growing to \$10 billion in annual revenues by 2030. Based on the findings of this study, it is expected that this goal will be achieved if not surpassed in that time frame.

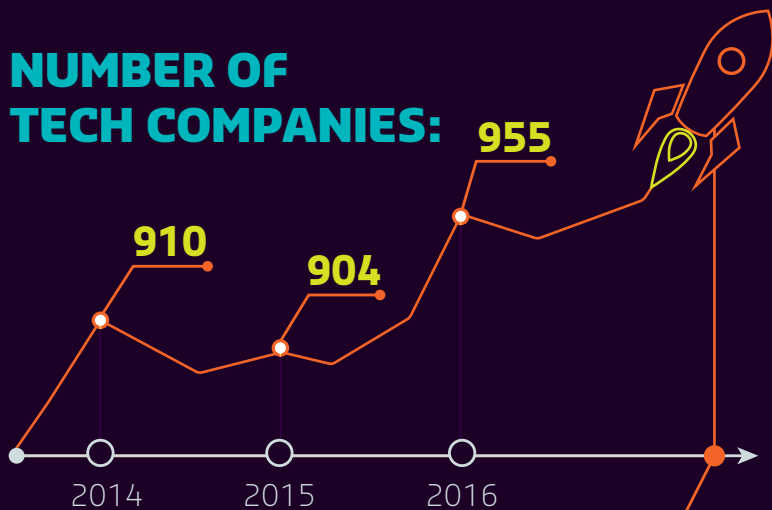
The technology sector in Greater Victoria has a total economic impact of \$5.22 billion and employs 16,775 people.



# Do You Know

## YOUR TECH SECTOR?

### NUMBER OF TECH COMPANIES:



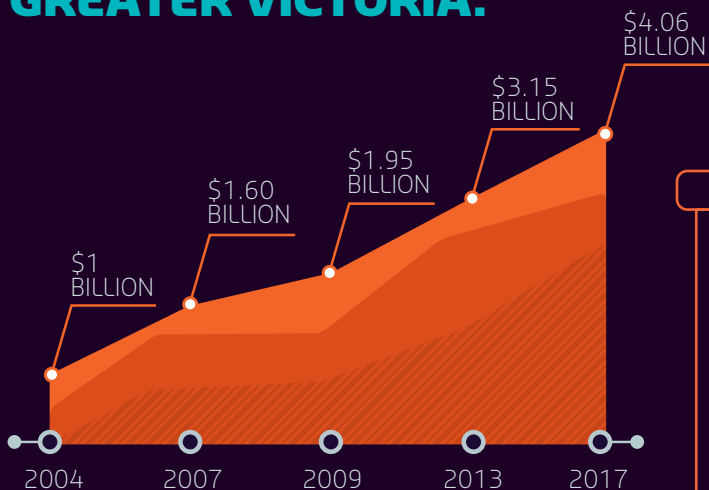
**77%** OF VICTORIA TECH COMPANIES ARE HIRING IN THE NEXT TWO YEARS



### NUMBER OF TECH EMPLOYEES: 16,775



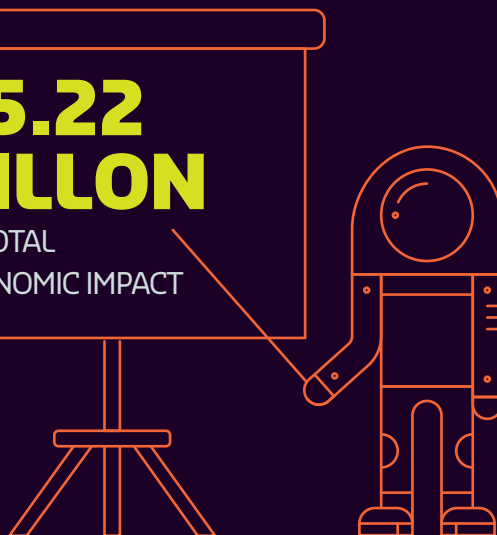
### TOTAL REVENUES OF THE TECHNOLOGY SECTOR IN GREATER VICTORIA:



**\$5.22 BILLION**

IN TOTAL ECONOMIC IMPACT

**30% GROWTH**  
SINCE 2013



# Background

VIATEC (Victoria Innovation, Advanced Technology, and Entrepreneurship Council) was founded in 1989 with the mission to serve as the one-stop hub that connects people, knowledge, and resources to grow and promote the Greater Victoria technology sector. In support of its mission, VIATEC initiated a study in 2004,

*Economic Impact of the Technology Sector in Victoria*, to measure and understand the economic impact and benefits of the technology sector in Greater Victoria. This report is updated every few years to understand how the industry in Greater Victoria has changed.

## Overview of the Technology Sector

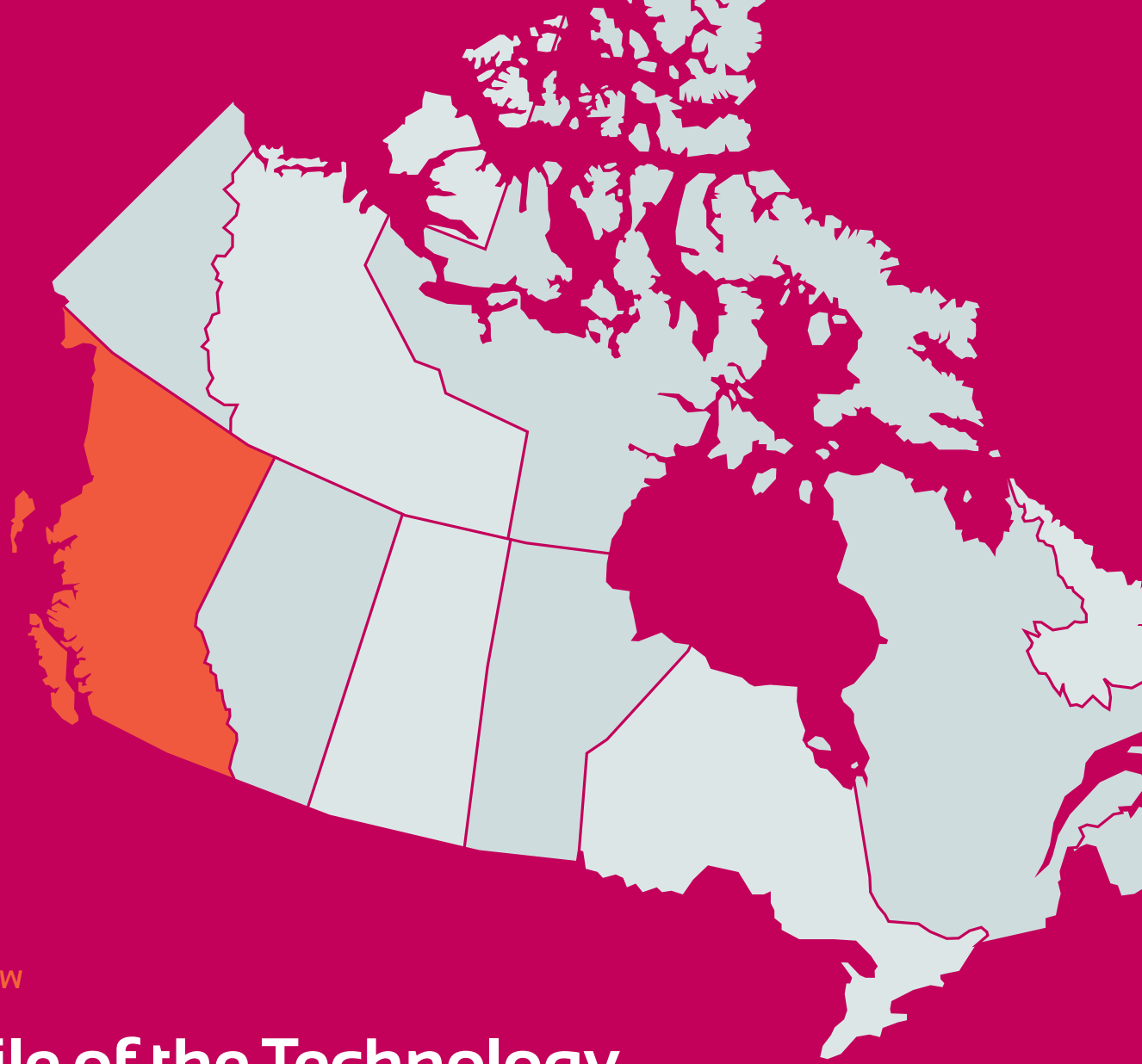
### INTRODUCTION

The technology sector is a major driver of innovation and is a growing source of economic growth. While most people think of the technology sector in terms of information and communications technology, the industry is much broader in scope. For instance, the technology sector includes those firms producing digital and software products and services, to aerospace and pharmaceuticals. For this study, we have relied on the definition of the high technology sector as defined by BC Stats in their annual *Profile of the British Columbia Technology Sector: 2017 Edition report*. BC Stats

uses the North American Industry Classification System (NAICS) to identify technology-based firms producing technological goods and services.<sup>1</sup>

