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LABOUR TRENDS IN THE BRITISH COLUMBIA TECHNOLOGY SECTOR

techtalentbc
a BCTIA initiative

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EXECUTIVE SUMMARY

Introduction

The British Columbia (BC) technology industry is expecting significant growth over the next five to ten years, continuing the steady growth it has experienced since the collapse of the technology bubble in 2001. The recently published Provincial Technology Strategy states a goal to be ranked as the number one technology industry in Canada by the year 2015 – Generating revenues of over \$40 billion and employing over 150,000 people. To make this goal a reality and to enable continued sustainable growth for the province and its technology industry we must take action today.

According to BC Stats, the province grew its technology industry to over 65,000 employees in 2005 – surpassing the previous record set at the height of the technology boom. Moreover, BC-based technology companies are continuing to grow and remain confident about the future.

The purpose of the TechTalentBC labour demand study was to gather research into the technical and non-technical labour demands of the technology sector to provide input for public policy initiatives. Led by the British Columbia Technology Industry Association (BCTIA) and supported by the Integrated Technology Initiative (ITI) Leadership Group, the TechTalentBC project sourced input from the technology industry through two main avenues:

- Focus groups with senior executives at BC-based technology companies
- Labour Demand Profile completed online by BC-based technology companies

The key finding of the study is that the BC technology industry is on target to meet the goals of doubling revenue and headcount in the industry over the next five years. Responding companies reported an expected headcount growth of 15% over the next year. Extrapolated to the general technology community, this growth amounts to an estimated 9,000 new jobs in the technology industry between September 1, 2006, and September 1, 2007. This 15% annual growth rate is also in line with the pace required to double the industry headcount every five years.

While the industry is poised to increase headcount by 15% between September 2006 and September 2007, certain job categories are expected to grow at an even greater rate. Extrapolating to the full technology sector in BC, the following resources will be required in the province:

- 1) Over 1,400 marketing and sales professionals
- 2) 500 technical managers (program and product managers)
- 3) 800 technical support personnel
- 4) Over 500 entry level positions in software, hardware/software testing, and general engineering

Most notably, the required talent is predominantly experienced resources, people who possess strong interpersonal skills to fill sales, marketing, and technical support roles. In addition, specialized management skills are needed to fill product manager, program manager, and general management roles.

It is important to note that these numbers reflect *anticipated* growth and are therefore prone to market forces, particularly:

- Trained resources available within the required timeframe
- Companies achieving the revenue growth within their business plans necessary to trigger the addition of staff resources

Conclusions

The BC technology industry is at a critical juncture. The technology labour pool is tightening, industry headcount is at a peak level, and the companies in BC are very bullish about prospects and demand for talent over the next year.

Key conclusions include:

- Growth of the BC technology community is highly dependent upon staffing substantial increases in marketing and sales personnel, as well as selective technical and management categories.
- BC does not have adequate labour resources to staff near term let alone future labour needs.

Key Recommendations

Overall, the key recommendations resulting from the 2006 TechTalentBC study falls within two key categories:

- **Recruiting Talent** – Issues surrounding finding new talent from outside BC (either from the rest of Canada or globally)
- **Building Talent** – Strategies for building existing talent in BC through education and training efforts

Recruiting Talent

Promote the BC technology industry for talent recruitment

- Alleviate concerns of potential recruits that moving to BC could “dead-end” their careers.
- Market the strengths of living and working in BC to key markets – both in Canada and abroad.
- Engage in collaborative, coordinated recruitment efforts in key labour markets.

Promote the Provincial Nominee Program

- Ensure that BC companies are aware of the potential streamlined benefits that the program can provide.

Assist manufacturers with offshore production

- Help BC-based companies to be globally competitive by reducing their production costs.

Improve access to capital

- Ensure that technology companies are adequately funded to hire the talent they require.

Building Talent

As the positions required are typically managerial or customer-facing, a likely growth plan for most companies, and by extension the industry, is to retrain existing technical staff to fill these new roles, and then back-fill the new vacancies with more junior technical talent. Such a strategy helps a company to:

- Retain employees and their knowledge and expertise
- Help its employees to grow, develop, and move into more lucrative positions
- Build its corporate culture through the retention of staff
- Recruit leading-edge technical skills through the acquisition of new engineering graduates

Therefore, the TechTalentBC report recommends the following to help the technology industry in BC to grow its existing talent base.

Continue the focus on the development of intellectual property in BC

- Strengthen BC's role as a key centre for research and development.

Expand existing cooperative education programs

- Better prepare students with real-world technologies and experiences.

Develop a provincial technology training program

- Strengthen the skills of existing BC talent to provide them with better growth and mobility opportunities, as well as better skills with which to help their companies and industry grow.

In line with the final recommendation, the BCTIA may wish to look at creating a High-Tech Industry Training Organization (ITO) under the provincial Industry Training Authority (ITA). The provincial government is expanding the ITA, allowing the development of industry-specific ITOs to guide and market sector-specific training initiatives. Development of an ITO is directly aligned with the needs of the technology industry.

1. INTRODUCTION

1.1 TechTalentBC Labour Demand Profile

The British Columbia (BC) technology industry is expecting significant growth over the next five to ten years, continuing the steady growth it has experienced since the collapse of the technology bubble in 2001. According to BC Stats, the province grew its technology industry to over 65,000 employees in 2005 – surpassing the previous record set at the height of the technology boom. Moreover, BC-based technology companies are continuing to grow and remain confident about the future.

The recently published Provincial Technology Strategy states a goal to be ranked as the number one technology industry in Canada by the year 2015 – Generating revenues of over \$40 billion and employing over 150,000 people. To make this goal a reality and to enable continued sustainable growth for the province and its technology industry we must take action today.

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- Focus groups with senior executives at BC-based technology companies
- Labour Demand Profile completed online by BC-based technology companies

The information collected in this study describes the number of employees (permanent and contract), by labour category, who were employed by technology companies in BC on September 1, 2006. It also describes the number expected to be employed by the reporting companies twelve months hence. The delta between the current and expected employee counts provides the foundation for understanding the near-term labour demand.

Qualitative input from the focus groups provides a longer-term (three-to-five-year) view of the BC technology labour market. When combined with the shorter-term (next twelve months) data gathered from the Labour Demand Profile, the TechTalentBC project creates a more complete picture of labour category requirements for the near future.

The intention is that industry will be able to use the collected information to anticipate potential hiring needs, including any possible labour shortages. This information can also assist in determining expected growth within the technology industry. For academia, the information should help to guide program offerings, based upon the identified skill requirements. Government should be able to use the information for examining issues such as supporting infrastructure and programs in the technology sector.

Sidebar: Project Methodology

The TechTalentBC Labour Study was conducted from April 2006 to November 2006. The study consisted of three key elements (focus groups, labour demand profile, and analyst guide) designed to provide a comprehensive understanding of the technology labour market in BC. To keep the study focused, respondents were asked to only provide input on their BC-based employment despite the fact that many organizations have national and global workforces.

Using the 2006 data as a baseline, the TechTalentBC project was designed to be repeated regularly (annually), to provide important trend data with which to track progress and gauge continued demand for labour categories.

Focus Groups

A series of four focus groups were held throughout May and June 2006. Facilitated by NRG Research Group, a leading North American public opinion and market research company, the focus groups provided information on longer-term (three-to-five-year) labour needs. Organized around specific industry clusters, each focus group discussed future labour needs, alternative methods of employment, sources of labour and competing jurisdictions, and issues surrounding the attraction of talent to BC.

The represented clusters were Alternative Energy/Environmental Technology, Wireless, New Media, and Information and Communication Technology (ICT). Although a specific invitation was extended to the Biotechnology community, it was felt that the feedback from a recent series of focus groups in the sector would provide adequate background for this study.

Labour Demand Profile

Designed to collect employee headcounts from participating companies, the profile focuses on current-year headcounts by labour category, as well as expected headcounts one year into the future. Changes to the anticipated employee counts and skill mix provide the foundation for understanding near-term BC labour trends.

Invitations to participate in the labour demand study were e-mailed to senior executive and human resource contacts at over 3,000 companies across the province. Additional invitations to participate were also sent out through regular public communications from a number of the participating technology associations. In total, 146 companies responded to the profile, representing 6,042 employees or approximately 10% of the total technology industry in BC.

Analyst Guide

Designed to aid in the ongoing analysis of labour issues, the analyst guide provides a comprehensive profile of secondary research that can be sourced to give additional insight into the technology labour market in BC.

