



ECONOMIC IMPACT OF THE OKANAGAN TECHNOLOGY SECTOR



EXECUTIVE SUMMARY



In support of its mission to increase the number of technology companies that start and grow in the Okanagan, Accelerate Okanagan commissioned this study to perform an economic impact assessment of the Okanagan technology sector. To gather the required data to form the basis for this analysis, and create a profile of the local tech sector, Okanagan technology companies were invited to participate in an online survey that gathered information about business structure, revenues and expenditures and work force composition.

ECONOMIC IMPACT ASSESSMENT

In British Columbia overall, the tech sector has proven itself to be dynamic and robust. The recently published 2013 edition of the Profile of British Columbia's High Technology Sector shows a sector in good health, with growth across many key indicators in 2012:

- *High tech sector revenues increased by **3.5% to \$23.2 billion***
- *The number of businesses in the high sector grew by **2.9%** to 9,010 businesses*
- *High tech sector GDP saw **3.4% growth**, double the overall 2012 provincial GDP growth*

Based on the analysis of data from the Profile of British Columbia's High Technology Sector report, as well as the survey undertaken by Accelerate Okanagan, the overall contribution of the technology sector to the Okanagan economy is estimated as follows:

- *The direct impact - representing the total output (revenues) directly generated by companies in the sector – is estimated at \$797 million.*
- *The indirect impact - representing the impact of those businesses who supply inputs to the technology sector – is estimated at \$223 million.*
- *Combined, the total economic impact of the high technology sector within the Okanagan region is estimated to be \$1.02 billion.*

TECH SECTOR PROFILE HIGHLIGHTS

The majority of companies responding to the survey were private corporations (78%) but represented a variety of stages of maturity. While two in five businesses had been operating between 1 to 5 years, 14% were in start-up mode (less than a year) and about three in ten had been in business for more than 10 years.

The Okanagan boasts companies in a wide range of sectors, although two were more dominant: Technology Software & Services and New Media & Internet Technology.

- *Of the almost half of respondents who named Technology Software & Services as a primary line of business, software and application development, data processing and management, and mobile application development were the most commonly-named sub-sectors.*
- *With just over four in ten naming New Media & Internet Technology as a primary focus, interactive media, gaming, and web design and development were the dominant areas of work.*

Of the responding companies, average revenues in 2013 were \$599K, up 8% from 2012 estimates of \$555K. Companies were expecting significant growth into 2014, with revenues estimated to increase by 36% over 2013.

On average, companies responding to the survey had 8 full-time employees and 2 part-time employees. The sector is male-dominated (76%) but a range of age categories are represented within the workforce. Just under two in five were under 35, while 31% were 35 to 44 years old. There is a positive outlook for employment growth over the next two years, with 67% expecting to see an increase in their workforce.

When asked to outline the key advantages to operating a business in the Okanagan, the lifestyle that business owners and employees can enjoy – climate, beauty, recreation opportunities – was top-of-mind. About one in ten also believed there was good access to talent in the region and that the strong tech community was a positive to doing business in the Okanagan.

However, while some saw access to talent as a positive, a greater number (almost one-third) said the small talent pool was a significant challenge in doing business in the region. Comments ranged from the number of potential employees to draw from, challenges in finding specific skill sets in the region, and challenges in recruiting from other cities (with some naming lower pay and real estate costs as potential drawbacks to this). The small pool of local clients (both number of potential clients and/or size of businesses), cost of living and distance to clients were also seen as challenges.

Overall, the Okanagan high tech sector is diverse, growing and makes a significant contribution to the local economy. However, the sector faces some challenges as it strives to grow, particularly in meeting the demand for skilled workers, and Accelerate Okanagan's continued support and promotion of the sector will be important in raising the profile of high technology in the region.



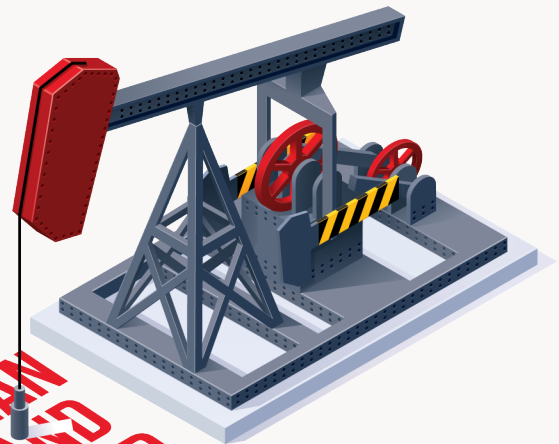
BACKGROUND



Accelerate Okanagan's mission is to increase the number of technology companies that start and grow in the Okanagan. This mission is supported by two streams of activity:

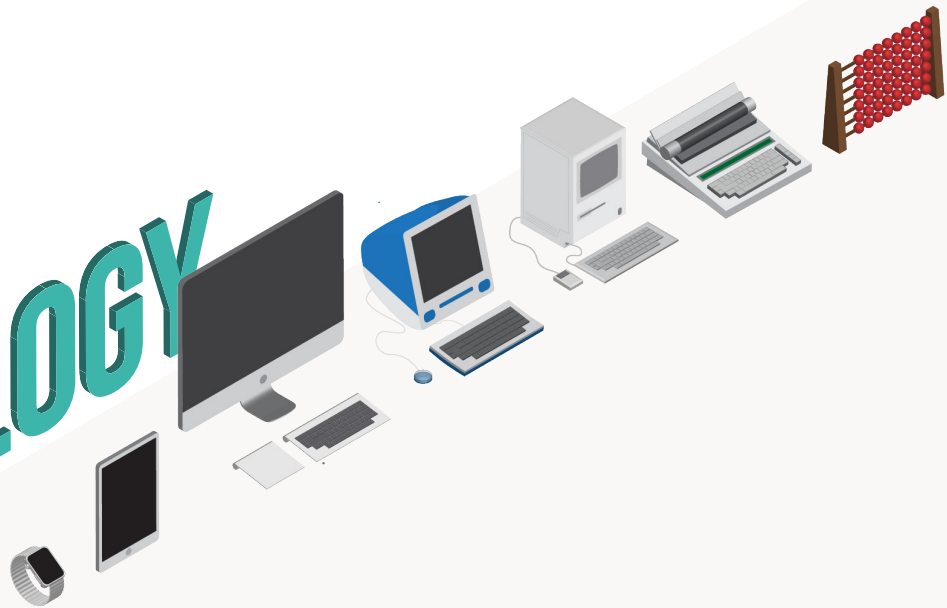
- *Helping to develop and support a vibrant entrepreneurial, creative and innovative technology community*
- *Offering programs that support entrepreneurs and technology companies looking to start, accelerate and grow.*

One component of supporting the tech community that has been missing is being able to understand and communicate the economic impact of the sector in the Okanagan region. To achieve this, Accelerate Okanagan commissioned this study to quantify the contribution of the tech sector to the local economy, which can ultimately assist in attracting new talent, companies, and potential investors to the region, as well as gain the attention of policy makers and the media.



