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LABOUR TRENDS IN THE BRITISH COLUMBIA TECHNOLOGY SECTOR

A BCTIA INITIATIVE

TECHTALENTBC

This document is intended to provide Highlights from the 2012 TechTalentBC study.

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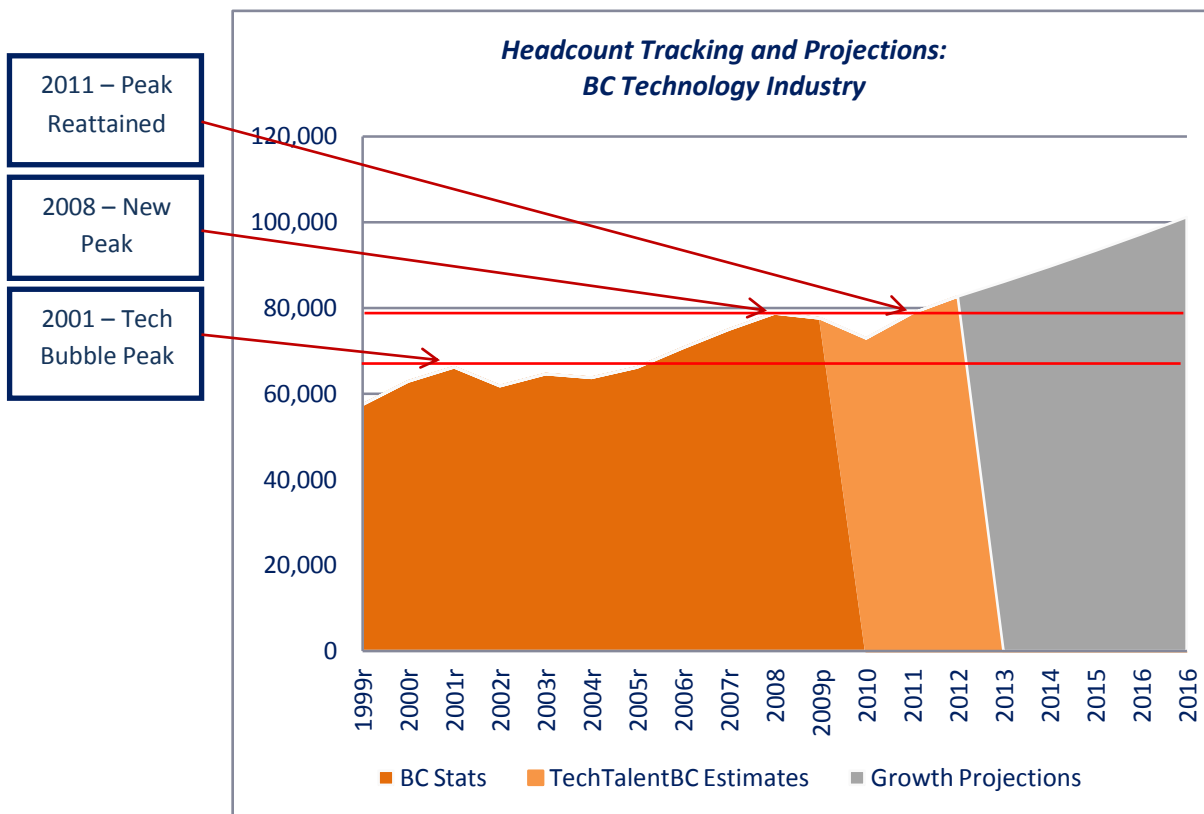
Highlights

TechTalentBC 2012

OVERVIEW

The TechTalentBC 2012 highlights summarize findings from the fourth wave of the BCTIA's TechTalentBC Labour Demand Study. This study is a follow-up to three previous waves released in 2007, 2008, and 2010.

As reported in the TechTalentBC 2010 study findings, a modest number of jobs were lost in 2009 as the downturn took hold, but it was expected that these jobs would be added back beginning in 2010, after which the industry might once again start to feel the effects of a tightening labour market in 2011. This growth would depend on a number of factors, including the growth in labour supply during the same period and the ability of companies to retain the great talent that they acquired during the downturn.

Following a stronger than expected rebound in 2011, the BC technology industry appears optimistic about its future prospects. However, this optimism is tempered by a number of concerns, most notably that troubles in Europe will prolong the economic recession in the US, which is the industry's primary export market.

> The 2012 TechTalentBC study comprised an online survey of technology companies across BC, using the broad definition of the technology sector provided by the Province of BC via BC Stats. With the 2007, 2008, and 2010 waves providing a baseline, the current study includes a sample that reflects the entire BC technology industry, except for the motion picture and post-production sector.
>
> The survey was supplemented by in-depth interviews with senior executives and HR professionals across a breadth of BC technology companies. For further discussion of the study methodology, please see ***Appendix I: Project Methodology***.

Headcount Tracking and Projections: BC Technology Industry

2011 – Peak Reattained

2008 – New Peak

2001 – Tech Bubble Peak

Year	Value
120,000	
100,000	
80,000	
60,000	
40,000	
20,000	
0	

1999r 2000r 2001r 2002r 2003r 2004r 2005r 2006r 2007r 2008 2009p 2010 2011 2012 2013 2014 2015 2016 2016

■ BC Stats ■ TechTalentBC Estimates ■ Growth Projections

As predicted, the industry did recover its headcount, particularly after strong growth in 2011, with respondent companies adding 12.5% to their total headcount. However, experiences of a tightening labour market are mixed. This suggests that the supply of talent has continued to grow and that progressive companies are doing a good job of retaining existing talent and attracting new talent.

The TechTalentBC study only collects data from survivor companies; the instruments used do not collect data from companies that shut down their operations during the last reporting period. Therefore, only the growth of companies that survived the last reporting period or were created within that timeframe is reflected in the study findings. However, it is useful to develop an understanding of the strategies and tactics (and lucky bounces) that have benefited successful companies.

THE 3RS: THREE THEMES FROM TECHTALENTBC 2012

During our analysis of the 2012 TechTalentBC results, three significant themes emerged, henceforth referred to as the 3 Rs:

1. Resilience
2. Realistic (cautious) optimism
3. Retention and recruitment (in that order)

RESILIENCE:

As predicted by the 2010 TechTalentBC study, the industry has added back jobs lost during the recession and is once again growing and achieving new levels of employment (and likely revenues as well). In the last year (from September 1, 2010, to September 1, 2011), respondent companies experienced significant growth, adding 12.5% on average to their headcounts.

Although respondents collectively predict their growth for the next year (September 1, 2011, through September 1, 2012) at a more conservative rate of 5.5%, this will still require 3,000 to 4,000 new jobs province-wide.

Better Preparation for the Downturn

The fairly abrupt return of the BC technology industry to its previous employment peak underscores the resilience of knowledge-based industries. As observed by 2010 study participants, "cycles happen." Economic downturns are inevitable; it is how companies prepare for these downturns, and how they strategize through them, that matters.

The 2010 study findings suggested that because of their experience with the tech bubble in the early 2000s, technology companies were better prepared for the economic downturn than those in many other industries. Evidence from the current study appears to support this hypothesis.

Mixed Reports on Talent Crunch

When asked whether or not they felt a labour shortage (talent crunch) was emerging, respondents reported mixed experiences, including the following:

- Some jobs, such as software engineer, are in greater demand than others, and are therefore experiencing a tighter market.

- Companies that have done a good job at building a brand in the community have skilled workers seeking them out, and thus have a greater supply to choose from, which reduces the relative tightness of their markets.

- Companies that have worked to improve employee retention assert that their efforts are paying off; they aren't seeing a labour shortage to the same degree as their colleagues who have not made retention a priority.

These findings suggest that although a talent crunch is emerging, it is still early days.

New supply to the BC technology labour market over the past two years has enabled the industry to reach a new height while minimizing the effects of the talent crunch. Sources of talent include:

- Net migration from other parts of Canada
- Net migration from other parts of the world
- Migration of talent from other industries
- New graduates from universities and colleges
- Older workers staying in the workplace longer than originally anticipated

Technology employees tend to have shorter tenures with companies than their counterparts in other industries. Therefore, a considerable amount of movement within the industry is normal. This movement (which one respondent referred to as "musical chairs") can obscure the tightening of the labour market to some degree.