The [TechTalentBC Analyst Guide](#) is available separately from the BCTIA.

2. LABOUR DEMAND PROFILE

During October and November 2006, invitations to participate in the labour demand study were e-mailed to senior executives and human resource contacts at over 3,000 technology companies across the province. Respondents represent about 10% of the technology labour force in BC and are generally reflective of the community at large.

2.1 BC Labour Profile Data Overview

Results from the labour demand profile are exceedingly positive for the technology industry, with an expected headcount growth of 15% among the responding companies over the next year. Extrapolated to the general technology community, this growth amounts to over 9,000 new jobs anticipated between September 1, 2006, and September 1, 2007. A 15% annual growth rate is also in line with the pace required to double the headcount in the industry every five years.

It is important to note that these numbers reflect *anticipated* growth and are therefore prone to market forces, particularly:

- Companies achieving the revenue growth within their business plans necessary to trigger the addition of staff resources
- Resources being available to hire within the required timeframe

2.2 BC Labour Profile – Labour Category Growth Trends

While the industry is poised to increase headcount by 15% between September 2006 and September 2007, certain job categories can be expected to grow at a greater rate. Those labour categories that will likely experience exceptional growth¹ over the next year are summarized below in Table 1.

¹ “Exceptional growth” is defined to be 20% or greater, with at least 25 employees in the category for 2006.

Table 1 Labour Categories with Exceptional Growth Expectations from 2006 to 2007

Labour Category	2006 Employees (Actual)	2007 Employees (Estimated)	% Growth
Marketing and Sales Managers	193.9	236.5	22%
Program Managers	55	80	46%
Product Managers	84.7	108.7	28%
Software Engineers – Entry	44	71	61%
Hardware/Software Testing – Entry	50	64	28%
Hardware/Software Analysts – Senior	31.5	39.5	25%
General Engineer – Entry	26	38.4	48%
Technical Support (all levels)	263.1	340.1	29%
Marketing and sales (all levels)	320.7	423	32%

Extrapolating the above table to the full technology sector in BC, the following resources will be required in the province:

- 1) Over 1,400 marketing and sales professionals
- 2) 500 technical managers (program and product managers)
- 3) 800 technical support personnel
- 4) Over 500 entry level positions in software, hardware/software testing, and general engineering

One additional observation is that the number of contract workers is not expected to significantly change over the next twelve months.

Sidebar: Sample Validity

With 146 companies reporting their projected headcount growth, the data collected appears to be a representative sample of the total technology community in BC and as such, can be used to extrapolate data reliably.

Collectively, respondent companies represent \$1.1B in revenue and 6,042 employees. This represents approximately 8% of the reported \$14B in revenues, and 9% of the employee headcount of 65,000 reported by BC Stats.

The sample appears to be skewed slightly towards larger, more mature companies. This skew can be seen in the average age of respondent companies (11 years), as well as their average size (41 employees) compared to the average of 8 employees cited by BC Stats. However, 50% of companies reporting had fewer than 8 employees (as seen by the median size), suggesting a good sample of smaller companies.

Larger companies tend to grow more slowly than smaller companies (as was noted in the focus groups), which suggests that any extrapolation to the broader community would be a conservative reflection of growth.

Table 2 BC Labour Profile Participants – General Statistics

GENERAL STATISTICS	
Total number of participants:	146
Total 2006 revenue:	\$1.1B
Total number of employees:	6,042
Average number of employees:	41
Median number of employees:	8
Average revenue:	\$10.5M
Median revenue:	\$1M
Average company age:	11 years

As seen in Table 3, due to the relatively small number of respondent companies, further breakouts with respect to specific sectors or regions cannot be reliably reported.

In future repetitions of the study, we recommend using a larger sample of companies, or that specific quotas be placed on geographic regions and industry sectors to better enable discussion of these smaller communities.

Table 3 Profile Representation by Geography and Cluster

Geographic location	Number of respondents		Technology cluster	Number of respondents
Interior	16		Alternative Energy/ Environmental Technology	18
Lower Mainland	116		Biotechnology	8
Northern BC	4		ICT	68
Vancouver Island	10		New Media	27
TOTAL	146		Wireless	6
			Other	19
			TOTAL	146

Finally, due to the modest number of respondents providing salary range information, we offer no analysis on this area. In future repetitions of this study, we recommend that the salary range questions be removed.

3. FOCUS GROUP DISCUSSIONS

3.1 General Observances

Industry very positive about future prospects

Companies in the BC technology industry are very positive about the sector and its growth potential. Respondents believe that doubling revenue and headcount over the next five years is an achievable goal, and is in line with corporate goals.

Large need for general skill sets

Despite each cluster having its own specific skill requirements, many skill requirements were found to be common across the clusters, including the need for:

- Senior management
- Marketing/sales/business development
- Project/program/product managers
- Engineers (including hardware and software)
- Programmers
- Technical personnel with strong people skills

Importance of BC's quality of life to attracting and retaining talent

Participants overwhelmingly responded that the quality of life in the province provides a key to both the attraction and retention of talent as compared to competing jurisdictions.

Concern about the tightening BC labour market

The key concern with the BC labour market is that labour demand is beginning to exceed labour supply. This issue is of particular concern with all sectors of the economy currently running strong, the upcoming Olympics and their additional requirements, and the overheated Alberta market to the east.

3.2 Revenue Growth to Outpace Headcount Growth

Doubling revenue and headcount within five years is an attainable goal for the industry

While the general consensus of respondents is that both the total revenue and headcount for the BC technology industry will double over the next five years, it is commonly felt that revenue will grow at a faster pace than labour.

For many companies revenue growth is likely to outpace headcount growth

When compared to their corporate revenue and headcount projections, many of the participants expect to see revenues growing at a greater rate than headcount. In many cases, revenues will more than double over this period, and in some cases double in the next twelve months.

The rationale for considerably higher growth in revenue than in headcount is that many of the participants have been in extensive development phases where revenues have been relatively low in relation to the number of staff required to develop the products. As products move into production and business plans are successfully executed, revenues should naturally catch up and overtake labour expenses.

Where companies are more service-driven, participants were likely to suggest that revenue would grow at a similar pace to headcount. This is attributable to the fact that revenues are tightly aligned with the people required to deliver the services.

Outsourcing production is a popular strategy

For companies producing hard products, such those in the Alternative Energy/Environmental Technology sector, revenue growth is likely to exceed headcount because many of the companies are choosing to outsource production. Production tends to be outsourced either locally, in the case of low-volume/high-margin products, or internationally – typically Asia – in the case of high-volume/low-margin products.

3.2.1 Sources of Growth

Most growth predicted to be organic

Based on feedback from the focus group participants, most of their corporate growth is likely to come organically, although merger and acquisition activities appear to be more likely in the Alternative Energy/Environmental Technology sector.

For the Wireless sector, the key trend driving local growth seems to be the huge growth of the global wireless industry (although industry consolidation is already occurring).

Similarly, growth in the local New Media sector is also consistent with the global rise of the new media industry. Locally, growth is also expected in the TV and video animation business as local companies begin developing more of their own intellectual property.

3.2.2 Skills Needed

Wide range of skills required in the industry

In aggregate, the focus group participants reported a wide range of required skills, reflecting the diversity of the BC technology sector.

Management and relationship skills required across all sectors

However, across the groups there was also substantial commonality with respect to a general need for management skills, and for people with good relationship or interpersonal communication skills. This desire for people with a blend of technical and interpersonal talent was reflected in roles such as sales engineers, program managers, product managers, business analysts, and even programmers.

The need for relationship skills were particularly prevalent in the ICT sector where integration services are often a key component of revenue.

Need for domain-specific technical skills

While there was a desire for domain-specific skills in sectors such as Wireless and Alternative Energy/Environmental Technology, participants cited that candidates with the right technical and interpersonal skills would be taught the required domain skills.

With respect to domain-related skills, the Alternative Energy/Environmental Technology sector noted a need for specialized engineering skills in areas such as power electronics, as well as for people with knowledge of regulatory requirements and international standards.

The new media sector participants cited a need for interactive designers, digital animators, and artists. Ideal candidates are people with technical backgrounds who also have an understanding and appreciation for design.

Most respondents also cited a need for a few highly skilled senior individuals with unique domain expertise to the innovation with their organization. These individuals are often global leaders in their domains and their teams are generally rounded out by people with more generalist skills and backgrounds.

