

Economic Impact of the Greater Victoria Technology Sector

Prepared for VIATeC
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ABOUT THIS REPORT

This report was commissioned by the Victoria Advanced Technology Council (VIATeC) and prepared by Brigitte Gemme, Ph.D. candidate at the University of British Columbia. The study was supported by the ACCELERATE BC (MITACS) internship program.

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SUMMARY

VIATeC

The Victoria Advanced Technology Council (VIATeC) is the conduit that connects people, knowledge, and resources to grow a successful technology sector in Greater Victoria. VIATeC was founded in 1989 to promote and enhance the development of the local advanced technology industry.

Purpose of the study

VIATeC and its members sought an updated and enriched assessment of their strategic position. The first step in this direction was to update the measure of the technology sector's economic impact in the Greater Victoria region. The last economic impact study, conducted in 2007, revealed that the Victoria technology sector generated over \$1.6 billion in revenues. The purpose of this study was to update this figure and renew VIATeC's capacity to accurately represent the size of Victoria's technology sector.

Method

Nearly 500 establishments of the Victoria technology sector were invited to respond to an online survey running in June, July, and August of 2009. They were asked to provide actual data about their revenues and employment in year 2008 and to offer projections for years 2009 and 2010. Over 115 establishments participated in the survey, and 75 provided a complete set of responses to the questions related to the economic impact assessment.

Major findings

- The 75 establishments of the Victoria technology sector who provided a full data set for the survey together employed 3,004 people and generated \$800 million in revenues in 2008. 9 of 10 of the jobs are located on Vancouver Island.
- On average, establishments anticipate growing their workforce by 7.5% in 2009 and a total of 18.4% by 2010.
- The majority of these establishments' sales (55%) are outside of British Columbia, including 28% to the United States and 11% to Europe.
- We estimate that the 886 technology establishments of the entire Victoria technology sector generated \$1.95 billion in 2008.
- The indirect impact of the Victoria technology sector is estimated at \$704 million, and the total impact of the Victoria technology sector is estimated to be of \$2.65 billion.

VIATeC

The Victoria Advanced Technology Council (VIATeC) is the conduit that connects people, knowledge, and resources to grow a successful technology sector in Greater Victoria. VIATeC was founded in 1989 to promote and enhance the development of the local advanced technology industry. With only a handful of known technology companies, the ambitious mandate to facilitate the development of Greater Victoria as a global centre of excellence for advanced technology was set.

Since VIATeC's inception, the Greater Victoria tech sector has grown to over 900 known technology companies, generating nearly \$2 billion in annual revenues. The growth of this sector has outpaced the provincial average making Greater Victoria the second largest tech sector in BC and technology the #1 private industry in Greater Victoria. VIATeC is intended to be the first place that people contact for information or assistance related to advanced technology in Greater Victoria.

CONTEXT OF THE STUDY

VIATeC and its members sought an updated and enriched assessment of their strategic position. The first step in this direction was to measure the economic impact of the technology sector in the Greater Victoria region.

According to the *Inventory of Regional Technology Business* conducted in 2007 on the behalf of VIATeC, the technology sector in the Greater Victoria region now forms the largest revenue producing private industry in the region. The major finding of this assessment, based on 2006 data, was that the 340 companies surveyed employed approximately 6,200 people and generated over \$1 billion in revenues annually from operations in the VIATeC region. Based on this sample, and on an estimated total population of 878 technology companies in the region, the study's authors concluded that the sector employed approximately 12,600 people and generated over \$1.6 billion in revenues.

The purpose of this study was to update this figure and renew VIATeC's capacity to accurately represent the size of Victoria's technology sector.

METHODOLOGY

The assessment of the economic impact of Victoria's technology sector was one of the three parts of the research conducted by Brigitte Gemme on the behalf of VIATeC. The other two parts were a compensation study and an inquiry into the recruitment of highly-qualified personnel to the Victoria technology sector, presented in separate reports.

In order to mitigate the risk of survey fatigue, it was decided to simultaneously collect the data required for the economic impact assessment and for the compensation study. The resulting survey was administered online through the SurveyMonkey web-survey service.