Significance of Freelance Talent

In addition to approximately 8,100 companies in the BC technology industry at the end of 2009 (not including those in film and TV production and post-production), there were 16,549 sole entrepreneurs.[1] The vast majority (85%) of these sole entrepreneurs are true freelancers who split their work between two or more clients annually (and thus are not simply contract employees). Several freelancers also sub-contract to others, improving the vibrancy of this labour market segment. Furthermore, many of these sole entrepreneurs (62%) intend to hire FTEs within the next two years, turning their freelance businesses into true micro-businesses.

As indicated by the numbers reported in the BC Stats Profiles of the British Columbia High Technology Sector series, the freelance market is growing countercyclically – in other words, this market is growing when the sector experiences a downturn. This is evident in the fact that at the end of 2007 (in the run-up to the industry's peak level of employment and its tight labour market), the BC technology industry had 12,789 sole entrepreneurs, whereas by the end of 2009, one year into the downturn, this number had grown to 16, 549 (an increase of 3,760).

The countercyclical aspect of the freelance market suggests that when employees are laid off from technology companies, they aren't unemployed for long. This is a key aspect of the industry's resiliency, and something that sets the technology sector apart from other industries. Unemployed technology workers tend to start freelancing soon after they are laid off, or in some cases, they start their own companies.

Creation of New Companies

In keeping with the countercyclical trend for freelance talent, the technology industry creates companies and hires employees during a downturn. Overall, 3.3% of respondents' companies (1 in 33)

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[1] *Profile of the British Columbia High Technology Sector: 2010 Edition*, BC Stats, 2011, Table 21, Page 51

were founded during the recent recession. An additional 6.1% of respondents (1 in 16 companies) were created during 2002 and 2003, in the trough following the tech bubble.

Return of Research and Development

The changes in many job categories reflect the collective strategies deployed by companies as they prepared to weather the economic downturn, or a cycling back toward a more normal steady state.

In the 2010 wave, several companies stated that they were cutting back on their R&D efforts in order to focus on sales. This had the effect of comparatively reducing the demand for R&D jobs while increasing the growth rate for sales and marketing positions. Correspondingly, R&D positions now appear to be in demand again, while the relative growth in sales and marketing positions has been reduced. However, these positions are still significant due to the absolute numbers of employees required.

Similarly, whereas companies appear to have run with leaner management teams during the recession, greater demand for executives is expected in 2012.

Servicing Past Sales

The general focus on sales during the downturn helped many respondent companies achieve the growth needed to sustain them, even if that growth meant keeping revenues relatively flat and preventing them from declining. Therefore, although the labour demand forecast indicates a greater requirement for technical managers to support R&D in 2012, it is also showing a need for additional technical managers to support implementations and operations, as well as general and technical customer service staff to serve newly acquired customers.

Move to B2C Skill Sets

Among the more interesting observations is that although demand remains relatively stable for specific job categories, requirements for new skillsets within these job categories are emerging. Specifically, a shift in the industry toward mobile and social computing is creating a requirement for skillsets that are more in line with Business-to-Consumer (B2C) models than the traditional Business-to-Business (B2B) models.

While only reported in the qualitative part of the study, the shift in skillsets appears to have the most significant effects on business-oriented jobs such as marketing, product management, customer service, and senior management. As for technically-oriented jobs, the shift appears to affect positions such as business analyst, as well as senior technology strategy positions such as CTO.

REALISTIC OPTIMISM:

Although companies are generally optimistic about 2012, this optimism appears to be somewhat cautious. In addition to reporting mixed experiences with regard to the talent crunch, respondent companies cite varying perceptions of the business environment even while they remain bullish on their own prospects.

There is some concern that the current troubles in Europe could lead to another slowdown or even a double-dip recession. However, most respondents do not feel that continued troubles in Europe will affect them significantly. Given that only a few BC technology companies sell to Europe, the real impact from Europe's troubles would be a continued drag on the US economy, which is still the major export market for many of BC's technology companies.

No Specific Preparations Being Made

Despite some concerns, most companies have not made any special efforts to prepare for another downturn, either believing that:

- the strategies they deployed for the last downturn will continue to sustain them; or,
- they are largely immune to a potential downturn due to their niche markets (i.e., energy) or their current growth trajectories.

Despite a lack of plans, a few respondents did express a fear of being drowned by a second wave of recession. In these cases, respondents feel that their companies have been significantly weakened by the recession, such that if another wave comes too soon (or is too large), they may not survive.

Access-to-Capital Important for Talent

Insufficient access-to-capital continues to plague the BC technology industry. As seen in the 2010 TechTalentBC study, those companies that were able to raise capital during the good years were best positioned to push through the slowdown because they had the cash necessary to survive. As capital markets have been dismal for the past two to three years, few companies have been able to raise significant rounds of investment in order to stockpile cash for the next rainy day. This presents a systemic risk to BC's technology industry.

RETENTION AND RECRUITMENT:

For many respondents, retention is the new recruitment. More progressive companies appear to be transitioning their recruitment and retention efforts, often with a focus on minimizing turnover so that they won't need to recruit.

- Companies worked hard to keep their best people during the downturn. In some cases this even meant trimming hours to effectively reduce wages.

- For many companies, wages have continued to increase during the downturn, improving compensation as required.

- Cultural changes are occurring to facilitate "meaningful work" for employees. Companies such as Google have influenced the market to an extent that other companies are adopting similar policies (for example, providing company time for employees to work on their own innovative projects).

- Companies are more likely to mention brand-building efforts as a way of attracting jobseekers. They are also more likely to seek new recruits via their social networks.

BC-based academic institutions appear to be producing good "generalist" graduates. However, several companies cite the need for further on-the-job training to compensate for new graduates' lack of work experience, and assert that more work could be done with co-operative education and internships to increase the job-readiness of new grads.

The majority of recruitment still takes place in BC, although, as was noted in previous studies, companies do search globally for the specific world-class technical talent they require.

JOB GROWTH

The Labour Demand Profile portion of the TechTalentBC study asks respondents to identify, on a category-by-category basis, the number of employees they expect to hire in each category between September 1, 2011, and September 1, 2012. Job categories include both business and technical positions, and for most jobs they provide granularity with respect to the experience level required – junior, intermediate, or senior. The number of anticipated jobs has been extrapolated to reflect expectations for the broader market.

Job category growth can be viewed in two ways – by the absolute number of jobs created within a category and by the relative growth of a given category. Both should be considered when analyzing the labour market. In some cases, such as executive management, growth might be small from a relative perspective but because all companies have executives, the actual number of jobs may be comparatively large. By contrast, when viewing emerging job categories, relative growth may be high (making the category worth watching), while the actual numbers of jobs required might still be low due to the small base.

JOB CATEGORIES WITH GREATEST DEMAND (ABSOLUTE GROWTH)

The top 10 job categories account for the majority of overall growth. This is partially attributable to the fact that the majority of these functions can be found in most technology companies, which ensures that there is a large base of jobs in these categories.

TOP 10 JOB CATEGORIES – BY ABSOLUTE GROWTH (#S OF REQUIRED POSITIONS)

	2012 RANK	2012 GROWTH		2010 RANK	2010 GROWTH	RANK CHANGE
Total Software Engineer	1	433		1	235	0
Total Customer Support (General)	2	432		17	23	15
Business Development, Sales, and Sales Management	3	323		3	192	0
Total Hardware Engineer	4	288		14	55	10
Total Customer Support (Technical)	5	227		6	124	1
Technical Managers	6	197		24	-48	18
Project Managers	7	187		4	183	-3
Total Technician/Technologist	8	167		2	207	-6
Executive Management	9	158		7	112	-2
Total HW/SW Testing	10	133		11	67	1
TOP 10 JOB CATEGORIES TOTAL		2,545			1,150	

- Software engineer continues to be the number one growth category for a number of reasons:

    o The historical dominance of information and communications technologies within the BC technology sector
    o The fact that these jobs tend to demand fresher skills such as new programming languages and techniques

- A reliance on software as the core of much of the innovation, including control systems in advanced manufacturing and clean technology
- The positioning of software engineer as the beginning of a number of career paths in technology, creating upward mobility that requires continual replacement of the workforce

- One job category that has grown significantly is customer service, both general and technical positions. The hypothesis behind this growth is that companies focused on sales during the downturn and are now staffing to support the sales they acquired.

