# Executive Summary

Five key requirements were identified that need to be met in order for Professional, Scientific and Technical Services (PSTS) industry to be competitive:

1. Continual adaptation to changes in the world (primarily Asian) economic demographics.
2. A strong domestic economy in which to develop skills and technology
3. Advanced education and industry training of sufficient numbers of professionals.
4. Research and innovation in technology
5. Liveable communities and balanced tax policies to attract and retain talented professionals.

BC's PSTS industry must overcome several challenges to meet these requirements and enhance the competitiveness of the industry. These include:

**British Columbia does not graduate a sufficient number of professionals.**

There is currently a severe shortage of skilled professionals in the industry, yet over 80% of qualified applicants are unable to gain admission into undergraduate and graduate programs. Moreover, BC educates fewer professionals per capita than Alberta, Quebec or Ontario, showing that BC is losing ground to other jurisdictions.

> ***To overcome this problem, it is recommended that BC increase the number of students who can be accommodated in our engineering programs by up to 100% in the next 10 years. The benefit of this will be a trained workforce that can address our economy's needs and opportunities***

**The trained technical workforce in the developing world is becoming a competitor.**

Asia, India and South America, traditional export markets for BC's PSTS industry, now educate very large numbers of professionals. Moreover, these countries are competing against BC for basic technical services at a very low cost both on and offshore. It is unrealistic to expect BC firms to compete on price; however, they are still able to compete by providing specialized technology/know-how.

> ***To overcome this new source of competition, Government and industry should encourage and facilitate more students to obtain post-graduate degrees. It must be recognized that professional training does not end with graduation from university and Government should support training of professionals during co-op work terms, and internships after graduation. Industry also needs to take a role by expanding the number of co-op students/interns that they employ. The benefit of this would be an expanded knowledge-based industry with advanced technologies and business acumen.***

**Sustained and balanced public-sector spending on public-sector infrastructure is essential for growth and development.**

Approximately 50% of engineering industry business is a direct result of public-sector projects. Considering the high reliance the industry has on the public sector, policy shifts that rapidly reduce or expand spending on infrastructure are debilitating.

> ***To overcome these fluctuations, Government should treat capital expenditures in a similar manner to operating expenditures, with consistent long-term investment. Government needs to take a more balanced and diverse approach to capital investment that doesn't overheat or depress any particular industry segment. The benefit of this would be a sustainable BC industry that provides for long-term employment, development of entry-level staff, and investment in new technology.***

**Government should set the standard for procurement of technical services based on quality.**

Procurement of engineering and architect consulting services by Government is often price-based. This is quite different than what occurs in the US where procurement of consulting services is required by legislation to be based on value, with price negotiations only with the firm selected as the most qualified. The problem is that least-cost procurement results in the "commoditization" of services, which does not allow sufficient revenue for staff development or R&D.

> ***The provincial Government should mandate a value-based procurement system for all professional services. The benefits of this would include: Protecting the public investment and public safety by ensuring adequate fees are available to provide a complete service; Encouraging development of "total-value solutions", providing a long-term positive ROI; Government becoming a partner in innovation***

**Universities can enhance research and development partnerships with industry.**

Currently, intellectual property agreements create barriers that inhibit industry investment in university research. Moreover, present levels of private investment at the universities, for research-related collaboration is less than at other major Canadian universities.

> ***It is recommended that intellectual property agreements with universities be revised to facilitate increased collaboration, and increase private investment. Benefits would include: Enhanced R&D of new technologies and processes; More and better opportunities to compete internationally; increased innovation and economic activity.***

**The learning and training industry create a quality assurance accreditation process**

BC companies and institutions are left to their own devices when it comes to both identifying and approaching large offshore markets, particularly in China. To make matters worse, BC institutions and school boards often compete for the same opportunities in the Asian market, confusing their potential customers.

> ***It is recommended that private industry create a VQA equivalent for accreditation (ideally with Government support) and promote BC companies and institutions that meet the criteria under the BC brand. In addition, a network of BC representatives in target Pacific Rim markets would provide on-the-ground support to build relationships in countries with potential to establish offshore education services. Benefits would include: Quality assurance for buyers and for local public-sector partners; better overseas profile for BC providers; and a united front that gives credibility to qualified providers.***

# Table of Contents

# 1. Introduction

The PSTS industries are generally considered to include engineering & related services, architecture, management, accounting, advertising, legal services, and learning & training services.