Based on the 2017 edition of the *Profile of the British Columbia Technology Sector* produced by BC Stats, the following section provides an overview of the technology sector in B.C. In addition to survey data that will be discussed below, the data in this report forms the foundation used to compute the economic impact of the technology sector in Greater Victoria.

<sup>1</sup> A detailed list of the industries included in the technology sector is presented in the *Profile of the British Columbia Technology Sector: 2017 Edition report*.



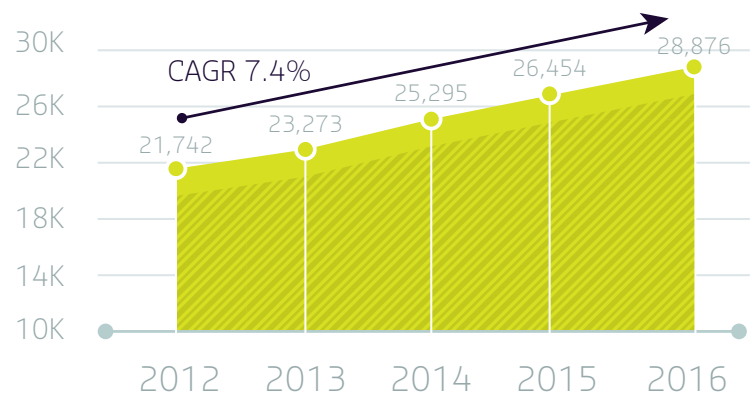
## OVERVIEW

# Profile of the Technology Sector in British Columbia

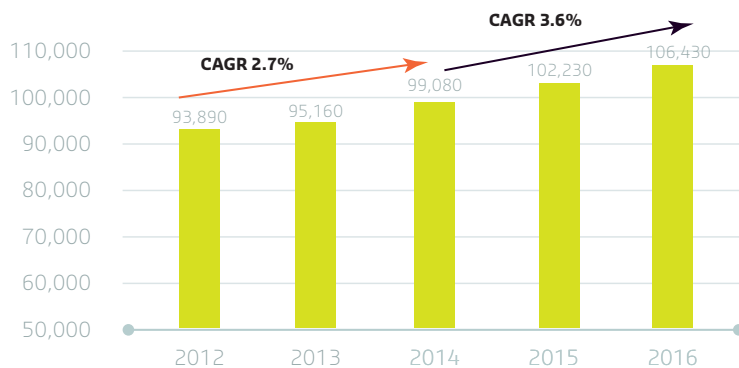
The technology sector in B.C. is a key economic driver for the province, and the sector has been expanding at a healthy pace. Adjusted for inflation, the technology sector contributed nearly \$14.6 billion to B.C.'s gross domestic product (GDP) in 2016. This represents roughly 7% of provincial GDP and places the province third in terms of the sector's contribution to total GDP, behind Ontario and Quebec.

## Revenues

In terms of total revenue, B.C.'s technology sector is also the third largest in Canada behind Ontario and Quebec. Total revenues for the technology sector in B.C. stood at \$28.9 billion in 2016—a 9.2% increase from 2015 and the highest level on record. In the past five years, the sector has registered a 7.4% compounded average growth rate. In comparison to other regions, revenues for Ontario and Quebec were \$114.6 billion and \$62.5 billion, respectively. Over the past decade, average revenue growth in B.C.'s technology sector (5.4%) has significantly outpaced that of the national average (3.7%).



The technology sector in British Columbia ranks third in the country in terms of GDP, revenue, and employment.



BC's technology sector employs more people than the mining, oil and gas, and forestry sectors combined.

## Employment

The technology sector in B.C. continues to post robust employment gains. In 2016, the sector employed over 106,400 people and was the third largest technology workforce in Canada. With a 4.1% increase in employment from 2015 to 2016, employment in B.C.'s technology sector has grown at the fastest pace nationwide. Compared to other industries in the B.C. economy, the technology sector employs more people than the mining, oil and gas, and forestry sectors combined. From 2012 to 2016, the technology industry has had the third highest growth rate in employment (13.3%) of all industries, behind accommodation and food services (17%) and construction (14.9%).



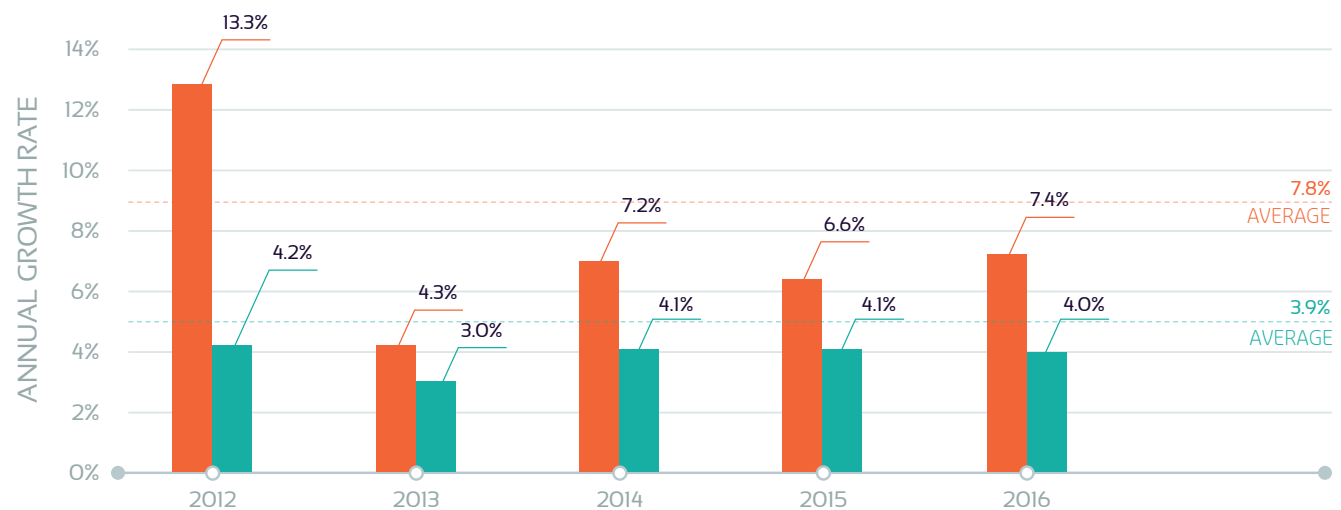
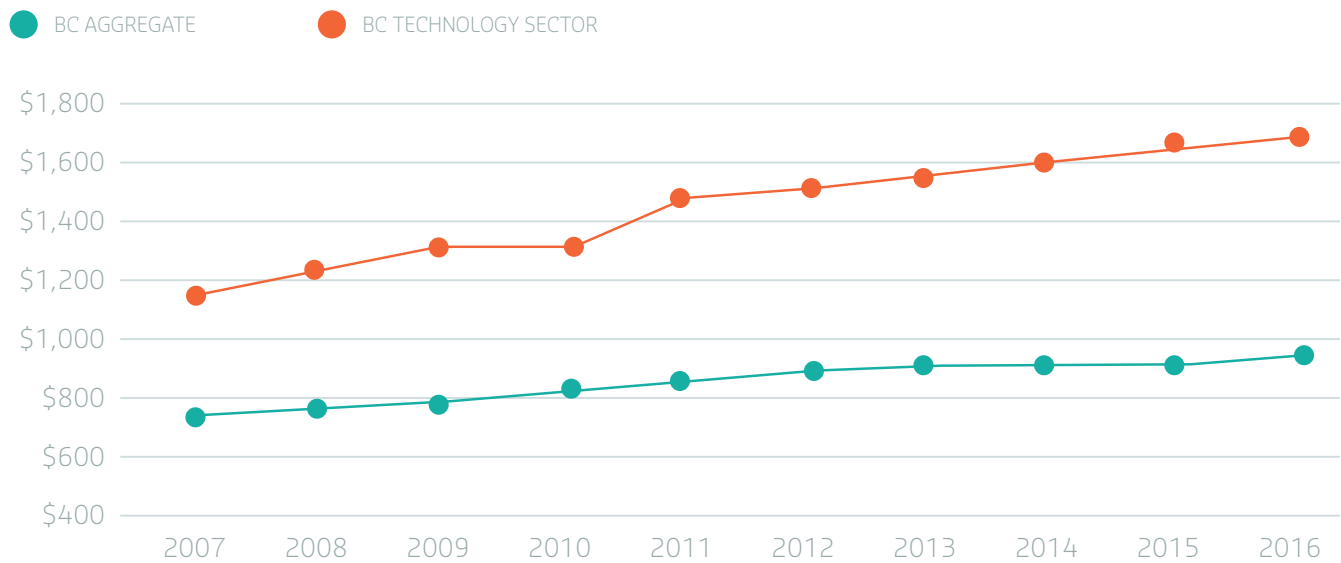
# Wages