- Technical management positions are also in high demand because sales made during the downturn now require support for implementation, integration, or stronger internal systems.

JOB CATEGORIES WITH GREATEST GROWTH (RELATIVE GROWTH)

As in 2010, customer support is among the categories with the highest anticipated relative growth.

TOP 10 JOB CATEGORIES – BY RELATIVE GROWTH (% GROWTH OF JOB CATEGORY)

	2012 RANK	2012 GROWTH		2010 RANK	2010 GROWTH	RANK CHANGE
Total Environmental Engineer	1	72.0%		12	15.8%	11
Total Customer Support (General)	2	59.1%		20	2.7%	18
Program Managers	3	57.8%		1	27.1%	-2
Total Engineer (Other)	4	50.9%		25	-15.8%	21
Total HW/SW Testing	5	30.5%		13	13.7%	8
Total Analyst	6	27.4%		5	18.4%	-1
Product Managers	7	26.8%		4	20.3%	-3
Marketing and Marketing Management	8	23.8%		3	21.5%	-5
Total Mechanical Engineer	9	23.7%		10	16.1%	1
Total Hardware Engineer	10	22.4%		6	17.9%	-4

- One of the most notable areas of growth is that of environmental engineers. Given BC's emerging reputation as a clean technology centre, this is not surprising. However, a small sample size means that this category may be a statistical outlier, so caution should be used in interpretation.

- Reflecting a return to research and development, the growth in program managers is also significant. This was already a high-growth area as indicated by the 2010 study, and its anticipated growth rate has since doubled. This suggests that companies may be maturing in their approach to R&D by implementing better internal systems and methodologies.

Most Essential Positions to Hire

Participating companies were also asked to provide the job title and some facts about the one position that they felt was most important for their companies to fill.

Generally, the top essential positions listed by companies tend to align with the top 10 job categories listed in the Labour Demand Profile. However, there are some subtle but important differences.

Q. What is the job title of the single most important job position your company is trying to fill today, or will attempt to fill next?

Position	Count
Specialty Technician/Technologist	14
Other Engineer	12
CTO / CSO / VP R&D	11
Software Engineer	10
Sales	10
Business Manager	8
Sales Manager	7
Project / Implementation Manager	7
Finance and Administration	6
Marketing Manager	5
Customer Service	5
Business Analyst	2
Other	1

■ Count

- Reflecting a renewed focus on R&D, the top four positions are technical in nature, starting with specific technical domain expertise (engineers and technicians and technologists), senior R&D staff , and software engineers.

- Sales and senior management are the next-most important jobs that the majority of BC technology companies are attempting to fill. As can be seen elsewhere in the current study, these trends suggest that companies were keeping their management teams lean during the downturn, but are now feeling sufficiently comfortable to fill those positions.

Barriers to Recruitment

To develop an understanding of recruiting challenges, companies participating in various waves of the TechTalentBC study were asked to identify the greatest barriers to recruitment in BC.

Q. In your experience, what are the key barriers to recruitment in BC?
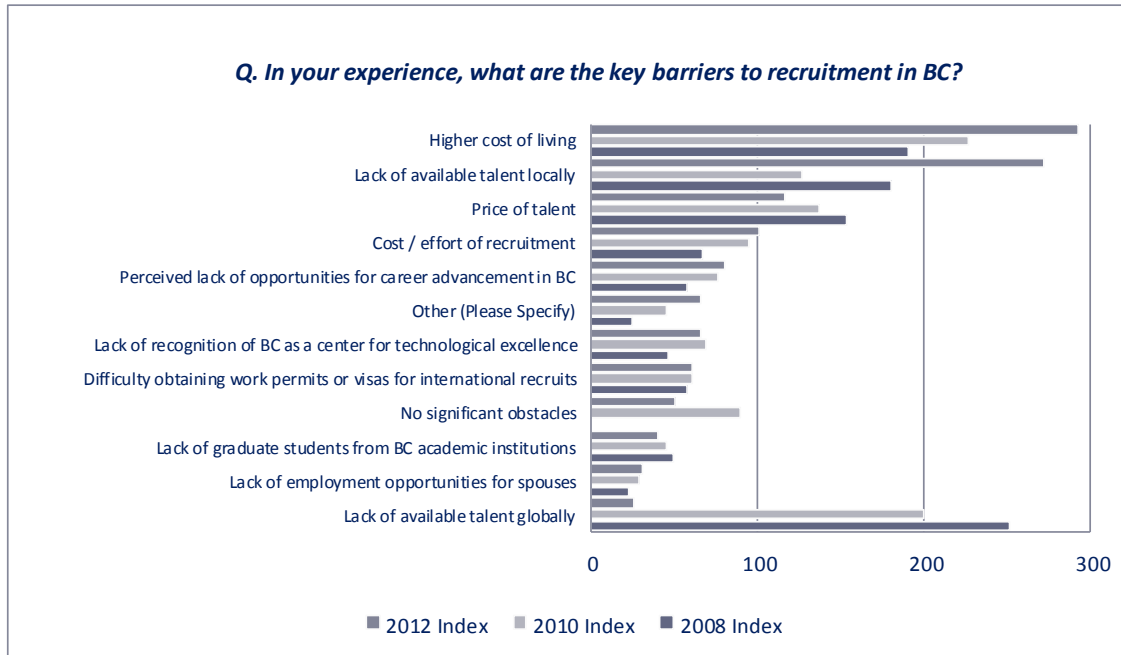
- The cost of living, particularly the cost of housing, is a key barrier to recruiting people to BC, particularly from the rest of Canada. This issue continues to rise in relative proportion to the other barriers.

- The second-most-frequently cited barrier to recruitment is the lack of available local talent. While the relative importance of this issue subsided during the 2010 wave, it is rising again. This barrier is often cited by companies requiring unique technical talents that can only be obtained via a global search.

- The lack of available global talent, a commonly cited barrier to recruitment in the 2008 and 2010 studies, has dropped off significantly, suggesting there is now a large pool of accessible talent outside of Canada.

Engagement of Academic Institutions

To understand if and how BC technology companies might be extending their talent reach using BC's academic resources, the TechTalentBC study has incorporated questions on the sponsorship of research, participation in co-operative education programs, and the utilization of graduate interns. In 2010, an additional question was asked to determine how many recent hires had been previous interns or co-op students.

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- The response rate for this section was relatively low (27 respondents in 2012), consistent with past studies, suggesting that engagement with the academic community is still quite low.

- 27 companies indicated that they sponsored co-op students between September 1, 2010, and September 1, 2012, with the number of positions sponsored ranging from 1 to 25, supported by a cumulative budget of $2.7 million. Collectively, these 27 companies sponsored 99 co-op students.

- Demand for graduate students appears to be significantly lower than that for undergrads, with only 7 companies reporting that they sponsored a total of 19 graduate interns in the past 12 months. This amounted to 1 or 2 intern positions per company, down from a maximum of 9 in 2008. The cumulative budget for these positions extended to only $95,000.

- While use of the Internet is low among the 2012 respondents, 13 companies did report sponsoring a total of 22 research projects at post-secondary institutions, committing $475,000 in funds collectively. Similarly, 2 respondents reported sponsoring research chairs.

- Overall, 35 respondent companies stated that they have hired a total of 84 former co-op students and interns in the past 12 months, illustrating that while the programs have a low utilization, they can be a significant source of new talent.

Building Existing Talent through Training

Due to the importance of knowledge to the technology industry, companies were also asked to report on their investments in continued training for their employees.