3.2.3 Staffing Mix

Typically, the participant companies were heavy in engineering talent – likely reflecting the relatively young life stage of their company. There was generally an expectation that the “business” functions (sales, marketing, general management, and administration) will be built out as the companies mature.

3.3 Sources of Talent

As a means of seeking new resources, several non-traditional employment methods were tested with participants to determine their interest and participation levels in these strategies.

3.3.1 Outsourcing

Outsourcing was widely recognized as a growing trend across all sectors, and particularly for those companies engaged in production and manufacturing activities. It was noted that the BC labour market is becoming very tight, which is another factor that is likely to make outsourcing more commonplace for BC-based companies going forward.

Outsourcing is being sought as a way to reduce costs, or in the case of some start-ups producing hard goods, as a way of avoiding large capital expenditures during their capital-intensive R&D phase.

At this point, it appears that only production and some commodity-type development tasks are being outsourced. Some research and development is being outsourced to India and

China – typically, through BC-based companies creating R&D centres in those jurisdictions.

One participant in the Alternative Energy/Environmental Technology sector cited that they currently outsource some of their design engineering (albeit locally), although this may or may not continue as the company continues to mature.

With respect to the barriers to outsourcing, one respondent cited that the pace of technology innovation can be a barrier, especially for large amounts of work. Similarly, other respondents cited the lack of intellectual property protection in markets such as India and China, which makes working with these jurisdictions very prohibitive.

3.3.2 Virtual Employees (Home-Based Employees)

With the exception of in-market sales people, the hiring and use of virtual employees, or employees who work from home, is generally discouraged. However, all sectors report a growing trend in requests to work at home from employees.

The practice of working from home appears to be most acceptable within the New Media sector and is typically allowed when there are specific deliverables or timelines. As a rule, work-from-home situations are not encouraged for extended periods.

Overall, the practice is usually discouraged due to potential distractions in the home environment and because of the need to interact with teams. Additionally, some industries use equipment and hardware that is only available at the office. Respondents noted that work-from-home situations typically require the right infrastructure at home *and* at the company. The need for this additional equipment and support is still viewed as prohibitive by most organizations.

3.3.3 Contract Employees

Contractors can often be found in BC technology companies, although widespread use is typically discouraged by the organizations. There does not seem to be an impetus to grow the use of contract employees.

Where contractors are hired, it is often because they have rare skill sets that allow them to set their employment terms. If contract work is not offered as an option, some participants (particularly in the ICT sector) reported that they would likely lose a significant portion of the available workforce.

Contractors are typically more expensive than corresponding full-time employees. For this reason, many organizations discourage the use of contractors. The companies opt instead to use full-time employees to build the labour base and the culture of the company.

3.4 Barriers to Hiring

Participants were asked about the types of issues that were typically barriers to hiring required talent. The following issues were consistent across the groups.

Ability to staff projects that are not necessarily “interesting” or “leading edge”

Not all technology development is high-flying, cutting-edge work. As such, some businesses find that they have difficulty attracting talent for work that might not be considered “exciting” enough.

Compensation

BC salaries are generally lower than those of competing jurisdictions, while the cost of living is comparatively higher. Thus, compensation is often an issue for BC-based technology companies. Compensation was typically cited as a resource issue with respondents needing to keep salaries down to conserve cash. It appears that for the larger/more established companies, compensation is less of an issue.

Immigration

Almost all clusters reported problems with getting qualified candidates into Canada in a timely manner.

Housing

BC has significantly higher housing costs than other jurisdictions. While there are some BC locations with comparatively more affordable housing, these typically require employees to make longer commutes (reducing the effectiveness of BC’s strength in quality of life).

Lack of local qualified candidates

As some of the jobs in certain domains require specific expertise, there is often a shortage of ideal available candidates in the BC labour pool. This problem was cited as a combination of high technical skill requirements, small market size, and lack of appropriate local training.

Size of BC technology market

For many candidates looking at relocating to BC, concerns are expressed about career progression and job loss. This issue is fueled by two factors:

1. The typically high failure rate of start-up technology ventures
 2. The fact that BC companies are noted for building and selling early in their lifecycles
- Potential candidates need to know that there are job alternatives in BC should their positions not work out, or should the status of their employers change.

3.5 Sources of Labour/Competing Jurisdictions

To develop an understanding of the BC technology labour market and the geographies and issues with which it competes for talent, participants were asked about their experiences in recruiting and hiring talent from various provinces and countries.

Global recruiting

Within the focus groups, it was commonly noted that BC companies are recruiting talent from all over the world – particularly where world-class expertise is being sought for a specific development project. Management talent, and general technical talent, is typically being sourced locally, or at least within Canada.

3.5.1 United States

Congruent with many other studies of this issue, focus group respondents cited that the United States can be a difficult jurisdiction from which to recruit the talent that BC companies require. Reasons cited include the relatively lower salaries in BC (although the strengthening Canadian dollar reduces this discrepancy) and the perceived higher taxation levels in Canada (including income and sales taxes).

Larger companies in BC appear to have more resources for paying salaries and relocating talent, so they tend to report greater success at recruiting Americans than do smaller organizations.

New media companies, particularly the video game and animation industries, also tended to report greater success in recruiting Americans, largely due to the global strength of the gaming industry in BC.

One trend reported by companies in the Alternative Energy/Environmental Technology sector is for potential recruits to ask for severance clauses that covered the candidates' costs to relocate back to the US should their employment not work out in BC.

Another common trend noted by many respondents is the counter-recruiting that occurs by many of the larger US firms – coming to Vancouver and other cities in BC to attract the talent that they require to grow their own businesses. Microsoft was an oft-cited company that attracts BC talent, as were Google and Yahoo.

3.5.2 Ontario

Where Ontario has density (a large number of potential employers) as its key to attracting and retaining employees, BC has lifestyle. Therefore, many participants from many sectors mentioned the need to find employees willing to trade career flexibility for lifestyle.

The active BC lifestyle and noted work-life balance were frequently cited as the biggest draws for attracting new recruits to BC. Key to the issue of flexibility versus lifestyle, many of the participants responded that job seekers from Ontario are typically concerned that their careers will slow down, or dead-end, if the jobs do not work out or if the economy takes a downturn.

With respect to compensation, many participants cited that while the cost of living is similar in BC and Ontario, BC salaries are still typically about 10% lower.

3.5.3 Alberta

The oil and gas boom in Alberta has resulted in labour shortages, high wages, and low taxes. This makes Alberta a very difficult market to compete with for labour.

Similar to Ontario, climate and work/life balance (the BC lifestyle) are key attractors for recruitment of talent from Alberta. As a result, the only sector that seems to be actively seeking recruits from Alberta is the Alternative Energy/Environmental Technology sector, specifically companies looking for particular energy-related market experience.

3.5.4 China

Many organizations are actively recruiting talent in Asia. This utilizes another strength of BC – strong diversity. A large and active Chinese community in BC helps to attract talent from China.

Caveats regarding recruiting actively in China (and to a lesser extent Hong Kong) include language barriers, cultural issues, and credentialing. The New Media sector seems to have the greatest reluctance to hire people from China due to cultural differences between the East and West, and the fact that much of the new media content is directed towards Western audiences.

3.5.5 India

There are considerable community ties between Greater Vancouver and India. This provides a geographic advantage for hiring from India.

While language and cultural barriers were cited to be significant, India has a large number of technologists of interest to BC companies – particularly in the Alternative Energy/Environmental Technology sector.

While participants cited that bringing employees to Canada from India is easier than bringing employees from China, participants mentioned that the recruiting and immigration process is still prone to delays and can often take six months.

3.5.6 Other Jurisdictions

With respect to recruiting from other jurisdictions, the New Media sector reported that the UK is a great source of talent. The UK is home to a tremendous number of technology and gaming companies, many of which are being shaken out of the market.

Participants noted that the benefits of hiring recruits from the UK are that language and cultural issues are essentially nonexistent, and that due to the relatively high cost of living and high taxes in the UK, BC is comparatively attractive to these hires.

3.6 Other observances and Comments

The general preference observed among participants was a desire to hire Canadians first – by nature, Canadians from BC and other provinces do not have language and cultural issues – thereby improving their integration into corporate cultures. Canadians also do not bring immigration issues.

Participants noted that their companies are typically looking to hire young people with some experience in the industry and people with more intermediate-level skills. Many of these companies cited that co-operative programs allowed new graduates the opportunity to get real-world industry experience while also building the relevant technical experience that the companies desired.

With respect to co-operative education, the University of Waterloo, based in Ontario, was frequently cited as an example of an institution that stays relevant with technological advancements, and its graduates are highly desired due to their co-operative work experience.