The first seven questions of the survey were:

- What were the total revenues of your organization for year 2008, and your projected revenues for the next two years?
- Where were your sales located? Please answer with the percentage (%) of sales located in each region.
- How many full-time equivalent people did you employ directly in 2008, and project to employ in 2009 and 2010?
- How many of these employees are (will be) located on Vancouver Island?
- What was the total amount of your payroll in 2008?
- What are your projected payroll figures for 2009 and 2010?
- Do you anticipate significant changes over the next 12 months in the following areas: Staffing level; Revenue/Operating budget; Profitability (if applicable).

The remainder of the survey questions were related to human resources practices and compensation data.

After a successful trial run of the survey, invitations to respond were sent to nearly 500 establishments in the region's technology sector. The survey ran from Friday June 5th, 2009 to Monday August 10th, 2009, with multiple reminders sent to potential participants. A sample of non-respondents was reminded of the survey by phone.

A total of 115 establishments partially or completely responded to the survey, a response rate of approximately 25%. Of those, 77 valid sets of responses to the questions related to the economic impact assessment were gathered. The response rate may have been higher if the survey was conducted at a different time of year and without tying it to the Compensation Study. It is recommended that future data collection for economic-impact assessment purposes be conducted in April and May, and on a stand-alone basis (without combining it to another data-collection exercise).

We are confident in the robustness of the estimates provided by this study, and believe that another study conducted for the same year would yield similar or higher values for the economic impact of Victoria’s technology sector. The process through which the findings from the sample were generalized to the estimated population of Victoria technology companies will be made explicit throughout this report.

BASE DATA

Seventy-seven (77) establishments provided complete or near-complete data for 2008. However one outlier (a large company with the majority of its revenues and employees outside of Vancouver Island) needed to be removed from the count in order to provide a more accurate portrait of Victoria’s technology sector. Table 1 summarizes the study’s base data, excluding the outlier.

Table 1. Base data collected in the economic-impact section of the survey

		Mean average	Total
Total revenues*	2008 (Actual) (N = 75)	\$10,655,212	\$799,140,926
	2009 (Projection) (N = 73)	\$10,461,620	\$763,698,311
	2010 (Projection) (N = 70)	\$13,124,069	\$918,684,880
Full-time employees*	2008 (Actual) (N = 76)	39.53	3,004
	2009 (Projection) (N = 77)	42.51	3,273
	2010 (Projection) (N = 74)	46.82	3,465
Number of employees on Vancouver Island	2008 (Actual) (N = 75)	36.55	2,741
	2009 (Projection) (N = 74)	39.91	2,953
	2010 (Projection) (N = 71)	42.23	2,998

* These figures may include some revenues generated and employees working outside of the Victoria region. N equals the number of establishments that provided data.

Revenues

As seen in Table 1, the total amount of revenues indicated by the 75 establishments providing data for 2008 was \$799,140,926 (after excluding an outlier). The mean average was \$10,655,212 and the median average was \$1,800,000. Table 2 shows the breakdown of establishments by category.

Table 2. "What were the total revenues of your organization for year 2008?"

Revenue category	Total	% of valid
Less than \$50,000	9	12%
\$50,000 to \$100,000	1	1%
\$100,000 to \$250,000	7	9%
\$250,000 to \$500,000	1	1%
\$500,000 to \$1 million	8	11%
\$1 to \$3 million	18	24%
\$3 to \$5 million	7	9%
\$5 to \$10 million	7	9%
\$10 to \$20 million	6	8%
Over \$20 million	11	15%
No response	39	
Total	114	

The establishments surveyed projected that their average income would slightly decrease in 2009 (mean of \$10,461,620) and rise significantly after that, with projected mean revenues of \$13,124,069 in 2010, for a total of almost \$1 billion that year.

Location of sales

Fifty-five per cent (55%) of sales for the establishments surveyed came from outside of British Columbia, including the United States (28%) and Europe (11%). Table 3 provides a more detailed breakdown of sales. The Victoria technology sector directly contributes to the wealth of the Victoria region as it brings revenues thanks to its dynamic exports.

Table 3. "Where were your sales located?"