- The vast majority of respondent companies (87%) report allocating a portion of their salary budget to support training for FTEs.

- Just under half of companies that invest in training allocate less than 2% of their salary budget to training, while 13% report spending between 4% and 5%.

- Training does appear to be one area where budgets were cut during the downturn. However, it is expected that training will increase again as companies feel more comfortable about the future and look for ways to retain and grow their talent base.

RECOMMENDATIONS

1. Employee Retention Strategies

BC technology companies need to seriously consider strategies for retaining their employees as the market heats up in 2012 and beyond. Retention strategies are particularly crucial for companies that were fortunate enough to acquire high-end talent without the traditional wage premium during the downturn.

In addition to the traditional strategies of salary, benefits, and equity, companies need to consider intangibles, including organizational culture, the provision of "meaningful work," and unique benefits such as time for employees to explore their own projects.

2. Build Local Talent Brands

Companies in BC looking to hire in the next 12 to 24 months should develop plans to build their local talent brands. As seen in this wave, even if companies do not sell into the BC marketplace, awareness in the local market is crucial to attracting top talent.

3. Undertake Supply-Side Research

While the current TechTalentBC research looks at the demand side of the market, additional work must be undertaken to review the supply side. In particular, research is required to develop an understanding of the dynamics that will determine the severity of the talent crunch, including:

- Under-employment issues and opportunities for redress
- Prospects for internal advancement
- Retirement and succession plans
- Awareness and desirability of BC as a destination for talent
- Understanding of career paths to improve the quality and quantity of management talent

4. National and International Recruitment Programs

The governments of Canada and BC, and the BC technology industry, need to re-institute attraction programs that will encourage talented employees to locate in Canada. Talent could be drawn from the rest of Canada, from international sources, or a combination of the two. At a minimum, the governments need to establish Canada (and BC in particular) as a destination for talent, and encourage knowledge workers to find their way here.

5. Continue to Focus on Talent and Capital

Governments at all levels, with encouragement and assistance from the BCTIA, need to stay focused on the key elements of talent and capital in order to continue building an innovation economy here in BC.

As seen in the results of this study, in addition to helping companies attract and retain world-class talent, ensuring that they are adequately capitalized gives them the resilience needed to weather the inevitable storms.

Labour Demand Forecast

HEADCOUNT OVERVIEW

TechTalentBC study respondents were asked to estimate the aggregate number of FTEs that they **employed in BC** as of September 1, 2011, and to predict the number they expected to employ by September 2012. The difference between the two is the growth (or decline) for each category.

FTE Count – 2012 Wave

RESPONSE	TOTAL	GROWTH
2010	7,962	
2011	8,955	993 (+12.5%)
2012 (Expected)	9,449	494 (+5.5%)

Almost half of the companies (46.9%) reported headcount gains between September 1, 2010, and September 1, 2011, and collectively the respondents averaged a headcount growth of 12.5% during that period. Although growth predicted for 2012 (September 1, 2011, through September 1, 2012) is a relatively modest 5.5%, almost two out of every three respondents (62.6%) expect to grow their headcounts in the near future.

Adding or Losing FTEs

Based on experience from previous waves of the TechTalentBC study, we know that the headcount prediction is typically an optimistic projection. Companies tend to assume that they will hit their milestone growth targets and be able to obtain the talent they require in a timely fashion when they need it.

With a base of approximately 77,520 technology jobs at the end of December 2009 (the most recent figures available from BC Stats), a growth of 5.5% extrapolates to approximately 4,260 net new jobs in the industry. While this number is effectively the best-case scenario for growth, it is also an important indicator of confidence in both the prospects for individual companies and the industry as a whole (for the purposes of the this report, the authors expect that the actual headcount to be added will be closer to 3,000 jobs, but this is still a significant number for an industry that has already reached a new peak for employment).

RESPONSE	2011 (N)	2011 (%)		2012 (N)	2012 (%)
Added/Adding FTEs	84	46.9%		112	62.6%
No Change	64	35.8%		57	31.8%
Decreased/Decreasing FTEs	31	17.3%		10	5.6%
Total	179	100.0%		179	100.0%

MANAGEMENT POSITIONS

General Management

Respondents collectively indicated that they expect all general management job categories to grow over the following year, in this case by a healthy 18% overall. Extrapolated to the general industry, this equates to the creation of more than 1,000 (1,069) new general management positions in the next year. In total, job growth within the general management category is expected to comprise approximately one-fourth of all jobs created in 2012.

The job categories with the highest predicted relative growth (growth compared to the size of their categories) are program managers (58%), followed by business development managers (34%), marketing managers (32%), and product managers (27%). Although technical manager and executive management are only predicted to grow by 12% and 8% respectively in 2012, actual growth is likely to be 197 jobs and 158 jobs respectively due to the large size of these categories. The project manager category will also require a large number of new employees in 2012.

The following are key implications of the 2012 TechTalentBC findings with regard to projected general management demand:

- Respondents held back on growing their management teams during the recession, choosing instead to run lean and focus their resources in other areas.

- The growth in technical managers, program managers, and project managers suggests that companies are once again ramping up their research-and-development efforts, a significant sign of optimism.

	GROWTH 2012 (%)	GROWTH 2012 (FTES)		COMPARE 2010 (%)	COMPARE 2008 (%)
Executive Management	8.4%	158		6.8%	8.8%
Marketing Managers	31.6%	101		26.5%	26.2%
Sales Managers	26.8%	106		21.9%	43.0%
Business Development Managers	34.3%	108		9.0%	*
Project Managers	21.8%	187		22.7%	38.0%
Program Managers	57.8%	133		27.1%	19.4%
Product Managers	26.8%	79		20.3%	44.0%
Technical Managers	11.9%	197		-3.2%	21.7%
GENERAL MANAGEMENT TOTAL	18.0%	1,069		10.3%	23.1%
					*Not measured in 2008 wave.

Specialty Management

Specialty management positions show some of the lowest forecasted growth rates for 2012, both in terms of relative and absolute numbers of jobs. However, because many of these jobs are only applicable to a few companies within the technology sector, and many of these functions are outsourced to other professionals, a low growth rate in this category is not surprising (for more on the outsourcing nature of these positions, see section of this report entitled **Sole Entrepreneurs**).

	GROWTH 2012 (%)	GROWTH 2012 (FTES)		COMPARE 2010 (%)	COMPARE 2008 (%)
Regulatory/Clinical Affairs	17.9%	11		4.1%	7.9%
Licensing Management	25.0%	9		0.0%	7.2%
Intellectual Property Management	1.5%	1		5.7%	60.3%
Supply Chain Management	2.1%	7		12.1%	16.6%
SPECIALIST MANAGEMENT TOTAL	5.6%	28		10.1%	18.9%

MARKETING, SALES, BUSINESS DEVELOPMENT, AND CUSTOMER SERVICE AND SUPPORT

Marketing

In line with previous studies, marketing personnel continue to be in high demand, both in the relative and absolute numbers of jobs required. However, as can be seen in many of the labour demand categories in 2010 and 2012, the projected growth is about half that seen in the 2008 study.

	GROWTH 2012 (%)	GROWTH 2012 (FTES)		COMPARE 2010 (%)	COMPARE 2008 (%)
Marketing Managers	31.6%	101		26.5%	26.2%
Product Managers	26.8%	79		20.3%	44.0%
Marketing – Entry	20.0%	25		30.4%	49.9%
Marketing – Intermediate	19.3%	47		15.5%	51.9%
Marketing – Senior	18.6%	32		19.5%	32.9%
MARKETING TOTAL	19.2%	104		19.5%	43.8%

Sales and Business Development

As a job category, business development was broken out from sales for the first time in the 2010 study due to the differing skillsets often required for each position.

BC's technology industry will require 158 FTEs in sales and business development in 2012, with the highest forecasted growth in demand for business development managers (34.3%), followed by sales managers (26.8%).