Overall, concern was expressed that the academic institutions in BC are not creating the types of graduates desired, particularly by companies in the Wireless and ICT sectors. It was the opinion of the respondents that academia in BC tends to be slow in changing their curricula to keep up with relevant technologies and standards.

Within the Alternative Energy/Environmental Technology sector, one respondent noted that an effective training and recruitment tool was sponsoring university chairs – helping to build relationships with relevant academics, improving the leading edge of research and education, and creating access to a pool of students from which to recruit.

With respect to building the talent pool in BC, respondents concurred that if you can get people to BC, they are generally here to stay. Respondents noted that while there is considerable employee movement among companies in BC, generally there is not much loss to other jurisdictions, with the exception of the aforementioned markets of Silicon Valley and Seattle.

3.7 Attracting Labour to BC

With respect to attracting talent to BC, companies generally cited that they needed to prove fulfilment of the following critical factors to candidates in order to complete the deal:

- Career opportunity (both within the organization and in the industry as a whole)
- Challenging work
- Quality of life (work/life balance, BC climate, multicultural society)

An additional critical factor was also cited within the Alternative Energy/Environmental Technology sector:

- Social impact of work

With respect to career opportunity, it was widely noted that new recruits to BC express concern over the relatively small size of the technology community, and the impact that it might have on career mobility should the job not work out, or should they wish to move to a different position in the future.

3.8 Strengths and Weakness of the BC Marketplace

The following are the key benefits of the BC marketplace for candidates considering working in BC:

- Active lifestyle
- Work/life balance
- Education
- Exciting work (in certain sectors)
- Diversity/culture

3.8.1 Quality of Life

The quality of life that BC affords was widely cited as the greatest draw for talent recruitment. Factors mentioned by respondents included temperate climate, active outdoor lifestyle, multiculturalism, and the perception that BC is a great place to raise a family. However, with respect to recruitment efforts, it was noted that the industry as a whole could do a better job in broadly advertising these benefits.

3.8.2 Academic Institutions

BC universities received mixed reviews from the participating companies. While some felt that BC schools do an adequate job of turning out graduates, others were highly critical. Respondents criticized BC schools for delivering outdated skills and for placing too little emphasis on applied research. Overall, participants indicated that academia needs to better align university education with the needs of the industry.

The perceived lack of co-operative education in BC was also cited as one of the reasons that BC universities were not seen as providing a good education for ICT-related skills, including general hardware and software development.

3.8.3 Limited Career Growth

Respondents noted the perception that BC has the potential to limit an individual's career. While this fear might be well founded in some cases, in others it is likely a subjective perception that can be addressed through coordinated and collaborative education and promotion. Where BC is establishing itself as a leader in alternative energy and new media, the fears of dead-ending careers appear to be subsiding.

That said, it was supported by participants across the groups that the political and economic climate in BC plays a large role in how potential hires make decisions. Participants noted that while the situation has improved from that of the late 1990s, there is still concern that BC will only remain attractive as long as the economy remains stable, and that it is still susceptible to shocks such as a changes in government direction.

By continuing to grow and attract more businesses, and through better promotion of the diverse successes within in the province, it was felt that this concern about limited opportunity could be alleviated in the medium term.

3.8.4 High Cost of Housing

Housing costs were cited as a concern by several participants across the sectors. Specifically, as employees continue to move further away from the geographic centres of business (e.g., downtown Vancouver), commuting times rise substantially, thereby minimizing many of the quality-of-life benefits that living and working in BC is expected to provide.

4. RECOMMENDATIONS FOR THE BCTIA

4.1 General Observations and Recommendations

The BC technology industry is at a critical juncture. The technology labour pool is tightening, industry headcount is at a peak level, and companies in BC are very bullish about their prospects and demand for talent over the next year.

The key skills needed in the next year are:

- Project/program/product managers
- Marketing/sales/business development personnel
- Engineers (including hardware and software), particularly at the entry level
- Hardware/software analysts, particularly at the senior level
- Technical support personnel (all levels)
- Technical personnel with strong people skills

Most notably, the talent that is required consists largely of experienced individuals who possess strong interpersonal skills for customer-facing roles such as sales, marketing, and technical support roles. In addition, specialized management skills are required to fill product manager, program manager, and general management roles.

The key question and concern for the industry is where will this talent come from?

BC companies appear to be coming out of a period of extensive development, and are now looking for the resources to execute on their business plans and market strategies. Therefore, a key concern is what will the growth pattern look like if BC technology companies cannot find the required management skills?

As growth begets growth, what happens if BC companies miss their targets next year or the year after due to a shortage of skills?

The following recommendations are meant to provide the BCTIA and the industry with potential solutions and tactics for addressing the pending labour shortage in the near-to-mid-term. Overall, the key recommendations resulting from the 2006 TechTalentBC research can be summarized into two key categories:

Recruiting Talent – Issues surrounding the recruitment of new talent from outside BC (either from the rest of Canada or globally)

Building Talent – Issues surrounding the development of existing talent in BC through education and training efforts

4.2 Recruiting Talent

A general observation, which was echoed by many of the focus group participants, was that once people relocated to BC (either from another part of Canada or from another part of the world), they generally stayed in BC.

BC companies, for the most part, have no problems recruiting the best talent globally where specific domain expertise is required. This success in global recruiting is particularly obvious in leading sectors such as Alternative Energy/Environmental Technology. That said, global recruitment is generally not seen as a high-volume tactic, but tends to be utilized for acquiring specific skill sets due to the high cost of acquiring and relocating talent.

Promote the BC technology industry for talent recruitment

Alleviate concerns of potential recruits that moving to BC could “dead-end” their careers

To alleviate the concern that the BC marketplace is too small and that by moving to BC candidates could “dead-end” their careers, we recommend that the industry strengthen its promotion efforts and provide materials for hiring managers. This will help promote the strength and vibrancy of the BC technology community.

Market the strengths of living and working in BC to key markets – both in Canada and abroad
BC’s quality of life is the most important factor for recruiting people to the province. Therefore, we recommend that the BCTIA, industry, and government work to promote strengths in key labour markets such as Eastern Canada and the UK.

Coordinate recruitment efforts in key labour markets

We further recommend that the BC technology industry coordinate recruitment efforts in key labour markets such as Toronto and Ottawa. This recommendation is in line with the above recommendations to promote BC as a place to live, work, and grow. This also alleviates concerns that BC is a small technology market. By collaborating and tackling the market in a co-operative fashion, BC technology companies can use their collective strength to promote the size of the industry as a whole and alleviate the concerns of potential recruits.

Promote the Provincial Nominee Program

It is unclear from the focus groups whether recently streamlined immigration policies have improved the technology industry’s ability to bring in immigrant talent. That said, the BCTIA should encourage BC technology companies to take advantage of programs such as the Provincial Nominee Program to streamline the acquisition of world-class talent. This promotion could come through the BCTIA’s regular internal advocacy channels, as well as through events and seminars with the provincial and federal governments.

Assist manufacturers with offshore production

Help BC-based companies to be globally competitive by reducing their production costs

Most companies developing hard products are currently offshoring production, or looking to offshore production as volumes grow. The BCTIA may wish to examine how it might help these manufacturers in finding and selecting international partners.

Most companies offshoring production reported a desire to maintain the high-value (and high-wage) functions of design, engineering, marketing, and management in BC, while reducing product costs to improve global competitiveness.

Improve access to capital

Ensure that technology companies are adequately funded to hire the talent they require

Based on feedback from focus group participants, the lack of access to capital is causing many companies to refrain from hiring the talent needed for success. The BCTIA should continue with efforts to improve access to capital in BC. This will ensure that technology companies are funded adequately so that needed talent can be hired (both quality and quantity).

4.3 Building Talent

As the required positions are typically more managerial or customer-facing, a likely growth plan for most companies (and by extension the industry) is to retrain existing technical staff to fill these new roles, and then back-fill the new vacancies with entry-level technical talent. Such a strategy helps a company to:

- Retain employees and their knowledge and expertise
- Assist employees to grow, develop, and move into more lucrative positions
- Build corporate culture through retention of staff
- Recruit leading-edge technical skills through the acquisition of younger engineering staff

Therefore, the TechTalentBC project recommends the following to help the technology industry in BC to grow its existing talent base.