The rapid rate at which the technology sector in B.C. is expanding has created a huge demand for tech-sector talent—a boon that is reflected in average weekly earnings. In 2016, the average worker in the industry earned around \$1,690 per week, compared to just \$920 for the average employee in B.C. Average weekly earnings were higher for people working in the service sector, \$1,740 compared to \$1,320 for workers working for manufacturing firms.

Average technology sector wages represent 84% more than the provincial average. Averaging a growth rate of 7.8% over the past five years, wage growth has shown no signs of easing. This growth is substantially higher than the 3.9% average growth rate for all industries in B.C. over the past five years.

Average technology sector wages represent 84% more than the provincial average.

Average Weekly Earnings, BC (2016)



## Firms

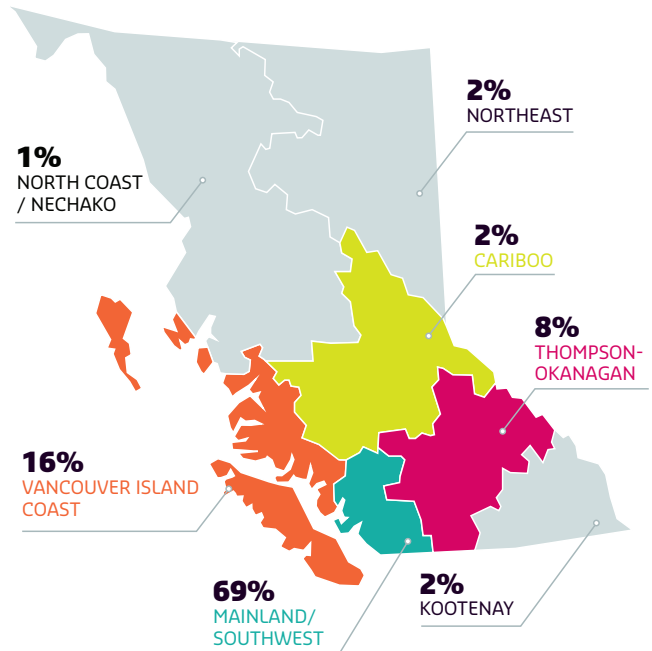
The number of technology firms in B.C. has also steadily increased. With 331 new startups opening their doors in 2016, the total number of technology firms with employees stood at 10,236.<sup>2</sup> Nearly 40% of technology firms operate within the computer and related services industry. The next two largest industry groups are other services (24%) and engineering (18%). High technology manufacturing firms account for about 7%.

Overall, there were 9,510 firms with employees in the services sector and 726 in manufacturing in 2016. While there are less manufacturing firms, they on average employ ten more people and their revenues are more than double that of the average service firm.

B.C. has a number of high-tech clusters. However, most technology firms are concentrated in the Mainland and Southwest region of the province—6,889 or 69% of all technology firms in B.C. in 2016, to be exact. The

vast majority of these firms are located in Greater Vancouver (6,459). The second largest cluster is the Vancouver Island/Coast region with 1,540 firms followed by Thompson/Okanagan with 822 firms.

Distribution of High Tech Businesses by Region (2016)



Distribution of Workforce by Firm Size



On a regional district level, Greater Victoria had the second largest number of firms with 955 in 2016—a 5.6% increase from 2015. This increase is much higher than the 3% increase in firms for all of B.C. between 2015 and 2016. Of the 955 technology firms with employees in the region, 895 are in the services sector and 60 are in the manufacturing sector. The total number of firms represents 9% of all technology firms in B.C.—higher than the 7.9% of B.C.’s population that is in Greater Victoria.

<sup>2</sup> Note that self-employed individuals are not included in this estimate. In 2016, there was an estimated 33,006 businesses that did not have employees (i.e., they are self-employed or may consist only of contracted workers or family members).

# Methodology

## INTRODUCTION

The technology sector generates significant economic benefits for the region that may not be well understood by citizens, government, and other key stakeholders. An economic impact analysis is a tool that provides a quantitative estimate of the economic benefits that a particular sector, specific project or economic event, or a government decision or change in policy brings to the economy and its surrounding communities.

In this case, the economic impact provides a snapshot of how technology firms impact the local and provincial economy. In order to conduct an economic analysis, a region must be defined to identify what spending and economic activity to include. In this study, the region is Greater Victoria, which is comprised of 13 municipalities on the southern tip of Vancouver Island.

Economic impacts can be estimated at direct, indirect, and induced levels. The direct impact includes the sum of all direct effects that technology firms have on Greater Victoria due to their operations. Indirect impacts are secondary effects that represent the impact of technology sector activity on industries further back in the supply chain. These effects include changes in sales, income, or jobs in sectors within the region that supply goods and services to the technology sector. Induced impacts are also secondary effects that occur when employees or owners of directly or indirectly affected industries spend their income within the economy. The total impact is a compilation of the direct impact, the indirect impact, and the induced impact generated in the economy as a result of the operations of technology firms in Greater Victoria. For the purpose of this study, only direct and indirect impacts are considered and the economic contribution of technology firms in Greater Victoria is termed the *economic impact*. This ensures a more conservative estimate.

Economic impact analyses use different types of impacts to measure results. The direct impact in this analysis is based on the “income” impact, which assesses the change in earnings and business profits in the region. This is also known as “value added” because these are earnings and profits that wouldn’t have occurred otherwise. The direct impact is thus calculated by estimating the total revenues of all technology firms in Greater Victoria.

Estimating the indirect impact is a more complex endeavour. While it may be possible to conduct a survey of downstream employers, such a survey would need to cover thousands of firms in order to completely cover the indirect impacts. As an alternative, the indirect impact can be estimated using economic multipliers from input-output models. An input-output model is a representation of the flows of economic activity within a region. The model captures what each business must purchase from other firms in order to produce a dollar’s worth of goods or services. For this study, economic multipliers for the Province of B.C. based on Statistics Canada’s 2014 Interprovincial Input-Output model, the most recent available, have been employed.

## Estimating the Direct Economic Impact

Three sources of data were used in order to estimate the direct economic impact of the technology sector in Greater Victoria:

1. VIATEC census data of technology firms in Greater Victoria;
2. An online survey sent to technology firms in Greater Victoria; and
3. Data from BC Stats in the *Profile of the British Columbia Technology Sector: 2017 Edition* report.