**MORE JOBS CREATED IN
BC HIGH TECH THAN
OIL, GAS, FORESTRY AND
MINING COMBINED**

METHODOLOGY



In order to gather the base data for the economic impact calculations, an online survey (via SurveyMonkey) was developed, covering the following topics:

- *Business structure – years in operation, corporate structure, sector*
- *Revenues and expenditures*
- *Employment – number of employees and work force composition*
- *Advantages and disadvantages of conducting business in the region*

The survey launched on May 27, 2014 to 121 Accelerate Okanagan members and 644 non-members within the Okanagan tech community sourced from Accelerate Okanagan's own database. The survey ran until June 21, 2014, with multiple reminders being sent to encourage responses.

A total of 101 companies provided complete (85) or partial (16 provided all data up to and including revenues) data sets and were used in the analysis, giving a response rate of 13.2%. Margin of error on this sample size is 9.1% (19 times out of 20). All data was reviewed and "cleaned" to ensure that responses were appropriate to the questions and outliers were considered. As such, sample sizes for each question will vary and are noted for each chart or table.

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EMPLOYEES IN THE OKANAGAN TECH SECTOR



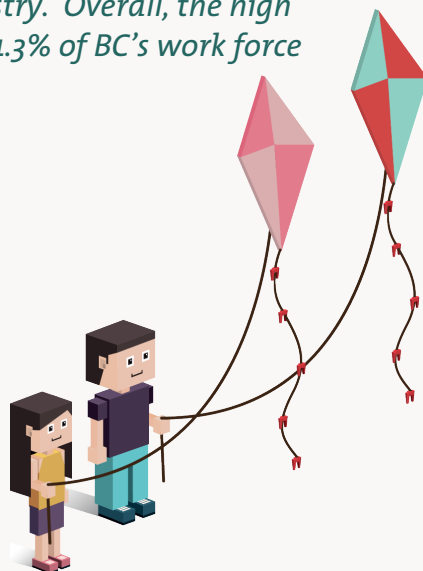
ECONOMIC IMPACT OF THE OKANAGAN TECH SECTOR



A good starting point for this analysis is to review the health of the high technology sector in British Columbia as a whole. And the sector is indeed in good health, with increases experienced in almost all key indicators in 2012. The following are key highlights from the 2013 edition of the Profile of British Columbia's High Technology Sector:

- *The high technology sector contributed 7.6% of the province's GDP in 2012. High tech GDP saw its third consecutive year of growth, increasing 3.4% in 2012, double the rate of GDP growth in the province as a whole.*
- *High technology sector revenues also increased in 2012, up 3.5% to \$23.2 billion.*
- *Only one key indicator saw a decline in 2012, with employment dipping slightly by 0.2% to 84,070. The decline was largely due to job losses in the film industry. Overall, the high tech sector employed 4.3% of BC's work force in 2012.*
- *Aggregate wages and salaries increased by 7.7% in 2012, with high tech employees earning an average of \$1,440 per week (substantially higher than the provincial average of \$870).*
- *There were 9,010 high tech sector businesses with employees in 2012, up 2.9% from the previous year. In the Thompson-Okanagan region alone, 46 net new firms were created in 2012 (an increase of 6.3%).*

The report points to a robust and dynamic sector with a track record of strong growth. This section will now detail the calculations used to determine the Okanagan tech sector's contribution to the region.



DIRECT IMPACT

As previously stated, the survey gathered 101 complete or partial responses used in the analysis. However, once data was reviewed for any inconsistencies/abnormalities, we are able to use 2013 revenue data from 95 of the responding companies. This data – and its extrapolation to the total estimated Okanagan tech sector – forms the basis of the analysis.

The direct impact of the Okanagan tech sector, in our analysis, will represent the total estimated output (revenues) directly generated by companies in the sector. To calculate this, we must use available information to estimate both business counts and average revenues per business.

BUSINESS COUNTS

In the absence of an updated Accelerate Okanagan proprietary database for the region, we will rely on business count information from the Profile of British Columbia's High Technology Sector report. For the regions under Accelerate Okanagan's coverage, the total count of businesses with employees is as follows:

A further consideration is that this count covers only businesses with employees. The Profile of British Columbia's High Technology Sector report estimates that for every business with employees there are 3.44 people self-employed in the sector*. Using this ratio we can then expect that in the Okanagan region, a further 1,920 people are self-employed in the sector.

Region	Business Count
Central Okanagan	321
North Okanagan	123
South Okanagan-Similkameen	87
Columbia-Shuswap	27
Total AOK Region	558

Profile of British Columbia's High Technology Sector, BC Stats, 2013;

http://www.bcstats.gov.bc.ca/publications/infoline/14-04-03/Profile_of_the_British_Columbia_High_Technology_Sector_2013_Edition.aspx

Estimated self-employed in BC tech sector – 31,036 / total businesses with employees 9,010 = 3.44

AVERAGE REVENUES

The survey data revealed that, of the companies included in the analysis, average revenues/business for 2013 were \$599,320. It should be noted revenues from some companies were found to be significant outliers and were not included in this average revenue calculation. However, their revenues are considered valid and are included in the overall direct impact calculation to follow.

While the provincial average revenue/business of \$2,577,358 (from the Profile of British Columbia's High Technology Sector) is substantially higher, it must be considered that this average will

be inflated by the number of very large businesses (particularly in telecommunications) located in the Lower Mainland. Therefore, we feel that the Okanagan average of \$599,320 is conservative and realistic.