Continue the focus on development of intellectual property in BC

Strengthen BC's role as a key centre for research and development efforts

In line with assisting companies to find affordable outsourced production solutions, the BCTIA needs to work with government and industry to continue to focus resources on the development of intellectual property within the province. Recognizing that outsourcing is likely to continue, and to increase, the industry in BC needs to continue building itself as a global R&D hub.

Expand existing co-operative education programs

Better prepare students by providing real-world technologies and experiences

Co-operative education programs are a popular solution for providing both real-world experience and education. It is strongly recommended that the BCTIA encourage both industry and academia to create more co-operative education placement opportunities. Co-operative education gives students the real-world experience that they require to be marketable, as well as the practical knowledge that comes with applying the learned theories. Co-operative education is one of the best mechanisms for ensuring that new graduates have experience working with leading-edge technologies.

The University of Waterloo, based in Ontario, is seen as a good model for BC, providing world-class experience and talent that helps to attract some of the best computer science, mathematics, and engineering students in the country.

Develop a provincial technology training program

Strengthen the skills of existing BC talent to provide the individuals with better growth and mobility, as well as better skills with which to help their companies and industry grow

Currently, while there are a number of skills required to drive the industry, there is no coordinated effort to marry existing talent to potential training programs, and to develop or introduce new programs where there are gaps. The BCTIA needs to drive that coordination, either directly or by finding and promoting the appropriate avenues and opportunities.

In line with the above recommendation, the BCTIA may wish to look at creating a High-Tech Industry Training Organization (ITO) under the provincial Industry Training Authority (ITA). With the provincial government expanding the roll of the ITA, allowing for the development of industry-specific ITOs to guide and market sector-specific training initiatives, such an effort may be directly aligned with the needs of the technology industry. The BCTIA is encouraged to speak with the ITA to determine if their model is indeed appropriate for the high-tech industry.

5. BACKGROUND AND KEY PARTICIPANTS

Background

TechTalentBC was a result of “next-step actions” recommended in the final report of The Integrated Technology Initiative (ITI). Launched in 2003, the ITI was a multi-stakeholder initiative with the mandate to develop an integrated strategy and actions focused on the future growth and support of BC’s technology industry.

Key Participants

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.

Mr. Keith Jackson

Mr. Keith Jackson (keithejackson@yahoo.com) is the project manager for TechTalentBC. Keith is a recent graduate of the Management of Technology MBA program at Simon Fraser University. Prior to obtaining his MBA, he was responsible for over 2,500 employees (\$350M revenue) as the division president of a public technology company.

Thomson & Associates

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

The Information and Communications Technology Council – www.ictc-ctic.ca

The Information and Communications Technology Council (ICTC) is a not-for-profit sector council, funded in part by the Government of Canada’s Sector Council Program. The ICTC is dedicated to creating a strong, prepared, and highly-educated Canadian ICT industry and workforce.

NRG Research Group – www.nrgresearchgroup.com

NRG Research Group is a leading North American public opinion and market research company. NRG provides leading-edge market research and public opinion polling services, strategic consulting, and analytical services.

Maximizer Software Inc. – www.maximizer.com

Maximizer Software Inc. is a leading provider of proven and affordable customer relationship management (CRM) and contact management solutions that help small to medium-sized enterprises improve sales, streamline marketing, and enhance customer service and support.

E-Cubed Media Synthesis – www.e-cubed.com

E-Cubed Media Synthesis has considerable experience in the areas of small business and corporate management, strategic consulting, programming, graphic and technical design, systems administrations, and e-commerce solutions.

Supporting Organizations

New Media BC – www.newmediabc.com

Power Tech Alliance – www.power-technology.ca

The Wireless Innovation Network of British Columbia – www.winbc.org

The Ministry of Economic Development – www.ecdev.gov.bc.ca

Western Economic Diversification Canada – www.wd.gc.ca/

APPENDIX A – FOCUS GROUP RESPONSES

FUTURE NEEDS

Assuming that the technology sector doubles in both revenue and BC employment by the year 2010.

- How does this compare to the expected growth of the industry as a whole (including outside BC)?
- What kinds of impacts would this have on the region (positive and negative)?
- What would your company look like if you doubled in size by 2010?
- What specific types of skilled labour would you require?

Alternative Energy/ Environmental Technology	Wireless	New Media	ICT
<p><i>Revenue/Labour Growth:</i> Labour may not grow as fast as revenue; this is particularly true as companies outsource production</p> <p>In some cases the number of employees will double, but the revenue and earnings will more than double</p>	<p><i>Revenue/Labour Growth:</i> Growth in staff may not match growth in revenue, dependent upon the sector within wireless; for example, wireless services may see labour grow at the same rate as revenue growth, whereas infrastructure companies may not see higher labour growth than revenue growth</p>	<p><i>Revenue/Labour Growth:</i> Growth assumptions are consistent with company growth goals</p>	<p><i>Revenue/Labour Growth:</i> Growth assumptions are consistent with company growth goals</p>
<p><i>Industry Changes:</i> More emphasis on alliances/mergers and acquisitions/business development to meet revenue targets</p>	<p><i>Industry Changes:</i> Expect explosive growth in handheld and portable devices</p> <p>Huge changes in technology, particularly around data transmission</p> <p>Expect industry consolidation and simultaneous huge growth</p>	<p><i>Industry Changes:</i> Planned convergence between print and online media creates huge opportunity</p> <p>TV animation and video animation are areas that will expand</p> <p>Growth in BC companies means growth for the new media companies</p> <p>Many new media companies starting up</p>	<p><i>Industry Changes:</i> Move to object-oriented and portal-based systems; more e-commerce</p>

Alternative Energy/ Environmental Technology	Wireless	New Media	ICT
<p><i>Skill Needs:</i> Project engineers and program managers who are willing to travel</p> <p>Product managers (particularly those who have familiarity with software components or variety of products)</p> <p>Sales engineers</p> <p>Business development (including working with customers on project development and exploration of different technologies)</p> <p>Senior staff, specifically with global experience</p> <p>Knowledge of regulatory requirements for meeting international standards</p> <p>Engineers and engineering directors</p> <p>Specialized engineering (e.g., power electrical engineering)</p>	<p><i>Skill Needs:</i> General hardware and software development</p> <p>Telecom networks</p> <p>Mobile switching/GSM</p> <p>Voice over IP</p> <p>Cell phone operating systems</p> <p>Engineers (especially electrical and mechanical)</p> <p>Computer software</p> <p>Supply chain (acquisition of goods and materials)</p> <p>Often hire candidates with technical skills only and teach them wireless skills</p>	<p><i>Skill Needs:</i> Programmers, especially for Web development</p> <p>Programmers in general</p> <p>Programmers with the ability to consider what the end user is going to do with the software; programmers with people skills who are able to go to clients and communicate</p> <p>Digital animators and artists</p> <p>People with technical backgrounds who also have an understanding and appreciation for design (very challenging to find)</p> <p>Creatively driven people (as opposed to digitally creatively driven people)</p> <p>Interactive designers</p> <p>Staff with entrepreneurial spirit</p>	<p><i>Skill Needs:</i> "Relationship people" with people skills (i.e., personal communication skills)</p> <p>Candidates with relevant technological knowledge</p> <p>Programmers</p> <p>Senior management</p> <p>Computer, applications, and solution architects</p> <p>Program/project managers and business analysts</p> <p>Experience with both mainframe and e-commerce applications</p>
<p><i>Staffing Mix:</i> Percentage of engineering staff relative to an entire company will be reduced as companies mature (i.e., move more into production); accounting/product management, marketing, and sales will increase as maturity occurs</p> <p>Senior degree (doctoral level) and substantial increases in number of new graduates for entry-level positions</p>	<p><i>Staffing Mix:</i> Some companies do not hire a lot of new graduates, although this may need to change as labour shortages continue</p>	<p><i>Staffing Mix:</i> Very hard to predict because new technologies "appear" every day – additionally, a few technologies are in flux so it is difficult to say in which particular area new staff will be needed</p>	<p><i>Staffing Mix:</i> Executive and professional staff will not grow as much as business analysts and consulting (very specialized staff)</p>

ALTERNATIVE METHODS OF EMPLOYMENT

- Would your organization outsource these jobs to another part of the world if you couldn't find those skilled people here in BC?

What about "virtual" employees?

What about contract employees?

- What are the barriers to reaching these hiring targets?