As for general sales personnel, anticipated growth at the entry level is relatively flat at 2.2%. The most significant growth is found at the opposite end of the spectrum, with a 20.3% increase in demand for senior sales personnel, representing 90 additional positions. Overall, growth in the sales category has decreased since 2010, with the exception of a rebound in demand for intermediate sales personnel in 2012.

	GROWTH 2012 (%)	GROWTH 2012 (FTES)		COMPARE 2010 (%)	COMPARE 2008 (%)
Sales Managers	26.8%	106		21.9%	43.0%
Business Development Managers	34.3%	108		9.0%	
Sales – Entry	2.2%	4		31.8%	49.6%
Sales – Intermediate	13.9%	65		2.2%	35.0%
Sales – Senior	20.3%	90		30.0%	29.0%
SALES AND BUSINESS DEVELOPMENT TOTAL	**14.8%**	**159**		**18.6%**	**34.9%**

Customer Service and Support – General and Technical

One of the areas in which significant growth is anticipated for the 2012 wave is customer service – both general and technical. While this was an area of relatively low growth in the 2010 wave, particularly general customer service, it has rebounded strongly.

The growth in this job category suggests that companies were successful in their focus on sales during the downturn, and must now rebalance their efforts to provide adequate care and support for the clients they acquired.

	GROWTH 2012 (%)	GROWTH 2012 (FTES)		COMPARE 2010 (%)	COMPARE 2008 (%)
Customer Support (General) – Entry	17.1%	25		0.0%	32.7%
Customer Support (General) – Intermediate	74.8%	299		1.8%	12.5%
Customer Support (General) – Senior	58.8%	108		6.9%	11.9%
TOTAL CUSTOMER SUPPORT (GENERAL)	59.1%	432		2.7%	15.9%
Customer Support (Technical) – Entry	28.6%	58		64.0%	29.1%
Customer Support (Technical – Intermediate	20.2%	126		8.2%	23.5%
Customer Support (Technical) – Senior	12.9%	43		12.2%	14.6%
TOTAL CUSTOMER SUPPORT (TECHNICAL)	19.6%	277		17.2%	22.9%
CUSTOMER SERVICE AND SUPPORT TOTAL	**34.9%**	**921.6**			

TECHNICAL DEVELOPMENT – HARDWARE, SOFTWARE, AND NETWORKS

Almost one-third (30.9%) of the overall headcount growth for 2012 is expected to come from technical development positions within hardware, software, and network development. While this demand is not surprising given BC's historical strength in information and communications technologies, it does reflect a significant shift back into R&D for the industry – a very positive sign of confidence.

	GROWTH 2012 (%)	GROWTH 2012 (FTES)		COMPARE 2010 (%)	COMPARE 2008 (%)
Technical Managers	11.9%	197		-3.2%	21.7%
Program Managers	57.8%	133		27.1%	19.4%
Project Managers	21.8%	187		22.7%	38.0%
TOTAL TECHNICAL DEVELOPMENT MANAGEMENT	18.9%	517		7.9%	27.6%
Analyst – Entry	58.3%	25		22.2%	80.0%
Analyst – Intermediate	30.6%	40		14.9%	50.0%
Analyst – Senior	15.2%	22		22.8%	28.1%
TOTAL ANALYSTS	27.4%	87		18.4%	38.2%
HW/SW Testing – Entry	63.6%	25		20.3%	17.5%
HW/SW Testing – Intermediate	22.2%	61		15.6%	30.7%
HW/SW Testing – Senior	38.2%	47		6.4%	13.2%
TOTAL HW/SW TESTING	30.5%	133		13.7%	21.9%
Quality Assurance – Entry	35.6%	58		24.0%	
Quality Assurance – Intermediate	6.0%	18		23.7%	23.3%
Quality Assurance – Senior	-4.5%	-18		3.2%	
TOTAL QUALITY ASSURANCE	6.7%	58		16.1%	23.3%
Hardware Engineer – Entry	42.4%	90		37.5%	23.8%
Hardware Engineer – Intermediate	26.9%	155		22.0%	31.4%
Hardware Engineer – Senior	8.7%	43		10.6%	20.6%
TOTAL HARDWARE ENGINEER	22.4%	288		17.9%	26.2%
Systems/Operations (HW/SW/NW) – Entry	15.4%	7		14.8%	29.5%
Systems/Operations (HW/SW/NW) – Intermediate	11.6%	40		-39.2%	20.6%
Systems / Operations (HW/SW/NW) – Senior	19.0%	29		12.6%	13.1%
TOTAL SYSTEMS/OPERATIONS	14.0%	76		-11.8%	19.9%
Software Engineer – Entry	37.5%	108		27.3%	43.1%
Software Engineer – Intermediate	22.2%	221		28.2%	43.3%
Software Engineer – Senior	7.3%	104		-15.3%	29.0%
TOTAL SOFTWARE ENGINEER	16.1%	433		11.3%	37.4%

Multimedia Developer – Entry	87.5%	25		35.7%	20.7%
Multimedia Developer – Intermediate	7.0%	14		31.0%	50.0%
Multimedia Developer – Senior	22.7%	36		-20.0%	44.4%
TOTAL MULTIMEDIA DEVELOPER	19.3%	76		7.2%	44.0%
TECHNICAL DEVELOPMENT – SOFTWARE, HARDWARE AND NETWORKS	17.6%	1151		8.1%	30.8%

The following are some key highlights from the TechTalentBC findings:

- The greatest expectation of growth in terms of overall headcount is found in the software engineers category, particularly at the intermediate level (433 FTEs are required overall, 221 of which should be intermediate).

- As for percentage growth, skills that will be in high demand include entry-level multimedia developers (87.5%), entry-level hardware-software testing professionals (63.6%), and entry-level analysts (58.3%).

- Demand remains high for project managers and program managers, particularly as companies begin to ramp up their R&D efforts again in 2012, and there has been an increase in demand for technical managers in recent years as well.

- Senior quality assurance personnel represent the only category for which decrease (-4.5%) rather than growth is anticipated.

Technical Development – Non-Hardware and Software

Increased demand is anticipated for nearly every non-hardware and software technical development skills category, in many cases far surpassing 2010 levels.

One of the largest shifts from 2010 to 2012 is the dramatic surge in projected demand for environmental engineers, particularly at the intermediate and senior levels. Total projected growth for this group dropped to a low of 15.8% in 2010, but rebounded to 72% in 2012. Projected growth in demand for intermediate-level environmental engineers soared from 11.1% in 2010 to 88% in 2012. As for senior engineers, anticipated demand increased nearly five-fold from 12.5% to 60% during the same timeframe.

The 2012 study also identified a significant increase in the projected demand for electrical engineers, particularly at the intermediate level. Whereas demand for intermediate-level electrical engineers declined by 22.2% in 2010, it is projected to increase by 22% in 2012. In addition, the anticipated growth rate has more than tripled for entry-level electrical engineers.

After flattening to zero in 2010, projected demand for intermediate- and senior-level scientists has rebounded to 19%, though it has not yet recovered to 2008 levels.