In early 2014, VIATEC completed a thorough census of technology firms in Greater Victoria and makes regular updates as new information becomes available. The census database contains contact information including e-mail addresses, employee counts, location of firms' headquarters, year the firm was founded, and other information of the known technology firms in Greater Victoria. While this database is useful in identifying and contacting local technology firms, it does not contain updated revenue data, nor does it include future revenue projections or other qualitative information.

In order to gather the base data for this study, an online survey was developed and sent to known technology firms in Greater Victoria using the contact information provided in VIATEC's census database. The survey covered the following topics:

- Company profile information (e.g., contact information, year founded, primary industry sector, location of the firm's headquarters, and the current growth stage of the firm)
- Employment data (e.g., number of full- and part-time employees located in Greater Victoria and outside the region as well as the number of contractors, interns, and non-paid staff members)
- Revenue and expenditure data (e.g., total revenues for 2016 and 2017, location of revenues for 2017, projected revenues for 2018, and employee expenditures)
- Qualitative questions about conducting business in Greater Victoria

The survey launched on April 25, 2018 and was sent to 454 technology firms in Greater Victoria. A total of 122 firms provided complete or partial responses, resulting in a response rate of 26.9%. The margin of error for a sample of this size is 8.3% (19 times out of 20).

For those providing only partial response, VIATEC's census database was used where appropriate to fill in gaps. All of the data was reviewed and "cleaned" to ensure that responses were appropriate, and outliers were removed. Revenue data from 113 of the responding firms was used to estimate the direct economic impact.

BC Stats in their *Profile of the British Columbia Technology Sector: 2017 Edition* report provides a breakdown of the number of technology firms in Greater Victoria by employee size. The revenue data from the 113 firms responding to the survey was extrapolated to compute total revenues for all 955 technology firms in Greater Victoria.

The 955 firms in the *Profile of the British Columbia Technology Sector* report only considers those firms with employees. Using only this data would understate the true direct economic impact, as it would exclude those who are self-employed in the sector. BC Stats estimates that for every business with employees, there are 3.22 people who are self-employed in the sector.<sup>3</sup> Using this ratio, the estimated number of self-employed people in the sector is 3,079.<sup>4</sup>

<sup>3</sup> For the Province of B.C., there are 10,236 firms with employees and an estimated 33,006 who are self-employed. Thus, for every firm with an employee there are 3.22 individuals who are self-employed (33,006/10,236). | <sup>4</sup> The calculation is as follows: (33,006/10,236)\*955.

# Estimating the Indirect Economic Impact

To estimate the total indirect economic impact, economic multipliers for the Province of B.C. based on Statistics Canada's 2014 Interprovincial Input-Output model, the most recent available, were employed.

The technology sector is divided into two large categories by BC Stats: manufacturing and services. As such, multipliers corresponding to each of these sub-sectors were employed and a weighted average multiplier for the sector was estimated. The corresponding multipliers with the best alignment to each of these categories are as follows:

- Manufacturing – The medium aggregation category multiplier for “Electronic Product Manufacturing” is 0.21.
- Services – The small aggregation category for “Information and Cultural Industries” (which includes information services and data processing as well as telecommunications) is 0.29.

A weighted average multiplier was computed based on the counts of firms in each category (i.e., manufacturing and services). Using these counts the weighted average multiplier is 0.285. The table below provides a summary of this calculation. The indirect economic impact is estimated by multiplying this weighted average multiplier by the total direct economic impact.

## Weighted Average Multiplier

TYPE OF FIRM	NUMBER OF FIRMS	PERCENTAGE OF FIRMS	MULTIPLIER
Manufacturing	60	6.3%	0.21
Services	895	93.7%	0.29
<b>Total</b>	<b>955</b>		
<b>WEIGHTED AVERAGE MULTIPLIER</b>			<b>0.285</b>

# Economic Impact of Greater Victoria's Technology Sector

## Direct Economic Impact

Using the methodology discussed, this section derives the direct economic impact of the technology sector in Greater Victoria. According to the survey data, average revenues per firm in 2017 were \$5,299,410. Total revenues for all firms stood at \$1,548,314,506. Revenues from some companies were found to be significant outliers and were not included in this average. As stated previously, revenues from 113 firms were included in the analysis.

One approach to estimate the total direct economic impact is to multiply average revenues by the number of firms who did not provide revenue data, and to then add this value to the total revenues from all firms responding to the survey.<sup>5</sup> However, this would

likely overstate the direct economic impact because it would not take into consideration the size of the firms. For instance, BC Stats estimates that 68% of all technology firms in B.C. have one to four employees. This is significantly higher than the 21% of firms in this category that responded to VIATEC's survey.

With its direct impact increasing more than fourfold since 2004, the technology sector has become increasingly more important to Greater Victoria's economy.

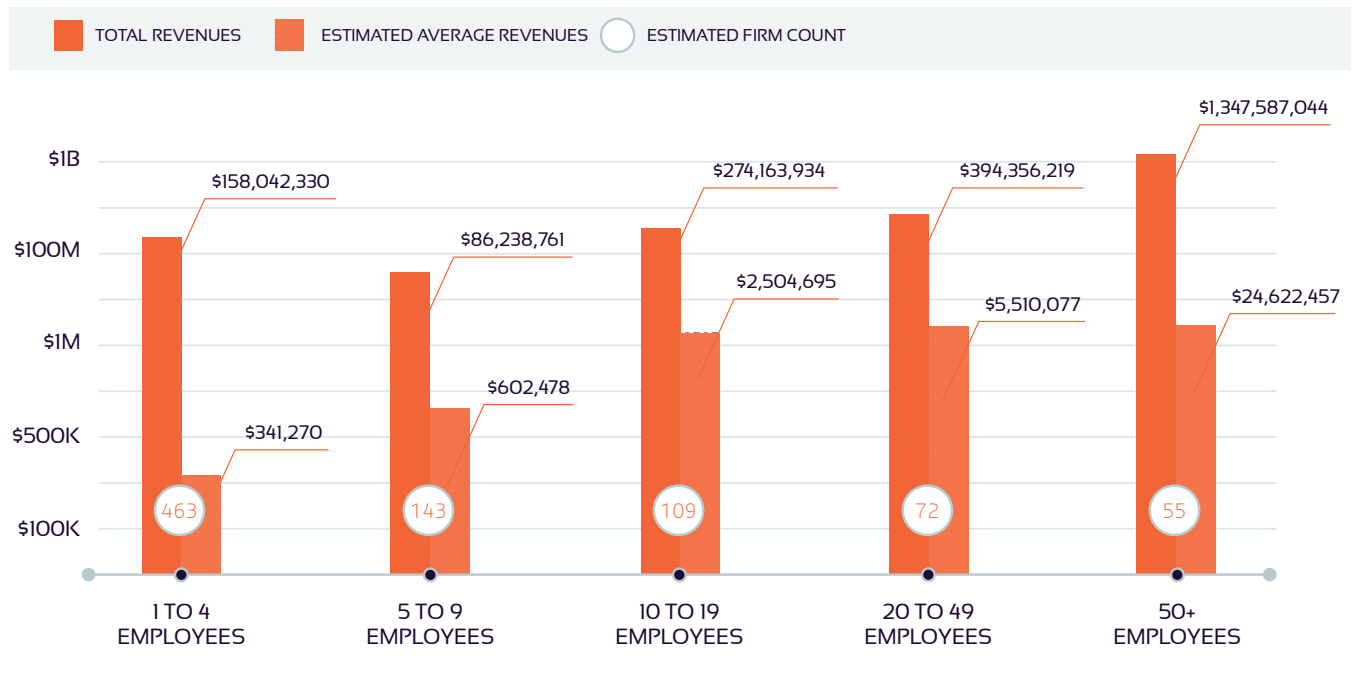
<sup>5</sup> There are 955 technology firms in Greater Victoria, of which we do not have revenue data for 842 firms.