Regarding those who are self-employed, an estimate of their average annual revenues was also generated from the survey data. Looking at those who listed no full-time or part-time employees, average revenues for 2013 were \$33,180.

DIRECT IMPACT CALCULATIONS

Using the business counts and average revenue estimates described in the previous sections, the estimated direct impact of the Okanagan technology sector is as follows:

Type of Business	Business Count
Businesses with employees	\$ 733,425,620
Self-employed	\$ 63,689,674
Total Direct Impact	\$ 797,115,294

INDIRECT IMPACT

The indirect impact represents the impact of tech sector activity on industries farther back in the supply chain (that is, those who supply inputs to the technology sector). To estimate the indirect impact, we employed the use of 2010 multipliers for BC that were supplied by StatsCanada and followed the methodology described in BC Stats' document British Columbia Provincial Economic Multipliers and How to Use Them (updated March 2008).

The high technology sector is divided into two larger categories by BC Stats – manufacturing and services. As such, multipliers corresponding to each of these sub-sectors should be employed. The corresponding multipliers with the best alignment to each of these categories is as follows:

- *Manufacturing - medium aggregation category multiplier for "Electronic Product Manufacturing" = 0.25*
- *Services – small aggregation category for "Information and Cultural Industries" (which includes information services and data processing as well as telecommunications) = 0.28*

The Profile of British Columbia's High Technology Sector report provides a count of high technology businesses in the Okanagan region that are in manufacturing vs. services.

	Business Counts	% of Businesses	Multiplier
Manufacturing	55	10%	.25
Services	503	90%	.28
Total	558		
Weighted average multiplier = (10% * 0.25) + (90%*0.28)			

Using these counts, we can calculate a weighted average multiplier for overall use:

	Direct Impact	Multiplier	Indirect Impact
Total Revenues	\$797,115,294	.28	\$223,192,282

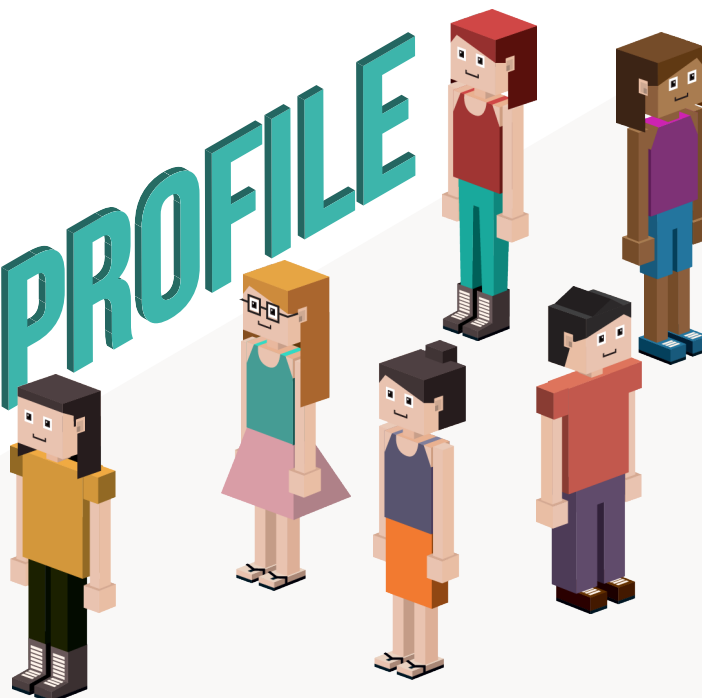
TOTAL IMPACT

Adding together the direct and indirect impacts of the Okanagan technology sector, the estimated total economic impact of the sector in 2013 is estimated to be \$1.02 billion.

Type of Business	Business Count
Estimated Direct Impact	\$ 797,115,294
Estimated Indirect Impact	\$ 223,192,282
Total Economic Impact	\$1,020,307,576



TECH SECTOR PROFILE



Section 5 provides an overview of survey results. As some partial completes were used in the analysis, base sizes for each question will vary and are noted.

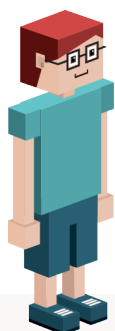
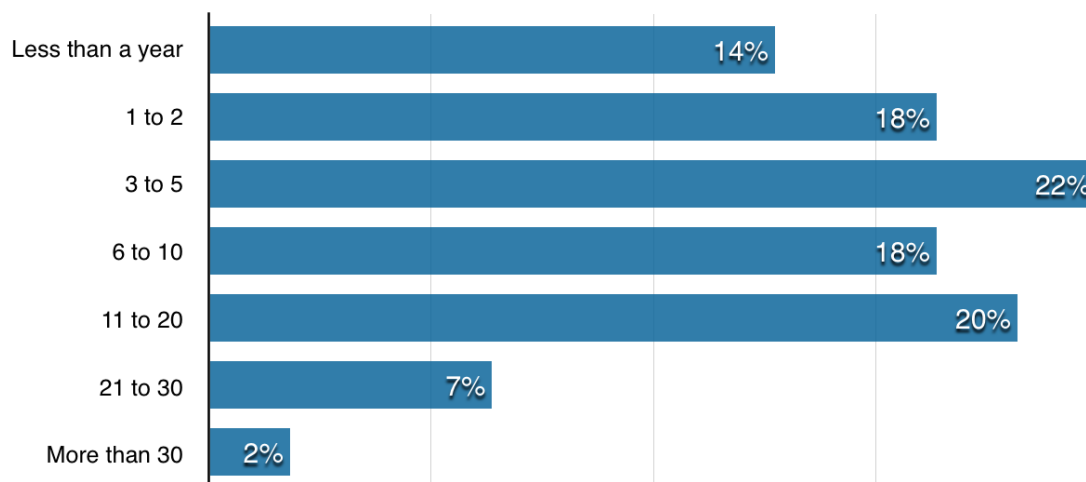
BUSINESS STRUCTURE

Companies at all stages of maturity were found among survey respondents



Figure 1 - Number of Years in Business (n=101)

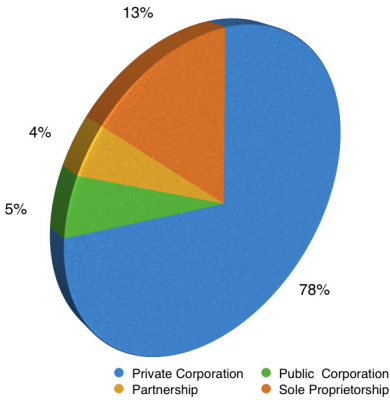
■ Number of Years in Business



While 14% were in true start-up phase (operating for under a year), two in five had been operating between 1 to 5 years. Only 9% had been in business in excess of 20 years.