	GROWTH 2012 (%)	GROWTH 2012 (FTES)		COMPARE 2010 (%)	COMPARE 2008 (%)
Electrical Engineer – Entry	50%	22		16.7%	60.0%
Electrical Engineer – Intermediate	22%	18		-22.2%	15.8%
Electrical Engineer – Senior	5%	7		3.1%	38.5%
TOTAL ELECTRICAL ENGINEER	18%	47		-9.9%	31.6%
Mechanical Engineer – Entry	39%	25		21.4%	44.4%
Mechanical Engineer – Intermediate	25%	43		18.5%	25.3%
Mechanical Engineer – Senior	17%	29		3.3%	30.4%
TOTAL MECHANICAL ENGINER	24%	97		16.1%	29.4%
Production Engineer – Entry	22%	7		200.0%	54.8%
Production Engineer – Intermediate	25%	22		3.3%	8.9%
Production Engineer – Senior	5%	4		23.1%	8.5%
TOTAL PRODUCTION ENGINEER	17%	32		13.6%	13.9%
Civil Engineer – Entry	-	0		40.0%	31.3%
Civil Engineer – Intermediate	33%	4		9.1%	54.3%
Civil Engineer – Senior	0%	0		0.0%	24.1%
TOTAL CIVIL ENGINEER	13%	4		8.6%	33.8%
Environmental Engineer – Entry	71%	18		50.0%	66.7%
Environmental Engineer – Intermediate	88%	25		11.1%	50.0%
Environmental Engineer – Senior	60%	22		12.5%	20.8%
TOTAL ENVIRONMENTAL ENGINEER	72%	65		15.8%	35.7%
Technician/Technologist – Entry	33%	68		25.0%	35.0%
Technician/Technologist – Intermediate	15%	65		19.1%	21.8%
Technician/Technologist – Senior	8%	34		10.7%	9.3%
TOTAL TECHNICIAN	16%	167		17.2%	18.5%
Scientist – Entry	22%	7		25.0%	50.0%
Scientist – Intermediate	19%	18		0.0%	29.4%
Scientist – Senior	19%	18		0.0%	24.0%
TOTAL SCIENTIST	19%	43		2.4%	30.0%
TECHNICAL DEVELOPMENT POSITIONS (Non-HW/SW) TOTAL	19.9%	455		13.6%	18.5%

SOLE ENTREPRENEURS

As part of 2012 Labour Demand study, several questions were asked of sole entrepreneurs to determine whether they are predominantly true entrepreneurs and contractors or "contract employees" who spend the majority of their time with one employer, and as such are essentially FTEs at these client companies.

Micro-Businesses, Not Contract Employees

Findings from the 2012 study indicate that sole entrepreneurs are in fact true microbusinesses, not simply contract employees. Only one in seven (14.3%) sole entrepreneurs actually spend the majority of their time (more than 60%) working with just one client, while nearly eight in ten (78.6%) typically work for three or more clients in a given year. One entrepreneur cites having an active client base of several thousand.

Q. Which of the following best describes your business?

RESPONSE	2012 (N)	2012 (%)		2010 (%)	2008 (%)	CHANGE
The Majority of My Time (60% Or More) Is Contracted to One Major Client	4	14.3%		11.1	10.0%	⬆
My Time Is Typically Split Between Two Major Clients	2	7.1%		8.3%	0.0%	⬇
I Typically Work for Three or More Clients	22	78.6%		80.6	89.9%	⬇
Total	28	100.0%				

- As true micro-businesses, more than half (55.1%) of entrepreneurs sub-contract others to perform services for them. This includes nearly one-third (31%) of entrepreneurs sub-contracting to one or two FTEs annually, and nearly one in four (24.1%) sub-contracting services to more than three other FTEs annually.

Q. Do you currently sub-contract to other organizations or independent contractors?
(Please select the most correct answer)

RESPONSE	2012 (N)	2012 (%)		2010 (%)	2008 (%)	CHANGE
I Do Not Currently Sub-Contract to Others	13	44.8%		38.7%	NEW in 2010	⬆
I Sub-Contract 1 to 2 Other FTEs Annually	9	31.0%		45.2%	NEW in 2010	⬇
I Sub-Contract 3 to 5 Other FTEs Annually	6	20.7%		16.1%	NEW in 2010	⬆
I Sub-Contract 6 or More FTEs Annually	1	3.4%				⬆

Services Provided

As can be seen in the chart below, sole entrepreneur tasks run the gamut of business and professional positions, including many of the specialist positions cited earlier in the main Labour Demand Profile. The jobs tend to be desk-bound, reflecting the ability to work from home with minimal equipment requirements.

- Sole entrepreneurs tend to provide a variety of services to their clients, including both business

and technical services.

- Business services include product development, project management, marketing and PR, sales and business development, intellectual property management, technical writing, and general management consulting.

- Technical services provided by entrepreneurs include software development (including multimedia development and game design and development), technical writing and industrial design, IT support, and engineering services.

B2. As a sole entrepreneur, what types of services do you typically provide? (Choose all that apply)
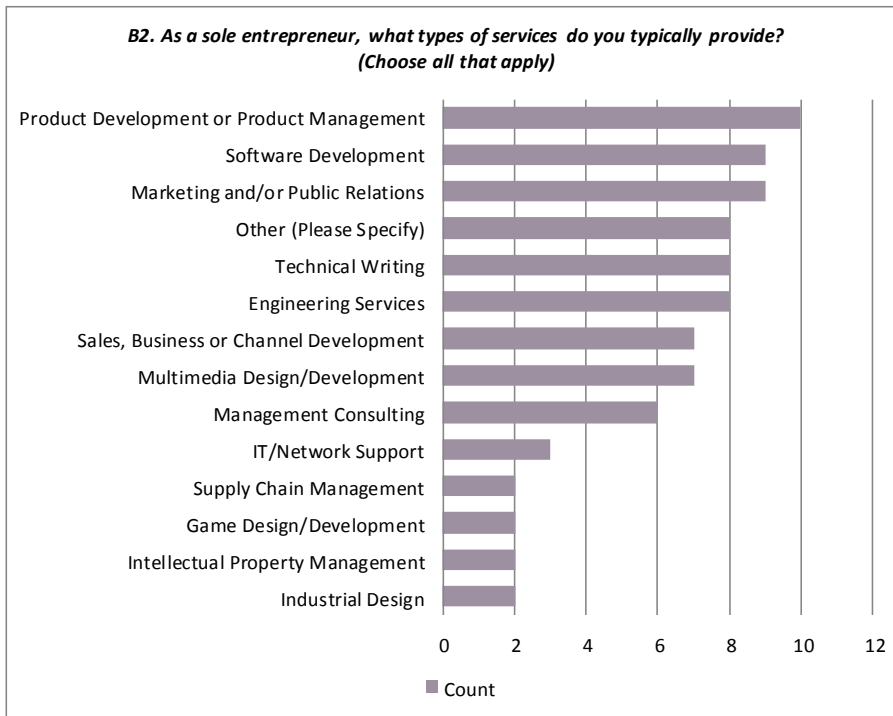
RESPONSE	2012 (N)	2012 (%)		2010 (%)	2008 (%)	CHANGE
Multimedia Design/Development	10	11.9%		13.2%	47.7%	↓
Marketing and/or Public Relations	10	11.9%		8.8%	30.8%	↑
Technical Writing	9	10.7%		11.8%	21.5%	↓
IT/Network Support	8	9.5%		7.4%	20.0%	↑
Product Development or Product Management	8	9.5%		5.9%	16.9%	↑
Engineering Services	7	8.3%		7.4%	15.4%	↑
Management Consulting	7	8.3%		13.2%	13.8%	↓
Sales, Business, or Channel Development	7	8.3%		7.4%	13.8%	↑
Intellectual Property Management	6	7.1%		4.4%	9.2%	↑
Software Development	3	3.6%		8.8%	7.7%	↓
Supply Chain Management	3	3.6%		4.4%	1.5%	↓
Game Design	2	2.4%		1.5%		↑

↑ Increase   ↓ Decrease   →No Change

Expectation to Hire Full-Time Employees

In line with many sole entrepreneurs being micro-businesses, nearly two-thirds of entrepreneurs expect to evolve their companies from sole entrepreneurships into organizations with employees during the next two years.

Q. Are you planning to hire any full-time employees within the next two years (24 months)?
(Please select the most correct answer)

RESPONSE	2012 (N)	2012 (%)		2010 (%)	2008 (%)	CHANGE
I Am Not Planning to Hire Full-Time Employees	11	37.9%		64.5%	55.0%	↓
I Am Planning to Hire 1 to 2 Full-Time Employees	11	37.9%		19.4%	29.0%	↑
I Am Planning to Hire 3 or More Full-Time Employees	7	24.1%		16.1%	15.0%	↑

APPENDIX I: PROJECT METHODOLOGY

The 2012 study is the fourth wave of the BCTIA's ongoing TechTalentBC Labour Demand study. It was implemented with a similar format to the 2007, 2008, and 2010 studies for consistency and ease of comparison. This study uses the broad definition of the BC technology industry provided by BC Stats, except that it does not include the motion picture and post-production sector.