A more realistic and conservative estimate can be computed by estimating average revenues by firm size and then extrapolating out total revenues. Thus, revenue data from the survey was used to estimate average revenues for firms by firm size. For example, average revenues for firms with one to four employees who responded to the survey was \$341,270. Average revenues by firm size were estimated for each firm size category and the remaining companies (i.e., 842 (955 – 113 responding to the survey) revenues were estimated). In order to make this calculation, the proportion of firms by employee size category was estimated for Greater Victoria. This proportion was estimated using VIATEC’s census data together with data provided by BC Stats. For example, it is estimated that 55% of the remaining 842 firms had one to four employees.

Firm counts were then multiplied by the average revenues by employee size category, derived from the survey data. Based on these calculations, the remaining 842 firms were estimated to generate \$2.26 billion in revenues. This translates into an average of \$2,684,547 per firm. This is believed to be a realistic and conservative estimate. As a point of comparison, average revenues for all technology firms in B.C. according to BC Stats are \$2,821,024.

The table below summarizes this information.

## Estimated Revenues from Non-Survey Respondents

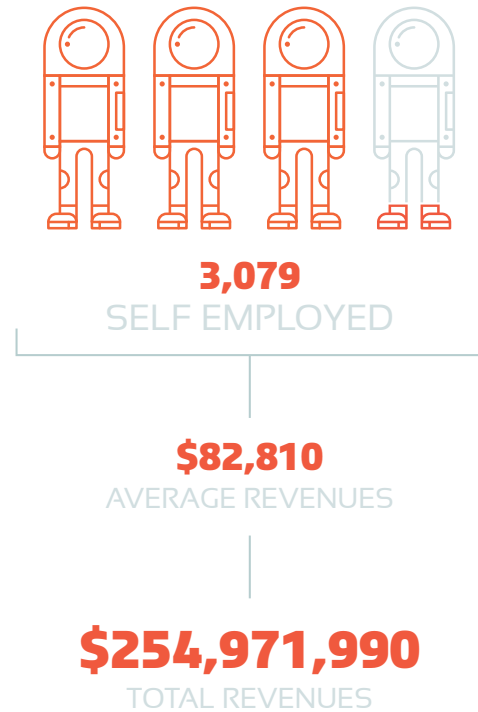


**TOTAL REVENUES FROM NON-RESPONDING FIRMS: \$2,260,388,288**

**AVERAGE REVENUE PER FIRM: \$2,684,547**

## Self-Employment Revenues

In order to compute the total direct economic impact, self-employment revenues must also be computed. As previously discussed, it is estimated that there are 3,079 self-employed individuals in the technology sector in Greater Victoria. An average of their selfemployment income was generated using survey data along with administrative data provided by VIATEC and BC Stats. Overall, it is estimated that self-employed technology sector workers earn an average of \$82,810 per year. While this is much higher than the \$72,800 reported in 2013, it is less than the average salary of \$87,880 earned by those working for a technology firm in B.C.



## Total Direct Economic Impact

The total direct economic impact is computed by adding together revenues of firms surveyed, the extrapolated estimate of revenues of firms not surveyed, and total self-employment income. Overall, it is estimated that the direct economic impact of the technology sector in Greater Victoria stands at just over \$4.06 billion for 2017. This is a 30% increase from the direct economic impact of \$3.15 estimated in 2013 and a more than fourfold increase from the \$1.0 billion estimated in 2004. The compounded average growth rate from 2007, when the direct economic impact was estimated to be \$1.6 billion, to 2017 stands at nearly 9%. Victoria has outperformed the Provincial average CAGR.

**\$2,260,388,288**

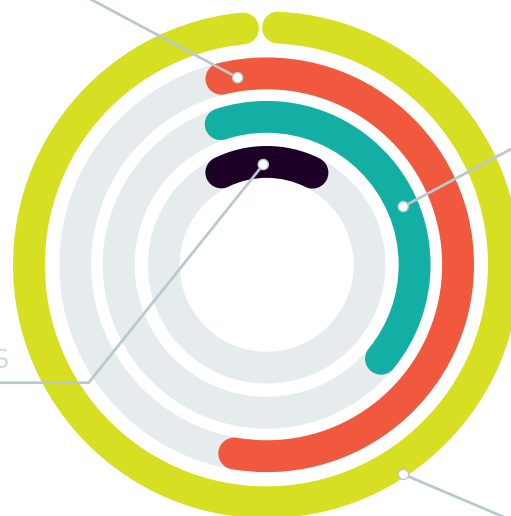
TOTAL ESTIMATED REVENUE  
FROM NON-SURVEY RESPONDENTS

**\$1,548,314,506**

TOTAL REVENUES FROM  
SURVEY RESPONDENTS

**\$254,971,990**

TOTAL REVENUES FROM  
SELF-EMPLOYED INDIVIDUALS



**\$4,063,674,784**

TOTAL DIRECT  
ECONOMIC IMPACT



# Indirect Economic Impact

The previous section discussed the direct impact of the technology sector in Greater Victoria. However, the impact does not end there, as there are other sectors of the economy that are dependent on these firms. Indirect impacts are generated by industries that supply or provide services to technology firms located in Greater Victoria.

As noted earlier, the indirect impacts can be estimated using Statistic Canada's economic multipliers and ratios for the Province of B.C. The weighted average multiplier for the technology sector in Greater Victoria

is 0.285. Multiplying this multiplier by the direct economic impact provides an estimate of the indirect impact. The indirect economic impact is estimated to be \$1.16 billion. This represents a 32% increase from the indirect economic impact of \$876 million estimated in 2013.

## Total Indirect Economic Impact

	DIRECT IMPACT	WEIGHTED MULTIPLIER	INDIRECT IMPACT
Total Revenue	\$4,063,674,784	0.285	\$1,158,040,935

## Total Economic Impact

Adding together the direct and indirect impacts of the Greater Victoria technology sector, the estimated total economic impact of the sector in 2017 is estimated to be \$5.22 billion—a 30% increase from 2013. Summarized in the table below is the direct and indirect economic impact attributable to the ongoing operations of technology firms in Greater Victoria.

It is important to note that the induced economic impact is not included in this estimate. The total economic impact estimate is believed to be a conservative estimate of the value of the technology sector in Greater Victoria. Appendix A provides a comparison of this estimate with two other methodologies. The comparison highlights that using other methods would result in a higher estimate.

### Summary of the Total Economic Impact

REVENUES FROM SURVEY RESPONDENTS			
Total 2017 revenues from 113 respondents			\$1,548,314,506
EMPLOYEE SIZE CATEGORY	ESTIMATED COUNT	ESTIMATED AVG. REVENUES	TOTAL REVENUES
1 to 4	463	\$341,270	\$158,042,330
5 to 9	143	\$602,478	\$86,238,761
10 to 19	109	\$2,504,695	\$274,163,934
20 to 49	72	\$5,510,077	\$394,356,219
50+	55	\$24,622,457	\$1,347,587,044
<b>Total</b>			<b>\$2,260,388,288</b>
<b>Average revenue per firm</b>			<b>\$2,684,547</b>
SELF EMPLOYED			
Estimated number of people self-employed			3,079
Estimated average income			\$82,810
<b>Total self-employed</b>			<b>\$254,971,990</b>
TOTAL DIRECT IMPACT			
			\$ 4,063,674,784
INDIRECT IMPACT			
Estimated multiplier			0.285
TOTAL INDIRECT IMPACT			
			\$ 1,158,040,935
TOTAL ECONOMIC IMPACT			
			\$5,221,715,719

# Employment in the Technology Sector

The total economic impact illustrates that the technology sector in Greater Victoria has been a boon to the local economy. Beyond the direct and indirect economic impact, the technology sector is also significant in terms of the number of people employed in the sector.