Alternative Energy/ Environmental Technology	Wireless	New Media	ICT
<p><i>Outsourcing:</i> Logistics/supply chain: more outsourcing is planned to the US, particularly as the business (clients) are in US</p> <p>Design engineering outsourced: may or may not continue</p> <p>Planned outsourcing to China for manufacturing</p> <p>Some companies are already outsourcing production – others are analyzing the potential to outsource existing/future production</p>	<p><i>Outsourcing:</i> Some companies have extended teams in China (also useful because of doing business in China) – arguable that this is "outsourcing" because these are often R&D centres; other companies are considering outsourcing to China</p> <p>Some companies are contemplating outsourcing functions to India; other companies are already doing this</p> <p>Centres are being contemplated in Romania and Singapore (some already exist)</p> <p>Often prefer partnerships rather than outsourcing to protect IP</p>	<p><i>Outsourcing:</i> Some sectors outsource to India, but only for certain tasks or deliverables</p> <p>Lack of copyright protections in India (as compared to US and Canada) makes outsourcing to India very prohibitive</p>	<p><i>Outsourcing:</i> Sometimes customer will request a certain % be outsourced</p> <p>Can be driven by cost competition to drive price to a certain point – requires some work be outsourced to maintain profit margins</p> <p>Pace of technology is a barrier to outsourcing large amounts of work</p> <p>Some work already outsourced, particularly when company is multinational (and has offices outside North America)</p> <p>May become more common since BC labour market seems to be tapped</p>

Alternative Energy/ Environmental Technology	Wireless	New Media	ICT
<p><i>Virtual Employees:</i> Perception that no designer should work away from office to protect IP</p> <p>Danger of negative effect on company culture</p> <p>Many sales staff work from home (most often when selling outside BC – i.e., sales reps)</p> <p>Number of virtual employees will likely increase, but not for BC</p>	<p><i>Virtual Employees:</i> No virtual employees; staff is easier to manage and more productive if they are all working together in the office</p> <p>Hard to do virtual employees in this industry due to the necessary access to hardware that the staff needs to work with</p> <p>Expensive to set up infrastructure to allow employees to productively work from home</p> <p>Lots of virtual employees for sales/systems engineering and installation; not much in R&D – the sales/system engineering virtual employee base is expected to grow</p>	<p><i>Virtual Employees:</i> Working from home is possible, based on individuals, but is not preferred due to potential distraction</p> <p>Growing number of requests to work at home</p> <p>Allowed when there are specific deliverables/timelines, but not for an extended period of time</p>	<p><i>Virtual Employees:</i> Not extensively used; some work at home but this is not encouraged because people need to interact</p>
<p><i>Contract Employees:</i> Contractors are brought in on a project-by-project basis</p> <p>In some companies contractors are not used – the learning curve for new staff is too difficult (only use contractors for leave replacements)</p>	<p><i>Contract Employees:</i> Some sectors within wireless do not make extensive use of contract employees because the skill sets are lacking in BC; other sectors make extensive use of contractors</p> <p>Sometimes have to hire as contractors, because rarity of skill set allows contractors to set their own employment terms</p>	<p><i>Contract Employees:</i> Used occasionally where specific deliverables/timelines can be identified</p>	<p><i>Contract Employees:</i> Extensively used because this is often the flexibility desired by employees – however contractors are often more expensive</p> <p>Enables labour force flexibility</p> <p>If contract work were not offered as an option, would lose a large portion of the workforce in some sectors</p> <p>Some companies do not encourage use of contract workers – want to build the labour base of the company and can only do this with full-time employees</p>

Alternative Energy/ Environmental Technology	Wireless	New Media	ICT
<p><i>Barriers to Hiring:</i> Money (pay for specialists); money for doing recruitment</p> <p>Compensation not as critical as identification of potential hires and bringing them to Canada</p> <p>Tax and immigration issues</p> <p>Housing prices</p>	<p><i>Barriers to Hiring:</i> Perception that some businesses in the wireless cluster are not “cool/interesting,” so this is a challenge to attracting people (have to find people with a natural motivation or a desire to live in BC) –said another way, how to keep tech people inspired (they are often not inspired by working on legacy products)</p> <p>Many of the wireless businesses in BC work on technology that is hidden a layer below the production of the handsets; often candidates are more interested in working on things they can see</p> <p>Lack of available skills</p> <p>Companies from the US are opening offices in Vancouver to hire similar talent (even though not necessarily in the same industry) due to cheaper labour in BC</p> <p>Size (when recruiting from outside Canada)</p> <p>“Shock” for candidates of considering moving to another country</p> <p>Up and down nature of smaller businesses in BC</p>	<p><i>Barriers to Hiring:</i> Smaller companies often have a huge challenge in managing staff flow and hiring processes, especially as larger projects come in the door (can see 60+ people being hired for a new project)</p> <p>Bureaucracy in universities inhibits changes in curriculum, so universities cannot keep up with offering courses in the latest technologies; demands from companies are far away from what universities are teaching</p> <p>Difficult to “secure” talent – potential hires get so many offers that companies have to be very quick in hiring</p> <p>Difficult to get university grads from the US across the border as they do not have work experience</p> <p>Although working with universities may be productive, it is difficult to allocate resources to multiple universities (budget limits)</p> <p>Victoria: people wanting to work “government hours”</p>	<p><i>Barriers to Hiring:</i> Obtaining qualified candidates (at an affordable rate)</p> <p>Ensuring high school graduates understand that ICT is not hiding in a cubicle programming – it is much more</p> <p>Cost of housing</p> <p>Pay and taxation (particularly when recruiting from US)</p> <p>Qualified talent having well-rounded skills (business development, project management, technological skills)</p> <p>Education institutions doubled the curriculum in BC 5 years ago, and they are still not producing enough talent</p> <p>Immigration; time to get work visas</p> <p>Career opportunities (few companies in BC can offer a lifelong growth path)</p> <p>BC is a branch office town</p> <p>Boom in BC economy is also creating a shortage of workers – labour pool tightening.</p> <p>Some applications are not very exciting</p>

SOURCES OF LABOUR/COMPETING JURISDICTIONS

- Regarding skilled labour needs for the future – from what sources do you envision your organization attracting skilled labour?
This could be a specific school such as BCIT or a region such as California or Ontario.
- Specifically, what sources of skilled labour will you have to rely on in the next 3–5 years?-
- Currently, BC attracts many of its engineers (or programmers) from _____. Do you see this source continuing into the future? Do you see this as a good source for meeting future labour shortage demands? What are the barriers to hiring people from this region?

Alternative Energy/ Environmental Technology	Wireless	New Media	ICT
<p><i>United States:</i> Expensive to recruit from California</p> <p>A trend of potential employees asking for severance clauses (ability to return to the US if things don't work out)</p>	<p><i>United States:</i> Recruiting from California, Atlanta, Midwest, Florida Boston, Texas, Northern California</p> <p>Hard to recruit and attract people from the US: money/lower salaries are always an issue; even difficult to recruit Canadians from the US (although larger companies are able to overcome this)</p> <p>Microsoft (as an example) does huge recruiting in BC using longevity and a clear trajectory (performance and growth) to counter the small start-up market in Vancouver</p>	<p><i>United States:</i> Mind shift on going from 6-figure salaries to 5-figure salaries is very difficult</p> <p>High sales tax in Canada on items such as homes and cars is a huge barrier</p> <p>Vancouver is very attractive for video game, animation, television, and video</p>	<p><i>United States:</i> Canada is becoming more attractive due to strength of Canadian \$</p> <p>Strong recruiting from Austin, Dallas, North Carolina, Chicago, New Jersey, and Seattle – particularly if companies are downsizing</p> <p>California is difficult to recruit from because of pay; we are seeing BC lose talent to California</p> <p>California companies are increasingly recruiting from Canadian universities</p> <p>Difficult to compete with Google, Yahoo, and Microsoft (they are all coming to recruit in BC) – young talent want to earn more and get stock options</p>