In terms of location, the majority of responding businesses were located in Kelowna (61%), Penticton (16%) or West Kelowna (7%). Just under four in five (78%) responding companies are registered as a private corporation, while 13% were sole proprietors.

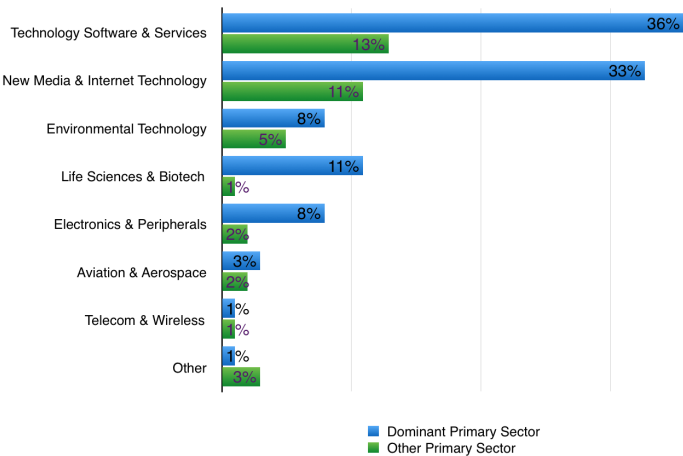
Figure 2 - Corporate Structure (n=101)



Looking now at business sectors, of the companies who responded to the survey, 36% indicated that Technology Software and Services was their dominant primary sector (that is, the sector generating the most revenue for their company). A further 13% indicated it was also a key sector in which they operated, for a combined total of

49% of companies indicating this as a primary sector. Not far behind was the New Media and Internet Technology sector, with 33% claiming it to be their dominant line of business, and an additional 11% also saying it is a key component of their operations (for a total of 44%).

Figure 3 - Primary Business Sector (n=101)



About one in ten companies overall (dominant + other primary) gave each of Environmental Technology, Life Sciences and Biotech and Electronics and Peripherals as a primary sector.

For each primary sector, respondents were asked to identify the sub-sector(s) that were applicable to their business. The following

tables present the combined count of companies operating in that sub-sector (whether the primary sector was “dominant” or “other”), and what that count translates to in terms of the % of companies within that sector and the % of total responding companies.

TECHNOLOGY SOFTWARE & SERVICES	COUNT	% of Primary Sector (n=49)	% Overall (n=101)
Software and Application Development	34	69%	34%
Data Processing and Management	12	24%	12%
Mobile Application Development	12	24%	12%
IT Consulting Services	9	18%	9%
Engineering Design/Services	7	14%	7%
Graphic Design	7	14%	7%
Security and Protection Services	6	12%	6%
IT Services	5	10%	5%
GIS/Mapping	4	8%	4%
IT Training	3	6%	3%
Public Sector (defence, oil, gas)	2	4%	2%

Within the Technology Software and Services category, the majority (69%) of responding companies indicated that they were involved in software and application development.

Just under a quarter also did data processing and management and mobile app development.

NEW MEDIA & INTERNET TECHNOLOGY	COUNT	% of Primary Sector (n=44)	% Overall (n=101)
Interactive Media	18	41%	18%
Gaming	16	36%	16%
Web Design and Development	16	36%	16%
E-commerce	15	34%	15%
Advertising Services	15	34%	15%
Consulting Services (including Social Media)	11	25%	11%
Other Media/Online Services	11	25%	11%
Web Hosting Services	7	16%	7%

NEW MEDIA & INTERNET TECHNOLOGY	COUNT	% of Primary Sector (n=44)	% Overall (n=101)
E-Learning	6	14%	6%
Event Media Services	5	11%	5%
Social Media Platform Development	4	9%	4%

Looking at New Media and Internet Technology, 41% of companies operating in that primary sector were involved in interactive media, while just over a third were also engaged in each of gaming, web

design and development, e-commerce and advertising services sub-sectors. A quarter did consulting and other media/online services.

ENVIRONMENTAL TECHNOLOGY	COUNT	%V of Primary Sector (n=13)	% Overall (n=101)
Energy Technology	5	38%	5%
Natural Resources Management	5	38%	5%
Farming/Agriculture	4	31%	4%
Alternative Energy/Clean Tech	3	23%	3%
Environmental Services	3	23%	3%
Logging	1	8%	1%
Scientific Consulting Services	1	8%	1%
Chemical Manufacturing			
Ocean Sciences and Marine Technology			
Research Centre			
Other	1	8%	1%

Of the small number of companies operating in the Environmental Technology sector, energy technology, natural resources management and farming/agriculture were the most commonly noted sub-sectors.

LIFE SCIENCES & BIOTECH	COUNT	%V of Primary Sector (n=12)	% Overall (n=101)
Medical Services	5	42%	5%
Medical Devices	3	25%	3%
Data Management	2	17%	2%
Government Agency	2	17%	2%
Medical Information Systems	2	17%	2%
Food, Nutraceuticals and Aquaculture	1	8%	1%
Other Biotechnical Products	1	8%	1%
Antibody Development			
Biotechnical Research			
Fishery			
Pharmaceuticals			
Reagents/Kits			
Research Centre			
Other	1	8%	1%

Of those few companies involved in the Life Sciences and Biotech primary sector, medical services and medical devices were the focus.

Only two responding companies offered Telecom and Wireless as their primary sector and were operating in a variety of areas.



ELECTRONICS & PERIPHERALS	COUNT	%V of Primary Sector (n=10)	% Overall (n=101)
Other Electronic Equipment and Instruments	5	50%	5%
Building Automation and Controls	3	30%	3%
Engineering Design and Manufacturing	3	30%	3%
Communications Equipment and Supplies	1	10%	1%
Office Electronics	1	10%	1%
PC Hardware and Peripherals	1	10%	1%
Computer Software Repair/Service			
Engineering and Construction Services			
Lighting			
Retail/Supermarket			
Semiconductors			
Transportation Equipment and Instruments			
Other	1	10%	1%

Of the ten companies operating in Electronics and Peripherals, half were operating in other electronic equipment and instruments

while three each were in building automation and controls and engineering design and manufacturing.