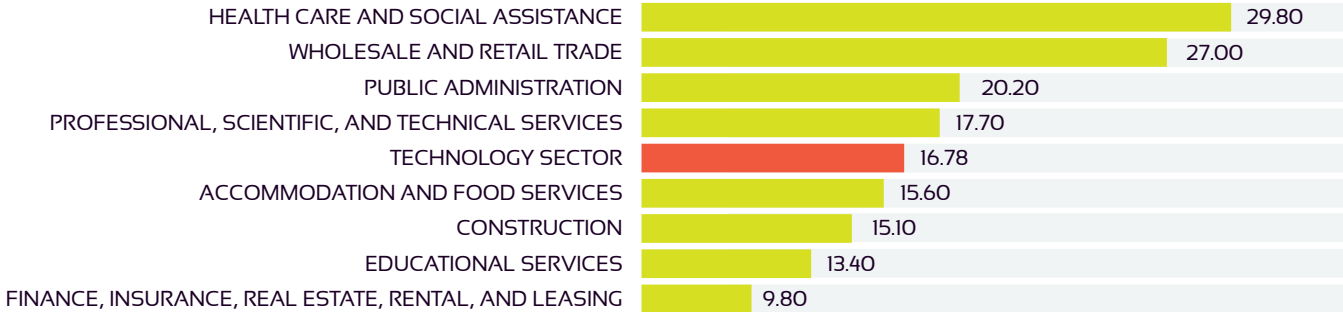
The overall number of people employed in the technology sector in the region is estimated to be 16,775.

Survey respondents were asked to state the number of people employed by their firm. Using this data, we can extrapolate out the number of people working for all of the 955 firms in the sector in Greater Victoria. A total of 3,234 people were employed by firms responding to VIATEC’s survey. Extrapolating out the number of employees by firm size for those firms not responding to the survey, there is an additional 10,462

people working in the sector. This yields a total of 13,696 people working for technology firms in Greater Victoria. However, this estimate does not include self-employed individuals. Including the self-employed, the overall number of people employed in the technology sector in the region is estimated to be 16,775. As indicated in the table on the previous page, over one-third of these employees are employed in firms with 50+ employees. Self-employed individuals account for 18% of all those employed in the sector, and 19% of employees are employed by a firm with 20 to 49 employees. Roughly 27% of employees work in firms with less than 20 employees.

While technology jobs exist in many industries, we can compare total jobs in the technology sector in Greater Victoria with other industries by NAICS. As the table below illustrates, the technology sector in Greater Victoria employs more people than accommodation and food services; construction; education services; and finance, insurance, real estate, rental, and leasing industries. It is important to note that this figure is for comparison only, as technology sector jobs would be included in other industries such as the professional, scientific, and technical services industry.

## Employment in Greater Victoria by Select Industries (thousands)



Source: Statistics Canada, VIATEC

# Looking Ahead

There exists significant upside potential for the technology sector in Greater Victoria. According to firms responding to the VIATEC survey, total revenues are expected to increase by nearly 13% in 2018.

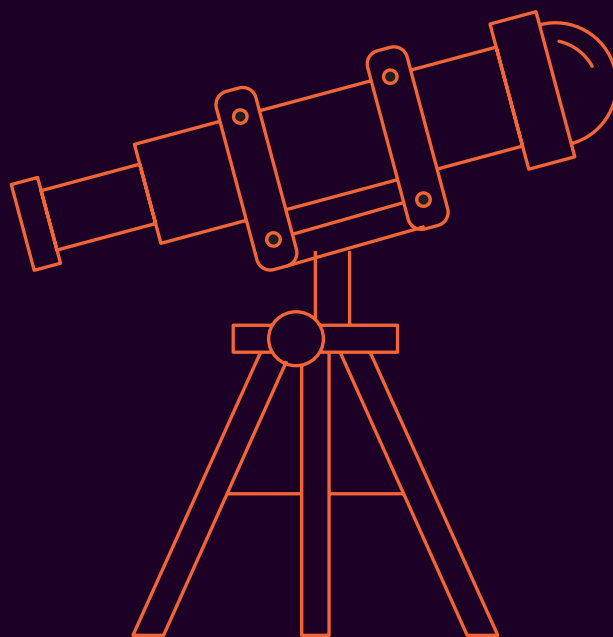
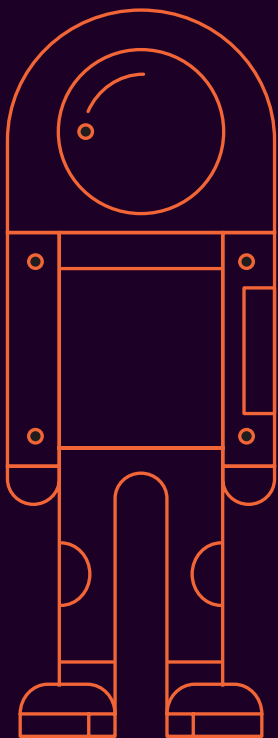
Survey respondents were also asked to indicate hiring intentions over the next two years. Of the 120 firms responding to this survey question, 77% indicated that they expected to hire additional staff within the next two years. If hiring intentions become a reality, total employment in the technology sector in Greater Victoria is expected to hit 18,280 by the end of 2019.

The number of technology firms in Greater Victoria is also expected to continue to increase, reaching over 1,000 before 2020. While the industry will see healthy gains for firms of all sizes, it will see greater growth

in the number of firms with 10+ employees. Based on current and past projections, the economic impact of the technology sector in Greater Victoria is expected to exceed \$10 billion by 2030.

A robust B.C. economy coupled with increased government spending, a competitively low Canadian dollar, a healthy economy south of the border, and continued prosperity in Asia will continue to benefit the technology sector in Greater Victoria. However, greater protectionist measures in the U.S., a tight and unaffordable local housing market, and skilled labour shortages are key risks to the economic outlook for the sector.

Total employment in Greater Victoria's technology sector is expected to hit 18,280 by the end of 2019, and its tech firms are projected to total 1,000 by 2020.



# Advantages and Challenges

## Advantages

Firms were asked to provide the major advantages of having their business located in Greater Victoria. A thematic analysis of the responses from the 67 firms responding to the question was conducted. Five major advantages, in order of importance, were noted by firms:

1. Excellent quality of life (i.e., climate, culture, ease of commute, etc.) that make it a desirable location for people to live
2. Access to an educated workforce and to recent graduates from local post-secondary institutions
3. Proximity and links with other technology firms operating in Greater Victoria
4. Access and proximity to the Government of B.C.
5. Proximity and economic links to other technology economies (e.g., the U.S. and Asia)

## Challenges

Firms were also asked to indicate what they believed were the major challenges and barriers for their business to be successful in the next three years. A thematic analysis of the responses from the 70 firms responding to the question was conducted. Five major challenges, in order of importance, were noted by firms:

1. Cost of living (i.e., housing prices, parking costs, food prices, and lack of affordable rental units)
2. Skilled labour shortages and a tight labour market
3. The high cost and the lack of office rental space
4. Lack of access to capital
5. Uncertainty regarding the U.S. market because of potential trade barriers



# Profile of Firms Surveyed

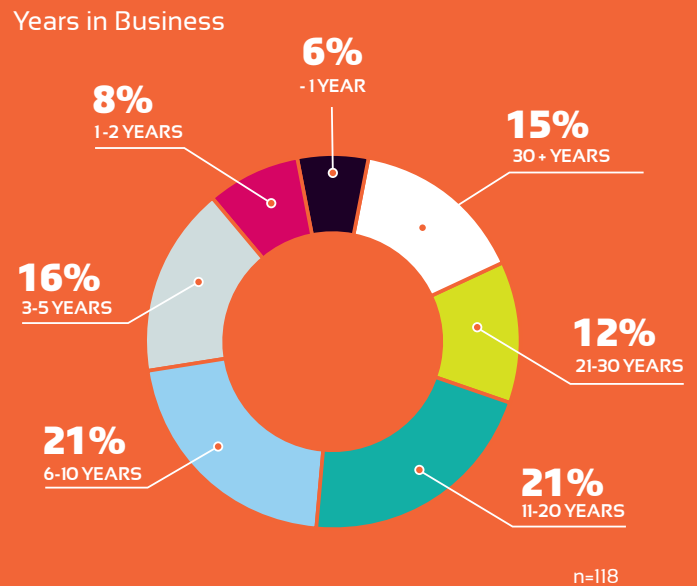
## INTRODUCTION

In this section, an overview of the 122 firms providing partial or complete responses to VIATEC’s survey is provided. Given that not all firms answered every question on the survey, sample sizes (denoted by n) for each question vary and are noted in each figure. Percentages may not add to 100% due to rounding.