Region of sales	Number of establishments reporting sales to this region	\$	% of total attributed sales
British Columbia	61	\$296,953,309	45%
Rest of Canada	49	\$59,746,750	9%
USA	55	\$184,687,203	28%
Europe	32	\$75,176,801	11%
Asia	23	\$20,035,908	3%
Other	21	\$29,650,955	4%

Employment

Table 1 showed that the establishments participating in the survey collectively employ 3,004 full-time equivalent employees, including 2,741 on Vancouver Island. The mean average is 39.53 employees per company and the median average is 18. Surveyed establishments expect a rise in their number of employees to a mean average of 42.51, and more growth in 2010, to a mean average of 46.82 and an anticipated total of 3,465 employees. In other words, on average, Victoria technology companies expect to grow by 7.5% in 2009 and a total of 18.4% by 2010.

Eight out of 10 (81 per cent) of companies are considered "small," with less than 50 employees and only 6 of the 76 establishments providing data for this question had over 100 employees.

Table 4. "How many full-time equivalent people did you employ directly in 2008?" (categories)

Number of employees	Number of establishments	% of valid
Less than 5	16	21%
6 to 9	7	9%
10 to 19	17	22%
20 to 49	22	29%
50 to 99	8	11%
Over 100	6	8%
No response	38	
Total	114	

For some of the establishments, the anticipated variation in number of employees relative to their current size was substantial. As seen in Table 5, nearly half of the establishments surveyed expect their workforce to grow by more than 20% over the next two years.

Table 5. Anticipated variation in number of employees between 2008 and 2010

Anticipated variation	Number of establishments	% of valid
Decrease by 1 to 30%	7	10%
No change	13	19%
Increase by 1 to 20%	16	23%
Increase by 20 to 50%	22	32%
Increase by 50 to 100%	5	7%
Increase by 100% / Doubling	2	3%
Increase by more than 100%	4	6%
No response	45	
Total	114	

Employees on Vancouver Island

The majority of establishments surveyed had all of their employees on Vancouver Island, as seen in Table 6. Less than 10 per cent of the employees of all the establishments surveyed were located outside the Island.

Table 6. "How many of these employees are located on Vancouver Island?" (2008)

% of employees on Vancouver Island	Number of establishments	% of valid	Number of employees on Vancouver Island
Less than 50%	4	6%	29
50 to 74%	5	7%	72
75 to 99%	19	27%	917
100%	42	60%	1,719
Total	70	100%	2,737

The establishments anticipated some growth in the number of their employees on the Island by 2010, shown in Table 7.

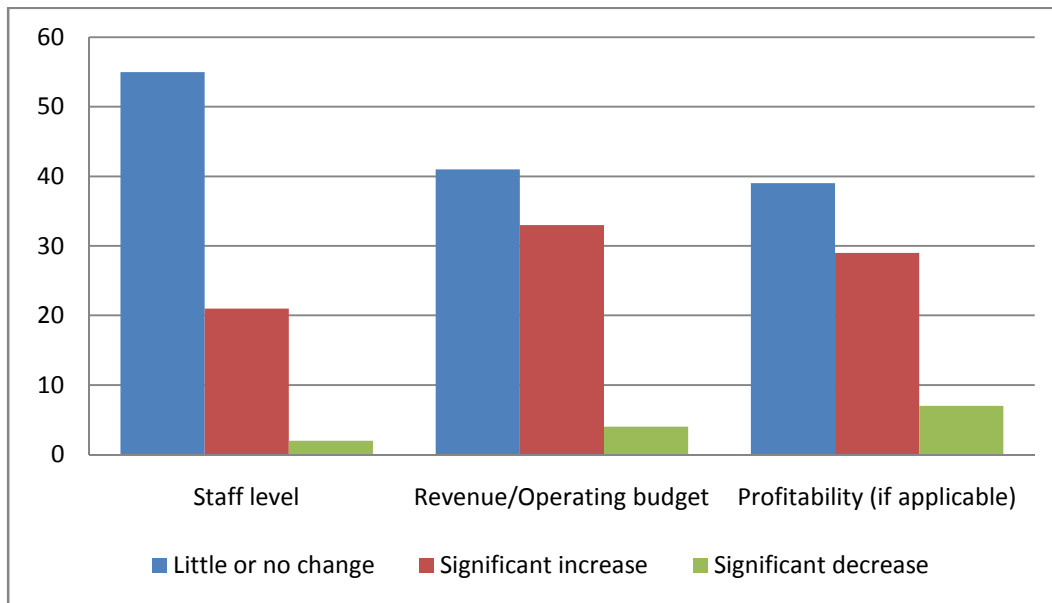
Table 7. Variation in number of employees on Vancouver Island between 2008 and 2010