The limited time and resources available for the study prevented the gathering of new or independent data. As such, the study had to rely upon previous work and existing published data as a basis.

Further, the focus of the Competition Council was to examine how British Columbia's industries can be made to be more internationally competitive. The decision to focus on export potential required that the study focus on those industries which are established as major exporters of services or which were believed to have the potential to become major exporters; ie those industries which offer services which by their nature or required expertise are not readily available in other countries.

Given the above requirements and constraints, industries selected were: Consulting Engineering; Consulting Architecture and Learning and Training. It was considered that the recommendations developed for these industries would be generally relevant to the other industries which have lower export potential or for which a significant basis of data was not available.

## 1.1 Committee Members

The committee members were volunteers selected from significant companies within British Columbia from each of the referenced industries. The committee members include:

**Stan Cowdell (Co-Chair) – Westmar:** Headquartered in Vancouver, Westmar is an employee-owned company formed in 1988 to provide integrated engineering consulting services to maritime and materials handling industries. Today, the company has more than 200 employees and branch offices in Kitimat, Kirkland, WA, and Portland, OR, and has earned a reputation as a multi-discipline industry leader. Westmar is recognized as one of the premier consultants for bulk material handling marine terminals, and has completed several thousand assignments for private and public-sector clients worldwide.

**Bob Stanlake (Co-Chair) – AMEC:** AMEC is an international project management and services company that designs, delivers and supports infrastructure assets for customers worldwide. More than 1,000 of AMEC's 45,000 employees are based in British Columbia, making the company the province's largest pool of engineering and construction talent. The company's BC roots go back to HA Simons Limited (founded in Vancouver in 1944), which became part of AMEC in 2000. Its marquee projects within the province include most of BC's major pulp and paper mills, the Vancouver SkyTrain, and expansions to the Trail lead-zinc smelter.

**Alan Hart – VIA Architecture:** With offices in Vancouver and Seattle, VIA is one of the Pacific Northwest's leading firms in architecture, transit infrastructure, urban planning and sustainable community building. Founded in 1984, VIA also specializes in renovation and historic preservation, community and cultural facilities, and residential, resort and hospitality projects. The company employs approximately 40 architects, planners, technicians, and administrative and support staff, including several LEED™-accredited professionals. Our work has received regional, national and international awards, as well as acclaim from users and the general public.

**Bill Donald – Keystone Environmental:** Keystone provides environmental consulting and engineering services in three areas: investigation and construction, risk assessment and biological services, and technology. Founded in 1988, Keystone's three principals acquired the company in 1993, and have turned it into one of BC's premier environmental consulting firms with more than 60 professional staff. Keystone has led some of BC's most prominent environmental projects including the Expo Lands, Science World, the Prince Rupert port and now the Olympic Village.

**Barry Carbol – Merit Global Learning:** Merit is an educational solutions provider with offices in Vancouver, Hong Kong, Beijing, Shanghai and Shenzhen. The company's key areas of specialization include K-12 reading/language arts and mathematics, as well as English as a Second Language (ESL). In conjunction with its strategic partners, Merit provides North American and Asian students of all ages with effective online educational solutions and curricula. Its multi-media technology platforms foster customer-focused, interactive learning in an effective, captivating and cost-effective environment.

## 1.2 Resources & Support

Charles Holmes of C.E. Holmes Consulting facilitated the process, while Kelly Frankson of Frankson Consulting Inc. aided in the research for the report. Glen Scobie of the BC Ministry of Economic Development was a significant government resource, providing direction and assistance.

# 2. Requirements for Competitive PSTS Industries

To define how the PSTS industries could be enhanced, the committee first undertook to define what the requirements are for an industry to be internationally competitive.

Five key requirements for PSTS industries to be competitive were identified as follows:

1. **Continual adaptation to changes in world (primarily Asian) economic demographics.**

   Until the 1980s, the number of trained professionals with significant experience in the developing world was limited and North American firms were able to export both basic and advanced technologies to the developing world. As education was enhanced and industrial development expanded the developing world began to gain its own internal expertise and began to look to Canada for advanced technologies only while undertaking the basic technologies using internal resources. Additionally the developing world is now educating very large numbers of technical professionals; particularly engineers. On an annual basis, Asia alone educates approximately 100 times the number of engineers Canada does. This very large pool of educated professionals is now servicing the developing world's needs and at the same time is becoming a service group to other developing countries. To continue to export technical services to the world it is essential that British Columbia's firms have the best trained professionals combined with the most advanced technologies. This is necessary for both technical and financial competitiveness.