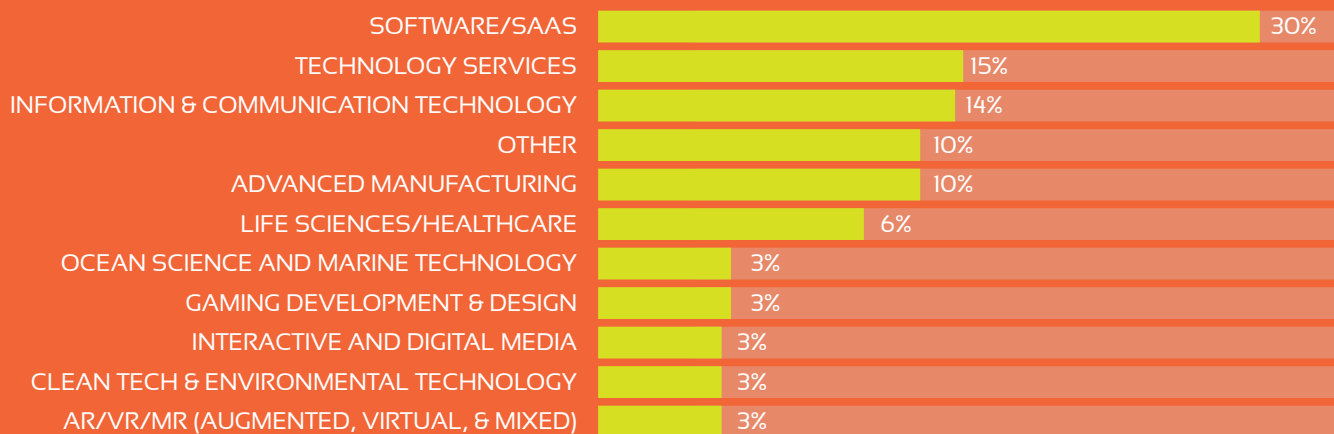
## Business Structure

Among survey respondents, the majority of firms (69%) were relatively mature, having been in business for more than five years. Only 6% of firms responding to the survey had been in business for less than a year.

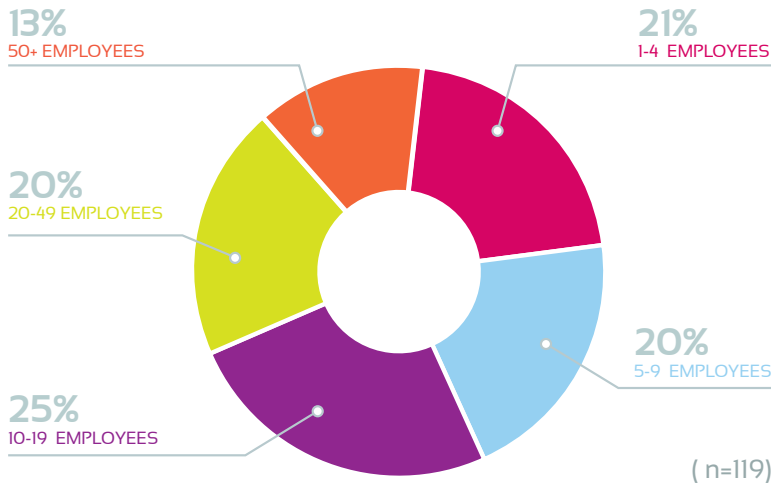
In terms of the dominant sector (i.e., the sector that generates the most revenue for the firm) that technology firms operate in, 30% indicated it was Software and Software as a Service. Technology Services was the second highest reported dominant sector with 15%. Closely behind was the Information and Communication sector with 14%.



## Primary Business Sector



n=115

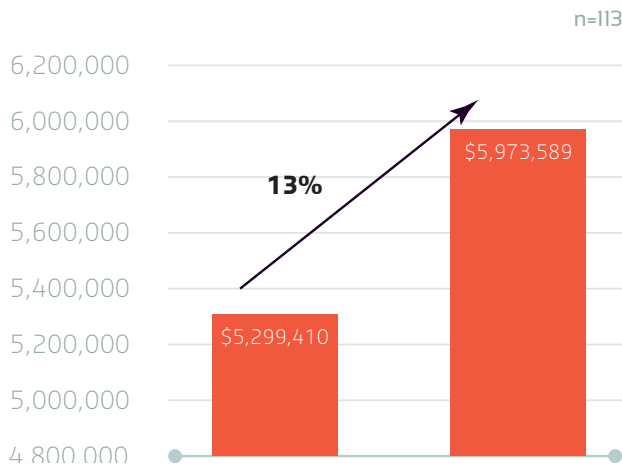
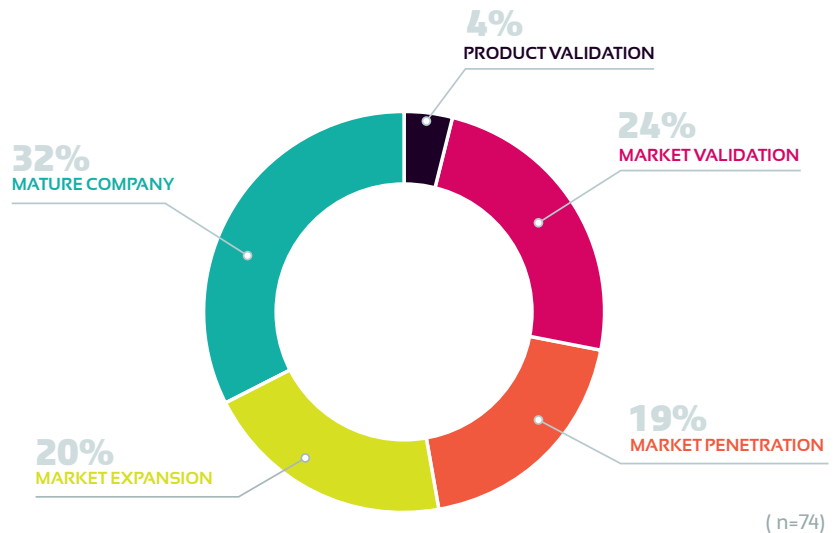


## Firm Size

The number of firms responding to the survey was quite evenly distributed by firm size. Firms with 10 to 19 employees represented the highest proportion of firms responding to the survey with 25%, followed by 21% of firms having between one and four employees. Firms with 50+ employees accounted for 13% of the sample.

## Growth Stage

Firms responding to the survey were asked to identify their growth stage. The majority of firms (32%) reported being a mature company, followed by 24% indicating they were in the market validation stage. Only 4% of firms responded to being in the product validation stage.

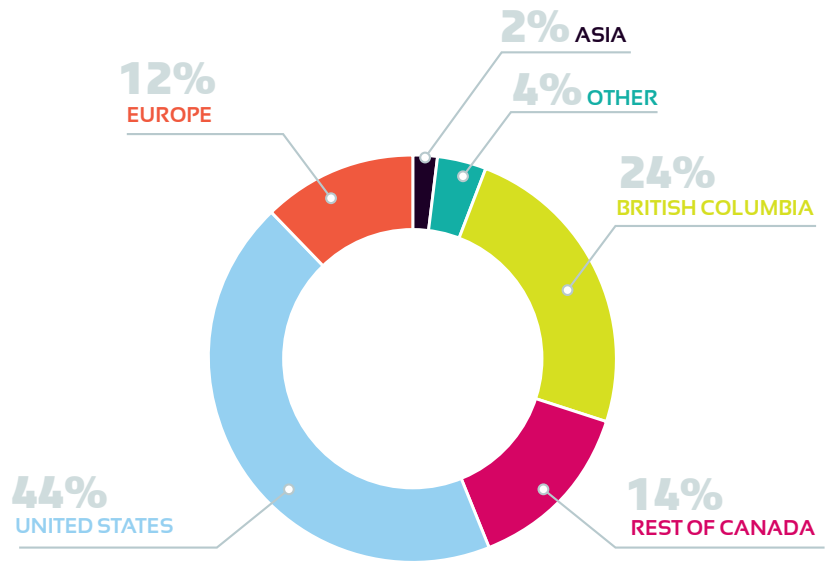


## Actual and Projected Revenues (\$)

Survey respondents were asked to provide their revenues for 2017 and to project their revenues for 2018. The revenue figures provide by each respondent were reviewed and any inconsistent data was removed from the calculation, as were outliers that would have significantly skewed the results. Average revenues from the 113 firms included in the sample were nearly \$5.3 million for 2017. These same firms are, on average, expecting a 13% increase in revenues for 2018, bringing average total revenues for these firms to nearly \$6.0 million.