AVIATION & AEROSPACE	COUNT	%V of Primary Sector (n=5)	% Overall (n=101)
Aircraft Manufacturer			
Airfield Lighting			
Education and Training			
Flight Data Services			
Measuring, Controlling and Testing Devices			
Other	5	100%	5%

Only five companies indicated Aviation and Aerospace as a primary sector and all fell into the “Other” sub-category.

Four were involved in avionics while one operated in engine manufacturing.

TELECOM & WIRELESS	COUNT	%V of Primary Sector (n=2)	% Overall (n=101)
Communications Resellers	1	50%	1%
Network Service Provider	1	50%	1%
Other Communication Services	1	50%	1%
Satellite Telecommunications	1	50%	1%
Telecommunications Network Integration	1	50%	1%
Broadband Hardware Manufacturer			
Mobile Communications			
Radio Communications			
Transportation			
Web/Audio/Video Conferencing			
Other			

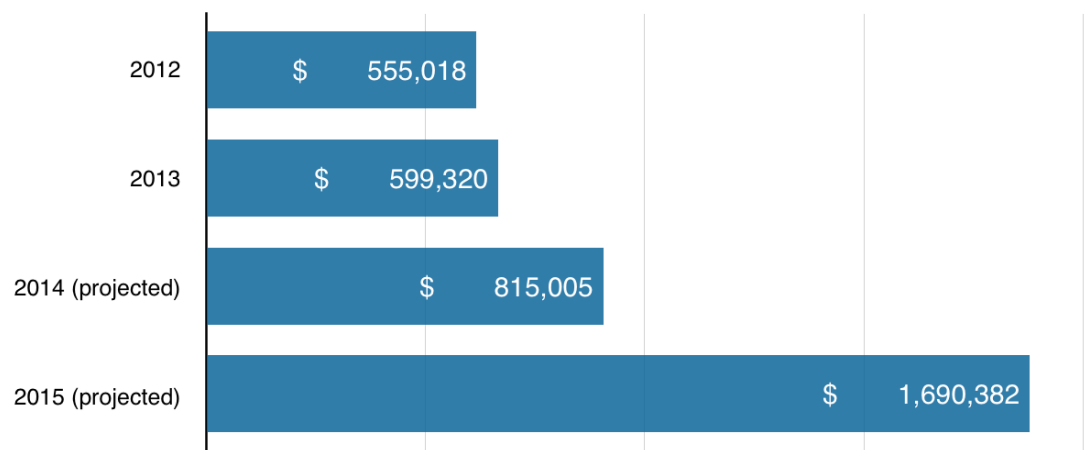
Only two responding companies offered Telecom and Wireless as their primary sector and were operating in a variety of areas.

REVENUES & EXPENDITURES

Responding companies were asked to provide actual revenues for 2012 and 2013 and to project revenues for 2014 and 2015. Working in close consultation with Accelerate Okanagan, the revenue figures provided by each respondent were reviewed and any questionable data was removed from the average revenue calculations, as were

some outliers which would have skewed the results substantially. Overall, companies appear to have seen subtle growth from 2012 to 2013, with revenue increasing 8%. Expectations are high for the coming years, with 36% growth estimated between 2013 and 2014.

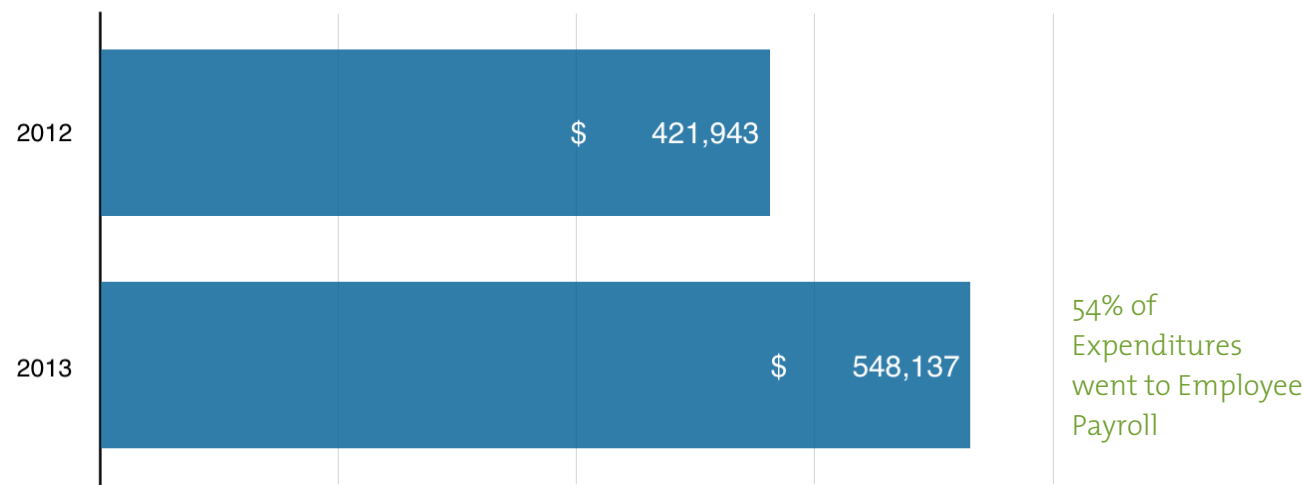
Figure 11 - Actual & Projected Revenues - 2012-2015 (n=91)



Average revenues for 2013 - the figure used in economic impact calculations - were \$599,320.