Undertaken as a multi-modal research project, the study's primary mode was an online survey of CXOs and senior HR professionals at BC technology companies. To assist respondents, a fax-back option was provided to facilitate offline data collection. Follow-on in-depth interviews were also conducted with 15 CXOs and senior HR professionals to provide additional depth and context to the quantitative data analysis and to confirm hypotheses herein.

The quantitative survey was conducted from October 20 to November 21, 2011. An invitation to participate in the study was sent to 4,706 CXO and senior HR contacts at 2,993 companies across BC. Care was to taken to ensure that respondents were selected from a cross-section of technology sectors, vertical markets serviced, and geographic regions across BC.

Sample Validation

To validate the sample, the respondent dataset was compared to industry statistics provided by BC Stats in its *Profile of the British Columbia High Technology Sector - 2010 Edition*.

Although the sample of 179 respondents has a moderate skew toward more mature companies (including 30 sole entrepreneurs), the data collected appears to provide a good representation of the total technology community in BC.

	SAMPLE SEP 1, 2010	POPULATION [2] DEC 31, 2009
Total Number of Respondents (With FTEs)	149	6,952
Total Revenue (Past 12 Months)	$4.6B	$15.74B
Total Headcount	7,962	77,520
Average Number of Employees	58.4	9.53
Median Number of Employees	15	
Average Revenue	$30.4M	2.25M
Median Revenue	$1.4M	
Average Company Age	15 Years	

Collectively, respondent companies with employees represent $4.6 billion in revenue and had 7,962 employees on September 1, 2010. Effectively, this means that the respondent companies (with FTEs) account for approximately 29% of the industry's revenue and 10% of its headcount.

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[2] For more accurate comparison purposes, the figures provided by BC Stats for the Motion Picture and Post-Production sectors have been removed.

The sample appears to be skewed slightly toward larger, more mature companies, which can be seen in the average age of respondent companies (15 years), as well as their average size (58.4 employees), compared to the average of 9.5 employees cited by BC Stats. However, 50% of respondent companies reported having fewer than 15 employees (as indicated by the median size), suggesting a sufficient sample of smaller companies.

Because larger companies tend to grow more slowly than smaller companies (as was found in the previous waves), and they often suffered deeper cuts during the recession (as is indicated by the 2010 data), any extrapolation to the broader community should be a conservative reflection of growth. As such, the researcher and the BCTIA are comfortable extrapolating the data to the broad BC technology industry.

Concerns: Survivor Bias and Optimistic Projections

In the previous TechTalentBC studies it was recognized that companies were probably overly optimistic in their headcount projections. Achieving these targets typically requires that a company meet a number of corporate milestones including (but not limited to) financing, revenue growth, and the ability to find needed talent within the required timeframe. Where possible, conservatism is used in interpreting growth numbers to account for survivor bias and the inherent optimism of respondents.

Survivor bias is also recognized as a weakness of the study's methodology. By nature, companies that have recently ceased operations are excluded from the sample because they cannot be reached. Therefore, companies whose headcounts have been reduced to zero are undercounted in the study. Survivor bias has been of particular concern for the 2010 and 2012 waves owing to the economic pressures of the recession.

As TechTalentBC continues in future years, we expect further refinements in its ability to predict specific headcount demand.

TechTalentBC Labour Demand Profile

The core of the TechTalentBC study is the Labour Demand Profile, which asks companies to provide their current and projected headcounts by major business and technical job categories. These categories were defined in the 2006 Labour Demand study with assistance from the Information and Communications Technology Council.

Respondents were asked to provide their headcounts by category as of September 1, 2011, and their expected headcounts as of September 1, 2012. The aggregate difference between the two figures (adjusted for exuberance, as noted in the previous section) provides the projected growth for each category.

Although many organizations have national and global workforces, in order to keep the study focused, respondents were asked to only provide input on their BC-based employment.

The current Labour Demand Profile is based on the profile format used for previous waves of this study. Specific results can be found in *Appendix II: TechTalentBC Labour Demand Profile.*

APPENDIX II: TECHTALENTBC LABOUR DEMAND PROFILE

Job Category	2012 Growth (%)	2010 Growth (%)	2008 Growth (%)		2012 Growth (#)	2010 Growth (#)	2008 Growth (#)		Change
Executive Management	8.4%	6.8%	8.8%		158	112	120		↑
Marketing Managers	31.6%	26.5%	26.2%		101	73	49		↑
Sales Managers	26.8%	21.9%	43.0%		106	88	120		↑
Business Development Managers	34.3%	9.0%			108	24	0		↑
Project Managers	21.8%	22.7%	38.0%		187	183	280		→
Program Managers	57.8%	27.1%	19.4%		133	63	38		↑
Product Managers	26.8%	20.3%	44.0%		79	64	95		↑
Technical Managers	11.9%	-3.2%	21.7%		197	(48)	216		↑
Total Business Management	18.0%	10.3%	23.1%		1069	558	459		↑
Marketing – Entry	20.0%	30.4%	49.9%		25	39	34		↓
Marketing – Intermediate	19.3%	15.5%	51.9%		47	53	68		↑
Marketing – Senior	18.6%	19.5%	32.9%		32	40	45		→
Total Marketing	19.2%	19.5%	43.8%		104	131	74		→
Sales – Entry	2.2%	31.8%	49.6%		4	34	54		↓
Sales – Intermediate	13.9%	2.2%	35.0%		65	8	101		↑
Sales – Senior	20.3%	30.0%	29.0%		90	108	98		↓
Total Sales	14.8%	18.6%	34.9%		159	149	126		↓
Customer Support (General) – Entry	17.1%	0.0%	32.7%		25	-	53		↑
Customer Support (General) – Intermediate	74.8%	1.8%	12.5%		299	8	75		↑
Customer Support (General) – Senior	58.8%	6.9%	11.9%		108	15	21		↑
Total Customer Support (General)	59.1%	2.7%	15.9%		432	23	75		↑
Customer Support (Technical) – Entry	28.6%	64.0%	29.1%		58	60	149		↓
Customer Support (Technical) – Intermediate	20.2%	8.2%	23.5%		126	26	133		↑
Customer Support (Technical) – Senior	12.9%	12.2%	14.6%		43	38	61		↑
Total Customer Support (Technical)	19.6%	17.2%	22.9%		227	124	172		↑
Software Engineer – Entry	37.5%	27.3%	43.1%		108	83	92		↑
Software Engineer – Intermediate	22.2%	28.2%	43.3%		221	275	253		↓
Software Engineer – Senior	7.3%	-15.3%	29.0%		104	(123)	161		↑
Total Software Engineer	16.1%	11.3%	37.4%		433	235	253		↑
Multimedia Developer – Entry	87.5%	35.7%	20.7%		25	13	4		↑
Multimedia Developer – Intermediate	7.0%	31.0%	50.0%		14	23	31		↓
Multimedia Developer – Senior	22.7%	-20.0%	44.4%		36	(20)	27		↑
Total Multimedia Developer	19.3%	7.2%	44.0%		76	15	31		↑
Electrical Engineer – Entry	50.0%	16.7%	60.0%		22	1	5		↑
Electrical Engineer – Intermediate	21.7%	-22.2%	15.8%		18	(23)	5		↑
Electrical Engineer – Senior	5.3%	3.1%	38.5%		7	3	14		↑
Total Electrical Engineer	17.8%	-9.9%	31.6%		47	(19)	12		↑*

↑ Increase ↓ Decrease → No Change (±10%)