Variation on Vancouver Island	Number of establishments	% of valid	Number of employees on Vancouver Island in 2010
1 to 10 less employees	7	10%	132
No change	13	18%	169
1 to 4 more employees	26	37%	344
5 to 9 more employees	9	13%	546
10 to 19 more employees	8	11%	356
20 to 49 more employees	6	8%	569
Over 50 more employees	2	3%	719
No response	43		
Total	114		2,835

Anticipated changes over the next 12 months

When asked qualitatively about the changes they anticipated over the next 12 months, the surveyed establishments responded consistently with their quantitative assessment. Overall, they expected to remain in a similar situation or to see their number of employees, revenues and profitability increase. Only a few anticipated a decrease in their business.

Figure 1. Anticipated changes over the next 12 months (number of establishments)



ECONOMIC IMPACT ASSESSMENT

Direct impact

In order to assess the direct economic impact of the Victoria technology sector, one needs to generalize the sample data (collected from 75 establishments) to the assumed size of the entire technology sector in the Victoria region. To this end, we have made conservative assumptions about the size of the sector based on already available data.

We have used population data as published by BC Stats in the 2008 edition of the *Profile of the British Columbia High Technology Sector*. According to BC Stats, there were a total of 8,573 establishments of the high-technology sector in British Columbia in 2007, and 886 of these were in the Capital region of Vancouver Island (which corresponds to the Greater Victoria). The total revenues for the B.C. technology sector in 2007 were estimated by BC Stats to be of \$18.103 billion, or \$2,111,629.53 per establishment. These numbers are summarized in Table 8.

In order to obtain a conservative estimate of the direct economic impact of Victoria's technology sector, we took into account the fact that, on average, the establishments providing data in our survey were larger than the average technology-sector establishment in the province. Consequently, we assigned, on average, proportionally lower revenues to other

companies in our extrapolation (\$1,321,532.48). This average, measured on the basis of BC Stats' 2007 data, was adjusted for growth based on the average annual growth of the BC technology sector over the last 5 years, 7.2 per cent (based on table 7 of BC Stats' *Profile*). Thus, the average revenues of the additional 811 establishments of Victoria's technology sector were estimated to be \$1,416,682.82 for 2008.

Table 8. Estimation of revenues for the entire Victoria technology sector

Survey base data	75 establishments X \$10,655,212.35	=	\$799,140,926.00
			+
Extrapolation based on BC Stats, including growth	811 other establishments X \$1,416,682.82	=	\$1,148,929,767.02
	TOTAL		\$1,948,070,693.02

Indirect impact

To estimate the indirect impact of Victoria's technology sector, we followed BC's input-output model as described in BC Stats' document *British Columbia Provincial Economic Multipliers and How to Use Them* (March 2008 edition). We have used the multipliers of two different industrial categories to reflect the division of the Victoria technology sector between manufacturing and service industries.

According to BC Stats' profile of the technology sector, 61 of the Capital Region's technology establishments (or 6.9 per cent) are in the manufacturing sector while 825 (or 93.1 per cent) are in the services sector. We have used the small aggregation category "manufacturing" for the manufacturing sector and the small aggregation category "information and cultural industries" to represent the service establishments. (The "information and cultural industries" category includes, among others, software publishers and data-processing services.) Impacts within the technology sector ("own indirect") were deduced to avoid double-counting.

Based on the use of these multipliers, the indirect economic impact of the Victoria technology sector is estimated at \$704,675,611.79.

Total impact

After adding the direct and indirect impact of Victoria's technology sector, we estimate the sector's total economic impact to be of \$2,652,746,304.81.