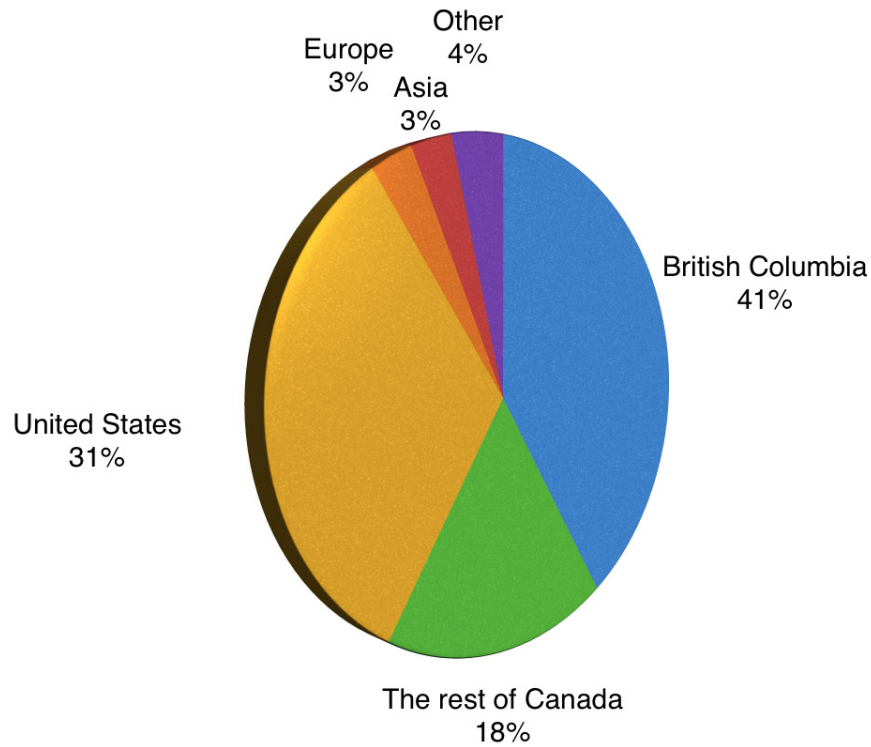
Looking at expenditures, the average for 2013 was just slightly below average revenues, at \$548,137. Just over half of those expenditures went towards employee payroll and contractors' fees.

Figure 12 - Expenditures - 2012-2013 (n=79)



Of the 73 responding companies who had revenues in 2013, an average of 41% said their sales came from within British Columbia, while 18% said the rest of Canada. In total, 41% of sales were generated outside of Canada (most from the United States).

Figure 13 - Percentage of 2013 Sales by Region (n=73)

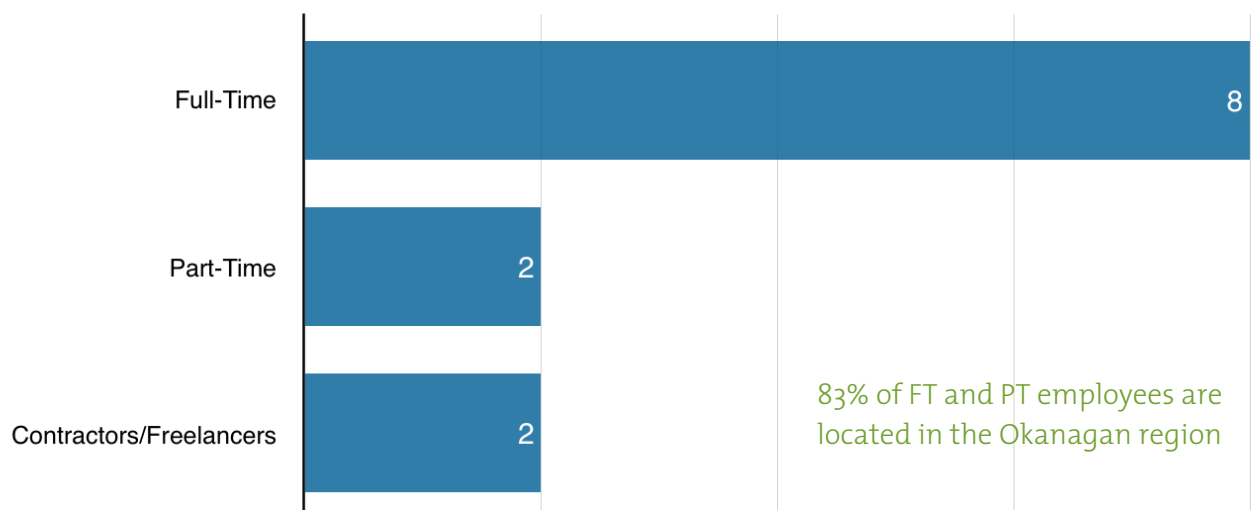


WORK FORCE COMPOSITION

After the removal of outliers, it was determined that among responding companies, the average number of full-time and part-time employees was 10 (8 full-time and 2 part-time).

On average, companies also employed 2 contractors or freelancers. Only a few companies had interns or other unpaid roles (not shown in chart).

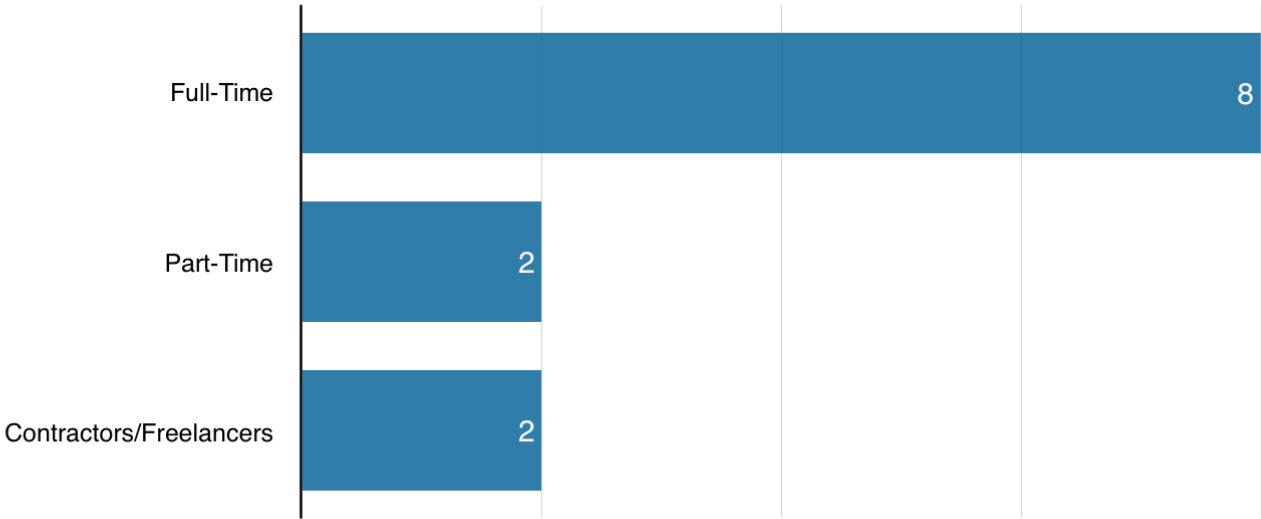
Figure 14 - Average Number of Employees (n=85)



Among full-time and part-time employees, 83% were located in the Okanagan region, with their wages providing further benefit to the local economy.