Alternative Energy/ Environmental Technology	Wireless	New Media	ICT
<p><i>Ontario:</i> People concerned about pace of careers – concerned that their careers will slow down if they come to BC</p> <p>Not a problem to recruit if employee is motivated by making a social contribution via working for the company</p> <p>Lifestyle change can be a benefit in attracting talent to BC</p> <p>Salaries not competitive in BC versus Ontario; some companies say they can compete on salary (this issue may be more significant for smaller companies that do not have the resources to deal with higher salaries)</p>	<p><i>Ontario:</i> Large pool of skilled candidates, especially in Ottawa (Cisco and Nortel), Waterloo, Kitchener, and Toronto</p> <p>Ontario businesses use density (i.e., number of employees) to retain people in Ontario; BC has to use a lifestyle argument</p> <p>Requires more than just pay to attract candidates – if they are looking only for more money they will go to the US</p> <p>Junior staff with 1 to 2 years of experience in early stages of their careers are more likely to move to BC than more senior candidates with families</p> <p>Ontario companies do not seem to be strongly recruiting from BC</p>	<p><i>Ontario:</i> Candidates have a certain level of sophistication with regard to business processes and expectations – this does not always exist in BC due to average size of companies and relative maturity</p> <p>Lifestyle is biggest draw to BC</p>	<p><i>Ontario:</i> Much larger labour pool – significant hires due to stronger academic institutions compared to BC schools</p> <p>Heavy recruiting at Ontario schools</p> <p>Management and executive levels easy to recruit from Ontario</p> <p>Cost of living is similar to BC, but BC salaries are 10% lower</p> <p>Ontario companies argue that they provide better opportunities (company and regionally)</p>
<p><i>Alberta:</i> AB is a strong competitor – more job openings, pay is better, economy is more stable; try to hire folks from oil industry</p> <p>Many companies don't recruit actively from Alberta (too hard to attract)</p>	<p><i>Alberta:</i> Great difficulty in attracting talent from Alberta, although industry might have better success if it advertised more there</p> <p>Generally not considered a "hotbed" for the types of skills needed in the cluster</p> <p>Some sectors do actively recruit from Alberta; Alberta can be attractive to younger /more mobile workers from BC</p>	<p><i>Alberta:</i> Some companies find that candidates would rather relocate to AB than to BC; others find places like Victoria a great attraction – thus competing with Alberta is highly dependent on the needs/desires of the candidate</p>	<p><i>Alberta:</i> Very tight market – companies (in lots of industries) need staff in Alberta</p> <p>Difficult to recruit – people there think Vancouver is too big; cost of living in Alberta is significantly lower; work/life balance and climate are draws to BC</p>

Alternative Energy/ Environmental Technology	Wireless	New Media	ICT
<p><i>China:</i> Very skilled individuals</p> <p>Some companies have relationships with China –see potential to attract individuals from there</p> <p>Some companies will not hire from China – credentials are a problem</p>	<p><i>China:</i> Many employees from China; high priority for recruitment (second only to hiring Canadians) – but focused on people who have already started the immigration process</p> <p>Challenge is building up language skills quickly</p>	<p><i>China:</i> Cultural barrier with some sectors because candidates from China do not seem to be very individualistic, which is needed in certain businesses</p>	<p><i>China:</i> Some companies have extensive recruiting in China; others more so from Hong Kong (better language skills)</p> <p>Find that they have stronger work-ethic and greater skills compared to candidates from India (but language skills are worse than India)</p>
<p><i>India:</i> Very much considered – a lot of specialists there</p> <p>Other companies said they would not consider hiring – credentials</p>	<p><i>India:</i> Attractive place to recruit because immigration is easier than recruiting from China (however it still takes a long time; many delays, often up to 6 months; this makes it difficult for a small company to commit to a candidate)</p> <p>More skilled labour in India than in China or Eastern Europe</p>	<p><i>India:</i> Language barriers are significant; cultural barriers cause issues with candidates not seeming to have initiative or drive; they do good work and finish on time, but don't go beyond (i.e., excellent work and finishing before deadlines)</p>	<p><i>India:</i> India has extremely bright people who are looking to enhance lifestyle and salary</p> <p>Mixed bag – some companies aggressively recruit from India; some do not (although India graduates 5 times as many engineers per year as North America)</p>
<p><i>Eastern Europe:</i> Romania has strong possibilities for recruitment</p>	<p><i>Eastern Europe:</i> Existing employees from Romania, Russia, and the Ukraine</p>	<p><i>Eastern Europe:</i></p>	<p><i>Eastern Europe:</i> Eastern Europe (Russia, Hungary, Ukraine, and Romania) – strong education system, generally good language skills</p>
<p><i>Other Areas/Regions:</i> Recruit from automotive companies; large OEMs</p>	<p><i>Other Areas/Regions:</i> Focus on recruiting from countries where immigration is not an issue (Western Europe, Australia, New Zealand, US, Singapore)</p> <p>Pick up a lot of staff from competitors/phone manufacturers who closed their offices in Vancouver (i.e., Alcatel, Motorola)</p>	<p><i>Other Areas/Regions:</i> Hires come from Ottawa, Toronto, Edmonton, Montreal, UK, Europe, Australia, and US</p> <p>UK has a tremendous number of technology and gaming companies</p> <p>Many of companies are founded in garages and do not survive – potential employees who would like to leave the UK due to high taxes, high cost of living, and lower pay (compared to Canada) – BC is very attractive to these folks</p>	<p><i>Other Areas/Regions:</i> Other areas of recruiting include Singapore, Hong Kong, and Mexico</p> <p>Expect more hires from outside Canada, including strong hiring from Europe, Germany, Scandinavia, and Great Britain</p>

Alternative Energy/ Environmental Technology	Wireless	New Media	ICT
<p><i>Additional Comments:</i> University chair sponsorships – create relationships with professors that attract students</p> <p>Hire employees who have been laid off from companies outside BC</p> <p>Develop Co-op programs and attend career events</p>	<p><i>Additional Comments:</i> Challenging to hire from some countries (that have talent) due to immigration issues (e.g., South Africa, Taiwan, China)</p> <p>Strong desire to hire Canadians – communication is easier, employees adapt more easily to company culture, no immigrations issues, etc.</p> <p>Seeing more Canadians return to BC, often to take care of aging family members</p> <p>Computer technology grads can be hired from BC, but the grads do not really have the skills companies are looking for</p> <p>Significant concerns about getting labour to meet needs – hard to find skilled labour; a lot of staff come from outside Canada and BC is not providing necessary training to meet these needs</p>	<p><i>Additional Comments:</i> Companies on Vancouver Island compete with the government for talent (difficult to compete with pension, union environment, 3 weeks of holiday, training programs, etc.)</p> <p>Some sectors see lots of employee movement between companies but not much retention loss outside of BC</p>	<p><i>Additional Comments:</i></p>

ATTRACTING LABOUR TO BC

- What are some of the critical factors that will influence workers in the technology sector to come here to BC as opposed elsewhere in the coming years?
- What can be done to raise the importance of things like “quality of life” in the minds of potential employees?
- Is there a difference in attracting employees for your industry opposed to other places?

Alternative Energy/ Environmental Technology	Wireless	New Media	ICT
<p><i>Key Recruitment Drivers – General:</i> Rank-ordered:</p> <ul style="list-style-type: none"> • Growth of business; company • Career opportunities • Quality of life • Raising family in a nice environment <p>Challenging work</p> <p>Benefits in general do not matter to most</p> <p>Social impact of work</p>	<p><i>Key Recruitment Drivers – General:</i> Challenging/exciting work</p> <p>Quality of life</p> <p>Salary</p> <p>Career opportunity</p>	<p><i>Key Recruitment Drivers – General:</i> Exciting work</p> <p>Work/life balance</p> <p>Career opportunity</p> <p>Primarily people go for the job – however as families grow bigger, candidates tend to go for the spot they want to stay in for the long term</p>	<p><i>Key Recruitment Drivers – General:</i> Quality of life (climate, work/life balance, multicultural and open society)</p> <p>Nature of business</p> <p>Salaries have to be competitive (but not go too high)</p>