Job Category	2012 Growth (%)	2010 Growth (%)	2008 Growth (%)	2012 Growth (#)	2010 Growth (#)	2008 Growth (#)	Change
Hardware Engineer – Entry	42.4	37.5%	23.8%	90	15	8	↑
Hardware Engineer – Intermediate	26.9	22.0%	31.4%	155	23	42	↑
Hardware Engineer – Senior	8.7	10.6%	20.6%	43	18	23	↓
Total Hardware Engineer	22.4%	17.9%	26.2%	288	55	36	↑*
Mechanical Engineer – Entry	38.9	21.4%	44.4%	25	8	13	↑
Mechanical Engineer – Intermediate	24.5	18.5%	25.3%	43	58	31	↑
Mechanical Engineer – Senior	17.0	3.3%	30.4%	29	3	27	↑
Total Mechanical Engineer	23.7%	16.1%	29.4%	97	68	35	↑
Production Engineer – Entry	22.2	200.0%	54.8%	7	5	91	↓†
Production Engineer – Intermediate	25.0	3.3%	8.9%	22	3	54	↑
Production Engineer – Senior	4.8	23.1%	8.5%	4	8	59	↓
Total Production Engineer	16.7%	13.6%	13.9%	32	15	102	↑*
Civil Engineer – Entry	0.0	40.0%	31.3%	0	5	12	↓
Civil Engineer – Intermediate	33.3	9.1%	54.3%	4	3	14	↑
Civil Engineer – Senior	0.0	0.0%	24.1%	0	-	11	→
Total Civil Engineer	12.5%	8.6%	33.8%	4	8	18	↑*
Environmental Engineer – Entry	71.4	50.0%	66.7%	18	3	3	↑
Environmental Engineer – Intermediate	87.5	11.1%	50.0%	25	3	3	↑
Environmental Engineer – Senior	60.0	12.5%	20.8%	22	3	3	↑
Total Environmental Engineer	72.0%	15.8%	35.7%	65	8	5	↑*
Engineer (Other) – Entry	28.6	18.9%	29.6%	14	18	13	↑
Engineer (Other) – Intermediate	68.2	-51.0%	25.0%	54	(163)	31	↑
Engineer (Other) – Senior	47.6	9.5%	17.0%	36	30	13	↑
Total Engineer (Other)	50.9%	-15.8%	23.4%	104	(115)	28	↑*
Systems/Operations (HW/SW/NW) – Entry	15.4	14.8%	29.5%	7	10	25	→
Systems/Operations (HW/SW/NW) – Intermediate	11.6	-39.2%	20.6%	40	(130)	35	↑
Systems/Operations (HW/SW/NW) – Senior	19.0	12.6%	13.1%	29	38	19	↑
Total Systems/Operations (HW/SW/NW)	14.0%	-11.8%	19.9%	76	(83)	40	↑
HW/SW Testing – Entry	63.6	20.3%	17.5%	25	15	17	↑
HW/SW Testing – Intermediate	22.2	15.6%	30.7%	61	43	48	↑
HW/SW Testing – Senior	38.2	6.4%	13.2%	47	9	15	↑*
Total HW/SW Testing	30.5%	13.7%	21.9%	133	67	40	↑
Analyst – Entry	58.3	22.2%	80.0%	25	15	3	↑
Analyst – Intermediate	30.6	14.9%	50.0%	40	38	23	↑
Analyst – Senior	15.2	22.8%	28.1%	22	33	20	↓
Total Analyst	27.4%	18.4%	38.2%	86	85	23	↑*

↑ Increase ↓ Decrease → No Change (±10%)

JOB CATEGORY	2012 GROWTH (%)	2010 GROWTH (%)	2008 GROWTH (%)		2012 GROWTH (#)	2010 GROWTH (#)	2008 GROWTH #		CHANGE
Technician/Technologist – Entry	33.3	25.0%	35.0%		68	38	27		↑
Technician/Technologist – Intermediate	14.7	19.1%	21.8%		65	128	38		↓
Technician/Technologist – Senior	7.9	10.7%	9.3%		34	41	19		↓
Total Technician	15.5%	17.2%	18.5%		167	207	42		→
Scientist – Entry	22.2	25.0%	50.0%		7	3	6		↓
Scientist – Intermediate	18.5	0.0%	29.4%		18	-	8		↑
Scientist – Senior	19.2	0.0%	24.0%		18	-	9		↑
Total Scientist	19.4%	2.4%	30.0%		43	3	12		↑*
Quality Assurance – Entry	35.6	24.0%			58	8	0		↑
Quality Assurance – Intermediate	6.0	23.7%	23.3%		18	40	55		↓
Quality Assurance – Senior	-4.5	3.2%			-18	4	0		↓
Total Quality Assurance	6.7%	16.1%	23.3%		58	51	27		↓
Specialty – Regulatory/Clinical Affairs	17.9	4.1%	7.9%		11	5	6		↑
Specialty – Licensing Management	25.0	0.0%	7.2%		9	-	6		↑
Specialty – Intellectual Property Management	1.5	5.7%	60.3%		1	3	19		↓
Specialty – Supply Chain Management	2.1	12.1%	16.6%		7	27	22		↓
Total Specialty	5.6%	10.1%	18.9%		28	34	54		↓*
					↑Increase ↓Decrease →No Change (±10%)				

*Caution: Small Sample Size

** New in 2010 – Considered as part of sales in 2008 data

† Caution: Probable outlier in 2008 Data

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BC TECHNOLOGY INDUSTRY

The following is an outline of the major industry sectors in BC and their relative strengths with respect to number of companies, number of employees, and annual revenues.

TECHNOLOGY SECTOR	STATISTICS
INFORMATION & COMMUNICATIONS **Hardware, Software, Telecommunications, and** **IP over Everything**	7.244 companies 52,680 employees $11.5 billion in revenue
LIFE SCIENCES **Pharmaceuticals and Medical Devices**	340+ companies 4,000+ employees $800 million in revenue
NEW MEDIA **Interactive Multimedia, Gaming, and E-Learning**	900+ companies 10,000+ employees $1.8 billion in revenue
AEROSPACE **Engineering, Manufacturing, and Training**	190 companies 1,550 employees $450 million in revenue
CLEAN TECH **Hydrogen; Fuel Cells; Power Electronics; Energy** **Storage; Wind, Ocean, and Solar Power;** **Environmental Technologies**	1,389 companies 21,000 employees $2.65 billion in revenue

Sources: Aerospace Industry Association of British Columbia; British Columbia Ministry of Advanced Education; TechTalent BC 2010; BC Progress Board; BCStats; British Columbia Innovation Council; British Columbia Ministry of Jobs, Tourism and Innovation; KPMG, Competitive Alternatives 2010; DigiBC; NetworkBC; University of British Columbia; and Vancouver Economic Development Commission. Sectors contain overlapping data because some companies are listed in more than one sector.

GLOBAL COMPANIES WITH A PRESENCE IN BC		
3M Touch Systems	IBM	Schneider Electric
Alliant Techsystems	Intel	Scientific Atlanta – a Cisco
Amazon	MacDonald, Dettwiler and	Company
Ballard Power Systems Inc.*	Associates Ltd. (MDA)*	Sierra Wireless*
Boeing	Microsoft Corporation	Seiko Epson Corporation
Broadcom Corporation	McKesson Corporation	SAP
CDC Software	Nokia	Sophos
Dolby Canada	Open Solutions	TELUS*
Eastman Kodak	Pixar	UTStarcom
Electronic Arts	Plug Power	Vivendi Universal
Fortinet	Phillips Lighting	Walt Disney
Honeywell Video Systems	Robert Bosch GmbH	
HSBC Group	Sage Group	

*Headquartered in BC

AUTHORS

The TechTalentBC Labour Demand Study is an annual industry study designed to identify the growth and hiring trends of British Columbia's technology industry. The research and report development was undertaken by Thomson + Associates on behalf on the BCTIA, the study's sponsor.

British Columbia Technology Industry Association – www.bctia.org

The British Columbia Technology Industry Association (BCTIA) is a not-for-profit organization that represents the technology industry of British Columbia. As the voice of BC's technology industry, the BCTIA provides the leadership, connection, and action needed to foster the continued growth and success of the industry.

Thomson + Associates – http://www.thomsonconsulting.ca

Led by Steve Thomson, SL Thomson & Associates Consulting is a boutique research and consulting firm specializing in market intelligence and strategy consulting for high-tech organizations. Thomson & Associates employs a mix of quantitative, qualitative, and competitive intelligence research to drive actionable product and business development efforts.

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