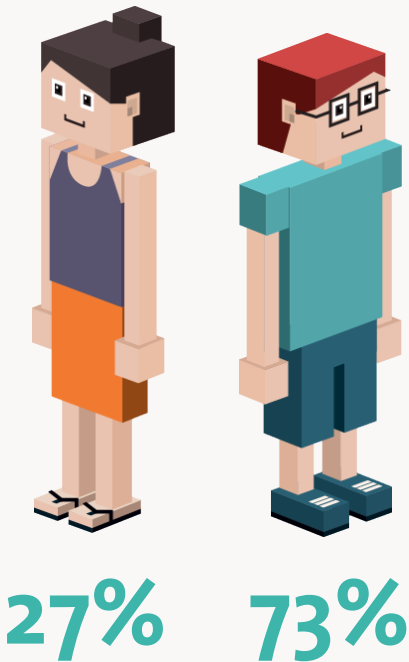
Looking at this data from a different perspective, among responding companies, just over two in five were independent operators, while a further 35% had between 2 and 9 employees. Only 11% of respondents had an employee count of 20 or more.

Figure 14 - Average Number of Employees (n=85)



Perhaps not surprisingly, the tech sector tends to be male-dominant, with almost three-quarters of employees among the responding companies being male.

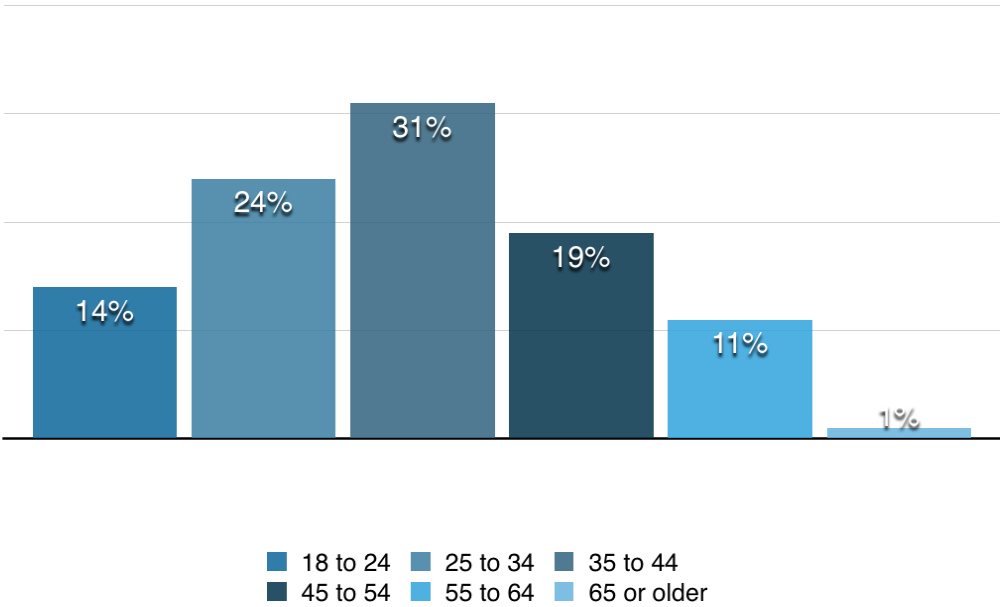
Figure 16 - Employees by Gender (n=76)



It will be interesting to track this number over time to see if gender composition becomes more or less balanced.

Employment in the Okanagan tech sector spans all age groups, with most age categories being well-represented.

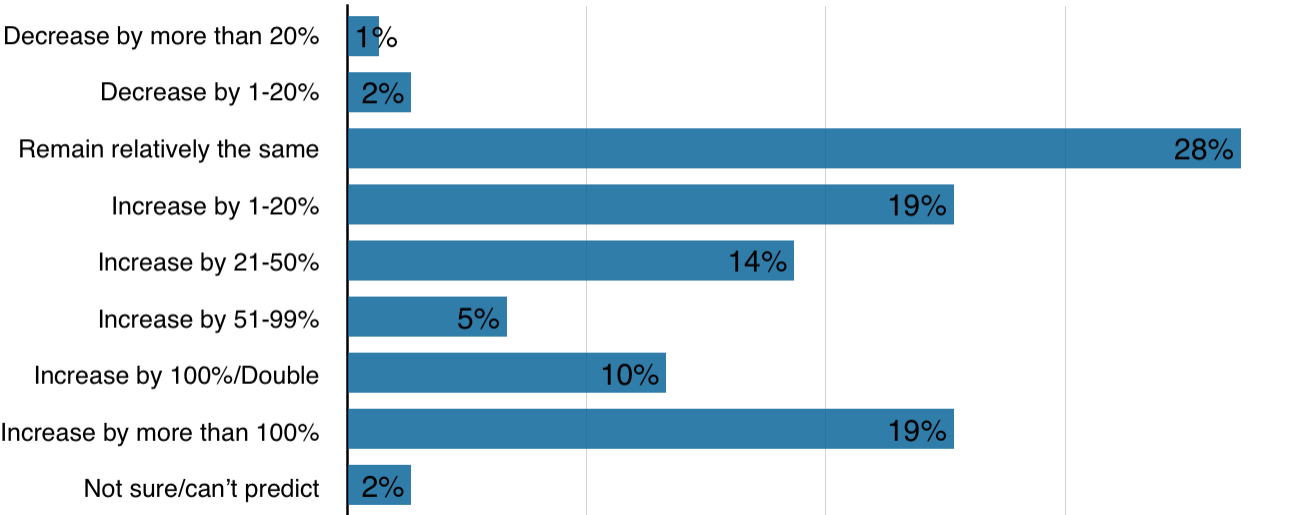
Figure 17 - Employees by Age Category (n=76)



Among employees at responding companies, three in ten are in the 35 to 44 age category while the next biggest age cohort was 25 to 34 (at 24%).