2. **A strong domestic economy in which to develop skills and technology**

   It is logical that if our domestic technical service firms do not have the opportunity to develop skills and technology in British Columbia, the required continual development will not occur and the industries will become technically non-competitive.

3. **Advanced education and industry training of sufficient numbers of professionals**

   It is not sufficient to produce a small number of professionals from our Universities with the requisite training to be competitive. Technical education is such that a relatively high percentage of graduates move into industry or other professions than consulting where their technical education is a direct benefit. University opportunities need to recognize that it is necessary to educate to provide candidates not only for the technical service industries but also for industry in general. This affect is further compounded by the steady growth in BC's and Canada's domestic economy which in and of itself requires an ever expanding work force. British Columbia is experiencing a significant shortage of trained professionals today.

4. **Research and innovation in technology**

   As noted above, as the developing world continues to mature, it will be able satisfy the majority of its technical needs using domestic resources. The opportunity will always remain however to sell the new and enhanced technologies developed through research and innovation.

**5. Liveable communities and balanced tax policies to attract and retain talented professionals**

Well-educated and trained professionals are highly mobile. They are able to follow opportunities wherever they are available. Professionals, because they tend to be among the higher earners are also able to balance financial well being with life style. BC has a significant advantage in terms of climate and social environment when compared to many other parts of the world. However, as we have seen during the economic downturn in BC prior to the current government; professionals will seek other opportunities and move if their standard of living is jeopardized by excessive taxation, inadequate education or health care for their families, or a prolonged general economic malaise.

# 3. Profile of the Consulting Engineering and Architecture Industries

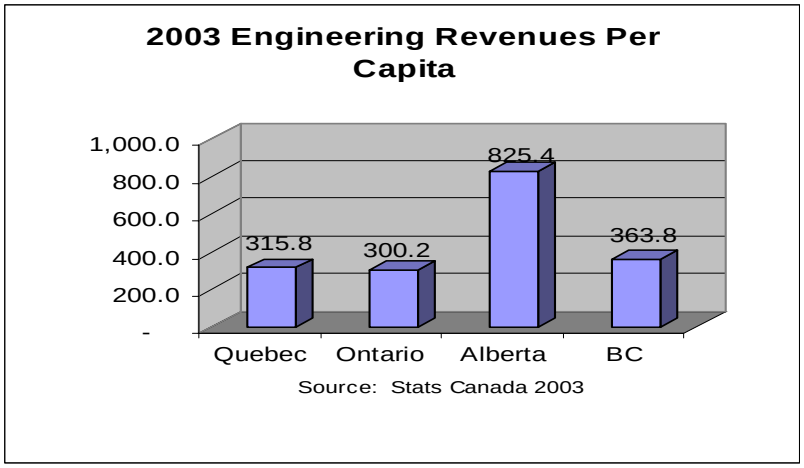
As discussed, given the constraints of the time and resources available for this study, only a segment of the PSTS industries were examined. The following provides a brief profile of each of the selected industries identifying their respective importance to the Provincial and Federal Economies. It is expected that while the PSTS sectors that were not examined in detail may not have the same export opportunity, they will have significant commonality and hence will benefit from the recommendations of this investigation.

## 3.1 Consulting Engineering

The consulting engineering Industry was defined as engineering, procurement and construction management – encompassing all aspects of the planning, evaluation and design of society's infrastructure. The decision was made to look at consulting services as opposed to physical construction because of the export potential.