## Percentage of 2017 Sales by Region

Of the company's surveyed, 24% indicated that their sales came from within B.C. while 14% were from the rest of Canada. More than half of sales (62%) were generated outside of Canada, with 44% of firms indicating that their sales came from the U.S.

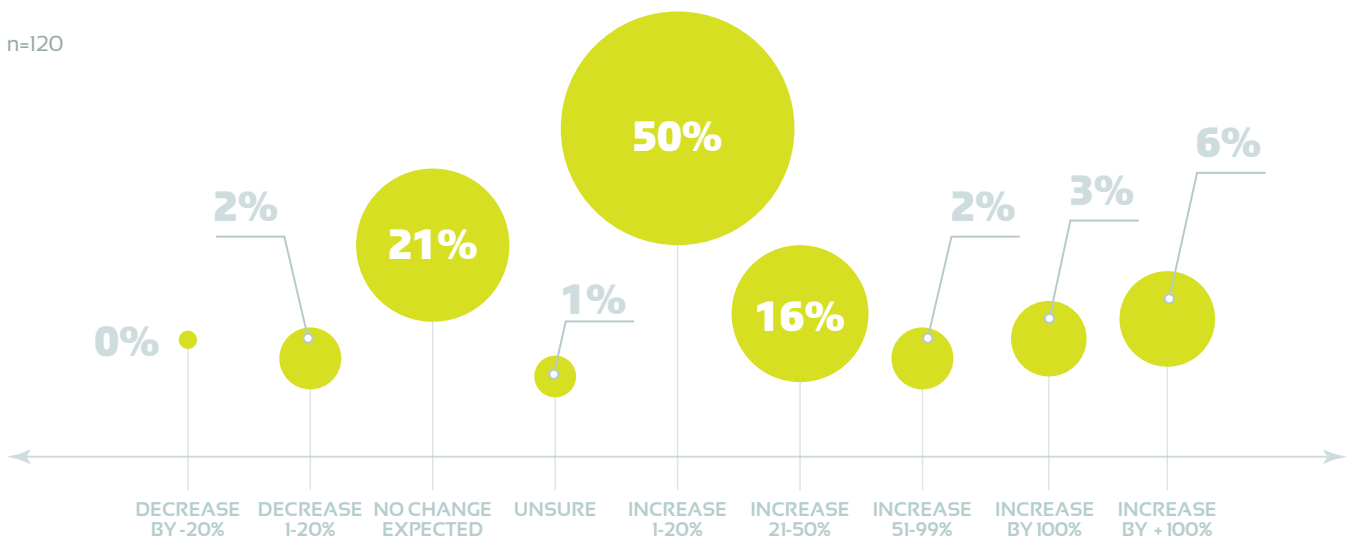


n=101

## Projected Changes in the Workforce

Survey respondents were also asked to indicate projected changes in the workforce in the next two years. Firms were optimistic about employee growth, with over three-quarters of firms expecting to increase their workforce. Half of all respondents expect to grow their workforce by one percent to 20%. A further 16% predict growth between 21% and 50%. About one-fifth of firms expect the number of employees to remain the same, while only 2% predict a decline.

n=120





# Appendix A: Comparison of Results with Different Methodologies

	ESTIMATE BASED ON SURVEY RESPONSES	ESTIMATE BASED ON BC STATS PROVINCIAL AVERAGES	FINAL VIATEC ESTIMATE
<b>Direct economic impact - firms with employees</b>			
Total revenues from survey respondents (113)	\$1,548,314,506	\$1,548,314,506	\$1,548,314,506
Total number of firms remaining in population	842	842	842
Estimated average revenue per firm	\$5,299,410	\$2,821,024	\$2,684,547
Estimated revenues from non-responding firms	\$4,462,103,220	\$2,375,302,071	\$2,260,388,288
<b>Total revenues for firms with employees</b>	<b>\$6,010,417,726</b>	<b>\$3,923,616,577</b>	<b>\$3,808,702,794</b>
<b>Direct economic impact - Self-employed</b>			
Estimated number of self-employed individuals	3,079	3,079	3,079
Average revenue per self-employed	\$43,785 <sup>a</sup>	\$87,880 <sup>b</sup>	\$82,810
<b>Total revenues for self-employed individuals</b>	<b>\$1,348,143,229</b>	<b>\$270,582,520</b>	<b>\$254,971,990</b>
<b>TOTAL DIRECT IMPACT</b>	<b>\$7,358,560,955</b>	<b>\$4,194,199,097</b>	<b>\$4,063,674,784</b>
<b>Indirect economic impact</b>			
Economic multiplier	0.285	0.285	0.285
<b>TOTAL INDIRECT IMPACT</b>	<b>\$2,097,189,872</b>	<b>\$1,195,346,743</b>	<b>\$1,158,147,313</b>
<b>TOTAL ECONOMIC IMPACT</b>	<b>\$9,455,750,827</b>	<b>\$5,389,545,839</b>	<b>\$5,221,822,098</b>

a. Survey sample size is too small to yield a meaningful or reliable estimate based on survey responses.

b. BC stats does not have revenue data on self-employed individuals. Average weekly earnings from the technology sector in BC was used as a proxy to estimate annual revenues for a self employed individual (52 weeks @ \$1,690).



# Appendix B:

## Glossary of Terms

**Direct impact:** The direct impact includes the sum of all direct effects that technology firms have on Greater Victoria due to their operations. This is a measure of the primary effect of the technology sector. The direct impact is estimated using total revenues of firms in the technology sector in Greater Victoria.

**Economic impact:** An estimate of the total changes in the level of economic activity resulting from a project, policy, or industry being analyzed. The total economic impact consists of the sum of the direct, indirect, and induced impact. For this study, only direct and indirect impacts are included in the total economic impact estimate.

**Indirect impact:** Indirect and induced impacts are “secondary economic effects” resulting from the direct impact. The indirect impact is the change in revenues, incomes, or jobs in sectors within Greater Victoria that supply goods and services to the technology sector. For example, the indirect impact includes the impact resulting from technology firms buying goods and services from other local industries in order to produce their good or service. The indirect impact is estimated using economic multipliers.

**Induced impact:** Induced impacts are “secondary economic effects” of the economic activity generated when technology sector employees and employees of the technology sector’s indirect suppliers spend their income on household purchases of goods and services in Greater Victoria. For the purpose of this study, induced impacts are not estimated, nor are they included in the total economic impact estimate.

**Greater Victoria:** Greater Victoria refers to the census metropolitan area (CMA) known as Victoria. There are 35 CMAs in Canada and the Victoria CMA includes the thirteen easternmost municipalities of the Capital Regional District (CRD) on Vancouver Island as well as adjacent areas and islands.

**Multiplier:** Economic impact multipliers are estimated using an input-output model. An input-output model is a representation of the flows of economic activity within a region. The model captures what each business or sector must purchase from every other sector in order to produce a dollar’s worth of goods or services. Multipliers are used to quantify how a change in one industry will have spin-off impacts throughout the rest of the economy. Economic multipliers are numbers that are multiplied by direct effects to estimate indirect or induced effects.