The outlook among responding businesses was very positive, with 67% expecting to see growth in their workforce over the next two years (29% predicting it will double or more). Just under three in ten believe it will stay the same while only 3% expect to see a decline in employee counts.

Figure 18 - Projected Change in Workforce - Next Two Years (n=85)

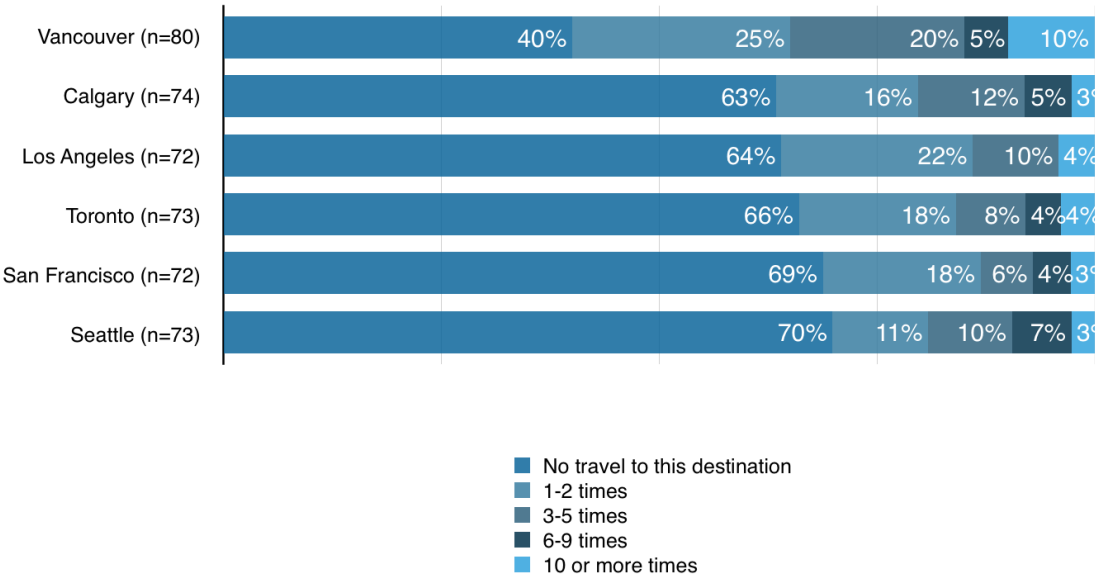


AIR TRAVEL

Respondents were asked how frequently employees traveled by air to a selection of destinations believed to be common among high tech businesses.



Figure 19 - Air Travel by Destination

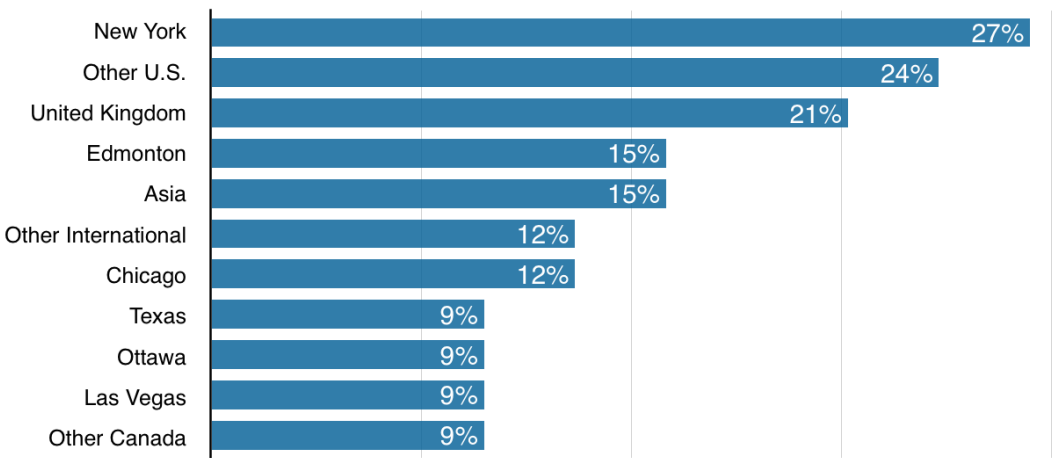


Vancouver is the most popular air travel destination among Okanagan-based businesses, with 60% of respondents indicating that employees travel there with at least some frequency. Most are traveling 1 to 2 (25%) or 3 to 5 (20%) times a year.

About a third of survey respondents also had employees conducting at least some air travel to the remaining destinations, with approximately 20% going to Calgary and Seattle three or more times per year.

Just under two in five respondents said that employees travel by air regularly (2 or more times per year) to other destinations.

Figure 20 - Other Air Travel Destinations (n=33*)



* Small base size, interpret with caution

Of the companies who conduct other frequent air travel, New York, other US destinations (including Miami, Washington, Boston, Atlanta and Philadelphia) and the United Kingdom were most

predominant. Edmonton and Asia were frequented by 15% of those companies and approximately one in ten traveled to the variety of other destinations.

OKANAGAN TECH SECTOR – ADVANTAGES & CHALLENGES

When asked about the primary advantages of having their business located in the Okanagan, the quality of life that business owners and their employees enjoy is top-of-mind for many. The beauty, amenities and recreation make for a great work/play environment.

Figure 21 - Advantages of Doing Business in the Okanagan (n=80)



Having access to local talent was viewed as an advantage by about one in ten respondents, while a similar number praised the tight-knit and supportive tech community.

Regarding the primary challenges of being located in the Okanagan, about a third said it was the small local talent pool, as they have difficulties in finding qualified staff and/or attracting employees from other areas (lower pay and real estate costs were named as reasons for this).

Figure 22 - Challenges of Doing Business in the Okanagan (n=82)



Just under one in five respondents also found the small local client base to be an issue, including the sheer number of prospective clients as well as companies being too small to require their products/services. Cost of living and the distance to clients were also common challenges.