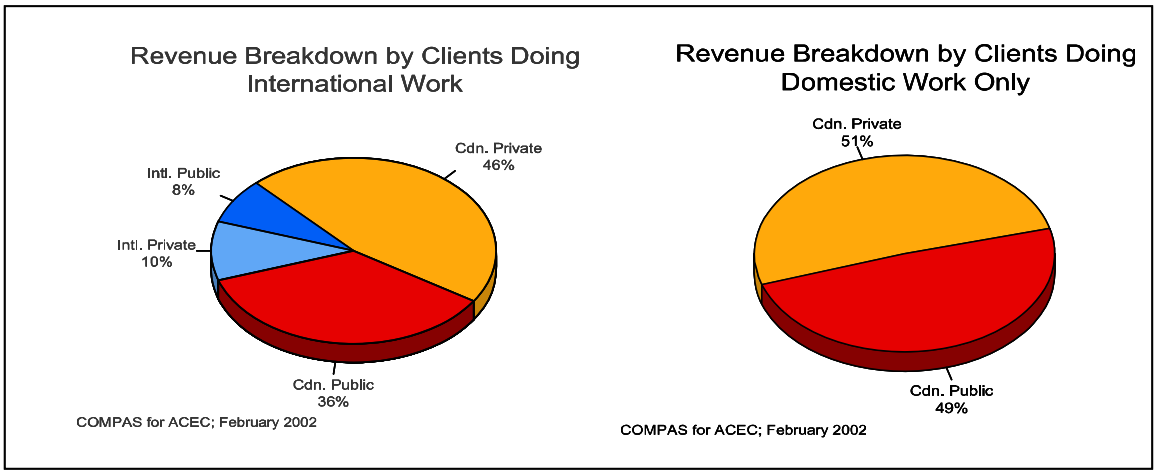
While many international players in the market have been through the tumult and are proceeding cautiously, the worldwide demand for high-end architectural and engineering services shows no sign of abating allowing Canada to retain its ranking. For the third year in a row, Canada was able to retain its ranking of third in the world when it comes to the export of engineering services (Encon, 2006).

In BC, consulting engineering contributes more than of $1.5B in revenue to the BC economy (Stats Canada 2003). While on par with Ontario and Quebec on a per capita basis, as seen by the graph below, BC contributes significantly less to the economy on a per capita basis than Alberta. This reflects the emphasis that Alberta has placed on engineering services to be the backbone for their growing economy.




Data tables are included in the Appendix.

When looking at the breakdown of where the engineering service revenues are coming from, COMPAS (2002) attributed 49% of domestic revenues to the public sector:

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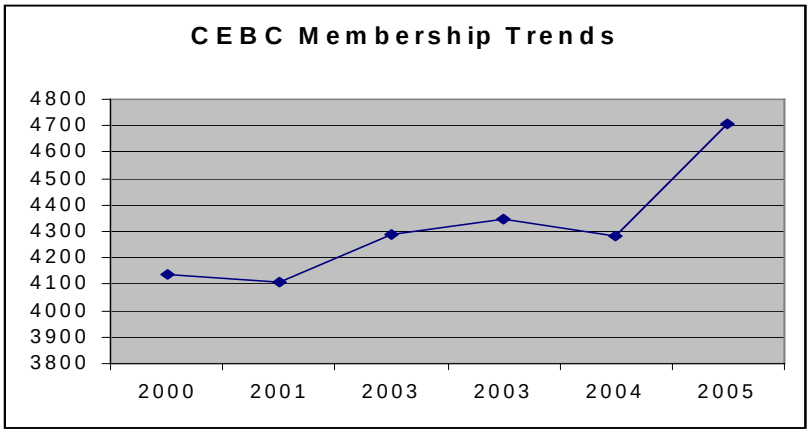
Depending on the source, between 13-29% of revenues come from exports. According to the Annual Survey of Engineering Services (2003) the engineering services industry has relatively high export intensity within the services sector. Export was the source of 13.2% of revenue in 2003 compared to 12% in 2002 and 10.3% in 2001. While CEBC (2000) states in 2000, the domestic public sector accounted for 19.6% of revenue with 28.8% coming from international sources.

Although the revenue numbers are not available for 2005, as you can see by the graph bellow, membership numbers have had a sharp increase. However, despite this increase, the industry is still facing a severe skill shortage:

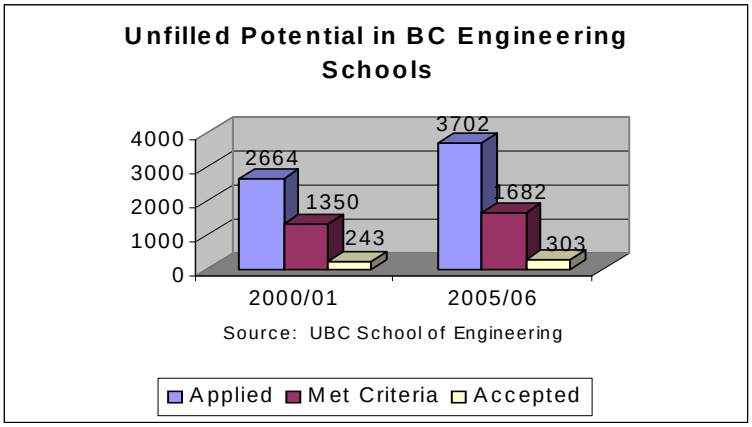



(Numbers provided by CEBC, 2006)