Alternative Energy/ Environmental Technology	Wireless	New Media	ICT
<p><i>BC Strengths and Weaknesses:</i> Quality of life is a huge strength</p> <p>Sense of family, safe community, availability of good and reasonably priced schools</p> <p>Americans want to see monetary advantage and progression – difficult for BC to show either of these</p> <p>As alternative energy sector is growing, perception about “dead-ending” yourself and your career by moving to BC is lessening</p> <p>Cyclical market concerns candidates</p> <p>Companies have matured – BC was considered more of a dead end from 1995 to 1998</p> <p>Recruiting from other areas of Canada is easier than from the US, because Canadians are more likely to consider work/life balance issues</p>	<p><i>BC Strengths and Weaknesses:</i> Vancouver (as a city) is a key driver – very attractive for living, especially for people from Asia; most important selling points are quality of life and a good place to raise a family</p> <p>Limiting factor – perception of limited career growth</p> <p>Outdoor activities are a big plus</p> <p>Housing prices are a big minus</p> <p>Image of Vancouver in other parts of Canada: “Nobody can afford a house and the traffic is awful”</p> <p>Vancouver is increasingly known as hub for technology companies: increasing image of “hot” technology industry</p> <p>Diversity</p> <p>Education (high quality at a very affordable cost)</p> <p>Accessibility for disabled workers</p>	<p><i>BC Strengths and Weaknesses:</i> BC will only be attractive if economy continues to do well</p> <p>Not a lot of concern to find another job if a candidate moves to Vancouver</p> <p>Group life and health benefits are a strong plus, especially compared to US companies; however US candidates often do not consider this in looking at their packages</p> <p>Lifestyle and work/life balance are the biggest draws</p> <p>Housing prices are really bad; as employees move further out to get lower-cost houses it significantly reduces quality of life (because of commute time) and lessens draw to BC</p> <p>Cutting edge, challenging work is great for candidates</p> <p>Pace of growth has been accelerating in the last 1.5 years; company budgets are good and stable due to stability in the provincial govt., leading to confidence in the economy, and more companies are investing in BC</p>	<p><i>BC Strengths and Weaknesses:</i> BC universities:</p> <ul style="list-style-type: none"> • need to adjust, catch up, offer better programs, and improve image of education • are not viewed as having even the second-best education institutions for ICT or general software/hardware • A lot of interesting ideas come out of Waterloo • Waterloo emphasizes applied research (BC universities do not), including co-op program which enhances resumes of ON students • Waterloo starts early by making first contact with potential students between grades 7 and 10, runs mathematical competitions in schools to find out where talents are, and actively recruits them • Some companies feel BC schools are very strong (including SFU, UBC, and BCIT) <p>BC companies need to do a better job of selling themselves and showing how an employee will make a difference in coming to work every day</p>

ADDITIONAL DISCUSSION

- Is there anything else related to future labour needs that we have not discussed during this session that you would like to share?

Alternative Energy/ Environmental Technology	Wireless	New Media	ICT
<p><i>Additional Comments:</i> More university pipeline/training is needed to feed new generation</p> <p>Workforce is getting older – need to examine implications this has on training</p>	<p><i>Additional Comments:</i> Promote that salaries and cost of living are competitive compared to Ottawa and Waterloo (some national salary surveys have indicated a closing gap in salaries)</p> <p>Promote what people do not know (e.g., places for affordable housing, commuting options, etc.)</p> <p>Companies should work together with the government to develop a pilot project to remove barriers to recruiting Canadians for BC</p> <p>Retention of older workers will soon be an issue (as they desire to retire)</p> <p>Women wanting to raise families and work (sometimes at reduced schedules) – some companies (especially those that are resource-constrained) are resisting this, but the labour market may force companies to change their policies</p> <p>Government needs to support more investment and increase general promotion of high tech</p>	<p><i>Additional Comments:</i> Critical that BC and Canada maintain the current levels of tax credit incentives for production</p>	<p><i>Additional Comments:</i> Attractiveness of BC is undersold – BC has materially lower taxes than Ontario, although this is not viewed as true in Ontario</p> <p>There should be significant focus on research programs with UBC and SFU to drive cooperation forward; also emphasize co-op programs</p> <p>Government is way behind the times on allowing workers in</p> <p>Need to attract more businesses to BC to create more opportunities</p> <p>Need better professional training (i.e., management training, etc.)</p> <p>Need to better advertise the fact that BC has substantial job opportunities</p> <p>BCTIA should sponsor more technical conferences (i.e., world expert in JAVA lecturing, etc.)</p>

APPENDIX B – LABOUR PROFILE CATEGORY DESCRIPTIONS

The following is a list of profile descriptions, as defined for use in the Labour Profile Database.

Management

Executive Management – “C”-level executives, including those reporting directly to the CEO; typically includes CEO, CIO, CTO, COO, GM, VP, and lead executives for other functional areas (HR, marketing, sales, legal, engineering, manufacturing, etc.)

Marketing and Sales Managers – Includes marketing and sales management other than the lead executive

Project Managers – The Project Manager is typically a business manager responsible for directing project schedules and budgets to deliver assigned projects; he or she is a key interface between the client, contractors, and others external parties and the internal departments with respect to project, technical, and progress data.

Program Managers – Usually part of the development team, the Program Manager develops and manages product development and release schedules, interfaces with Product Management to take product specifications and create a development program schedule and product plan for the development team, and provides direction to the software development team to ensure that the program is on schedule.

Product Managers – Business manager responsible for defining and managing a product through its lifecycle, from concept and design to development, launch, and support; the Product Manager identifies market needs and technology directions, defines systems and software requirements, plans and monitors product release activities, and undertakes product reviews.

Technical Managers – Personnel who are not captured in the above categories and spend more than 50% of their time on management/supervisory activities related to technology; examples would include configuration management managers, hardware systems engineering managers, implementation managers, integration managers, software systems engineering managers, production managers, etc.

Hardware and Software

Hardware Engineer

Entry: University degree in engineering with up to 2 years' experience

Intermediate: University degree in engineering with 2–5 years' experience

Senior: University degree in engineering with 5 or more years' experience

Software Engineer

Entry: University degree in engineering or computer science with up to 2 years' experience
Intermediate: University degree in engineering or computer science with 2–5 years' experience
Senior: University degree in engineering or computer science with 5 or more years' experience

Software/Hardware Administration

Entry: Post-secondary diploma/degree in computer science or engineering with up to 2 years' experience; includes network, database, and systems support
Intermediate: Post-secondary diploma/degree in computer science or engineering with 2–5 years' experience; includes network, database, and systems support
Senior: Post-secondary diploma/degree in computer science or engineering with more than 5 years' experience; includes network, database, and systems support

Hardware/Software Testing

Entry: Post-secondary diploma or degree in computer science, software engineering, electrical engineering, or equivalent work experience; up to 2 years' experience
Intermediate: Post-secondary diploma or degree in computer science, software engineering, electrical engineering, or equivalent work experience; 2–5 years' experience
Senior: Post-secondary diploma or degree in computer science, software engineering, electrical engineering, or equivalent work experience; more than 5 years' experience

Analysts

Entry: Post-secondary diploma or degree in computer science or software engineering; includes information systems business analysts, systems security analysts, quality assurance analysts, and systems auditors; up to 2 years' experience
Intermediate: Post-secondary diploma or degree in computer science or software engineering; includes information systems business analysts, systems security analysts, quality assurance analysts, and systems auditors; 2–5 years' experience
Senior: Post-secondary diploma or degree in computer science or software engineering; includes information systems business analysts, systems security analysts, quality assurance analysts, and systems auditors; 5 or more years' experience

Technical (Non-Hardware and Software)

Engineer (General)

Entry: University degree in engineering with up to 2 years' experience
Intermediate: University degree in engineering with 2–5 years' experience
Senior: University degree in engineering with 5 or more years' experience

Technician/Technologist (Typically performing non-manufacturing work)

Entry: Technical college certificate/diploma or grade 12; up to 2 years' experience
Intermediate: Technical college certificate/diploma with 2–5 years' experience
Senior: Technical college certificate/diploma with 5 or more years' experience

Scientist

Entry: University degree in science with up to 2 years' experience

Intermediate: University degree in science with 2–10 years' experience

Senior: University degree in science with 10 or more years' experience

Multimedia Developer

Entry: Interactive media and Web designers/developers; up to 2 years' experience

Intermediate: Interactive media and Web designers/developers. 2–5 years' experience

Senior: Interactive media and Web designers/developers; 5 or more years' experience

Technical Support

Entry: Post-secondary training in software or electronics with up to 2 years' experience

Intermediate: Post-secondary training in software or electronics with 2–5 years' experience

Senior: Post-secondary training in software or electronics with 5 or more years' experience

Production

Entry: Production/manufacturing of technology; up to 2 years' experience

Intermediate: Production/manufacturing of technology; 2–5 years' experience

Senior: Production/manufacturing of technology; 5 or more years' experience

Marketing and Sales

Marketing and Sales

Entry: Up to 2 years' experience; includes: sales/account/territory reps, market analysts, product and marketing communications

Intermediate: 2–10 years' experience; includes sales/account/territory reps, market analysts, product and marketing communications

Senior: More than 10 years' experience; includes sales/account/territory reps, market analysts, product and marketing communications

Specialty

Regulatory/Clinical Affairs: Responsible for obtaining government approvals and/or interacting with the government for regulatory and/or clinical approvals relating to technology

Licensing/Administration: Responsible for licensing technology

Intellectual Property: Responsible for tracking and/or obtaining government certification of intellectual property



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