Applicants to UBC's Faculty of Engineering have increased by 40% over the last 5 years, with acceptance rates remaining constant at ~18%. According to Michael Isaacson, Dean of Applied Sciences at UBC the slight reduction in the GPA cut-off has been associated with the increase

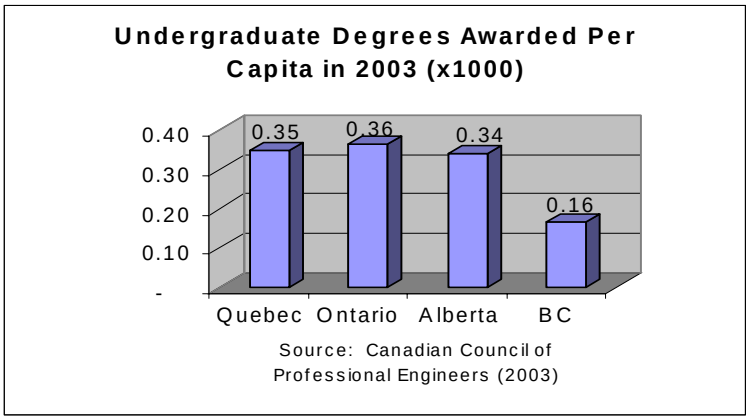
in capacity associated with the doubling of the opportunity for expansion, rather than with a reduction in the number of applicants. In fact:

- The number of applicants to engineering has increased from 2,664 in 200/01 to 3702 in 2005/06, an increase of 40% over 5 years.
- The number of eligible applicants has increased from 1,350 in 2000/01 to 1,682 in 2005/06, and increase of 25%.
- The Ratio of the number of our new students entering first year to the number of applicants has remained constant at about 18%.
- The admitting average (ie not the minimum cut-off) has stayed constant at about 86%.




The take-home message is that BC is not graduating sufficient numbers of engineers. There there are many factors which contribute to this shortage including; high school preparation, admissions criteria, transfers from the colleges, disciplinary differences, program duration, education quality, drop-out rates, and so on (UBC School of Engineering; 2006).

On all levels, BC produces significantly fewer engineering graduates per capita than Alberta, Quebec or Ontario:

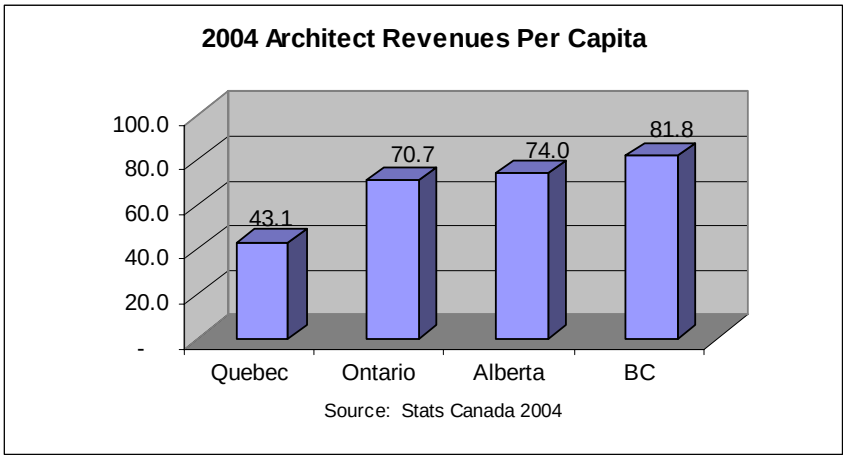



Data Table Included in the Appendix

## 3.2 Consulting Architects

The consulting architects industry comprises establishments primarily engaged in planning and designing the construction of residential, institutional, leisure, commercial and industrial buildings and other infrastructure by applying knowledge or design construction procedures, zoning regulations, building codes and building materials.

In 2004, BC architects generated $340.2M in revenue during 2004 which was higher on a per capita basis than Alberta, Quebec or Ontario:

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According to the Annual Survey of Architectural Services "Clients in the private sector accounted for 47% of revenues followed by 43% from clients in the government and public institutions sector. Revenues from households and individual clients stood at 7% while exports accounted for the remaining 3%. These percentages were similar to those posed in 2003" (p3; 2004).

In 2005, BC had 1350 members compared to 1200 members in Ontario and 1187 members in Alberta. According to the AIBC, membership in BC has hovered around 1350 for quite some time. Interestingly, there is an influx of 450 interns in 2005 which is seen as a real opportunity. According to Dorothy Barkley, Executive Director of the AIBC, the increase in interns is attributable to two things:

(1) The fact there is so much work to be had out their right now, so firms are "supporting" interns to get registered to meet their needs.

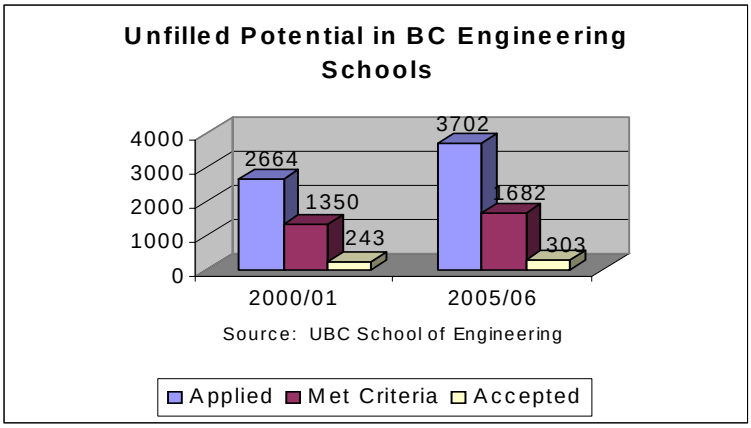
(2) AIBC has rehabilitated itself in the eyes of interns, and is now seen as supporting them to get registered, not preventing them from doing so-which has historically been a view held by the majority (AIBC; 2006).

Architecture at UBC is the only professional architecture program in the province. Approximately 35-38 students graduate each year from the program at the graduate level. There is not a professional degree at the undergraduate level. UBC does not have waitlists form one year to the next but will only be admitting 45 out of 270 qualified applicants this year (16%). Up until 2 years ago, approximately 20% of qualified applicants were accepted. The number of applicants to the program has been slowly increasing due to greater international recognition (UBC Architecture; 2006).

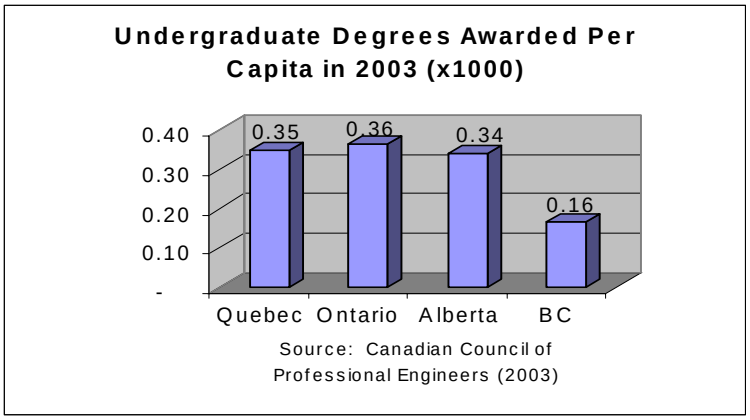
## 3.3 Challenges and Opportunities to Enhance Competitiveness

### 3.3.1 British Columbia does not graduate a sufficient number of professionals

There is currently a severe shortage of skilled professionals in the industry, yet over 80% of qualified applicants are unable to gain admission into undergraduate and graduate programs:




Moreover, BC educates fewer professionals per capita than Alberta, Quebec or Ontario showing signs that BC is loosing ground to other jurisdictions:




To overcome this problem, it is recommended that BC increase the number of students who can be accommodated in our engineering programs by up to 100% in the next 10 years. The benefit of this will be a trained workforce that can address our economy's needs and opportunities.

### 3.3.2 The trained technical workforce in the developing world is becoming a competitor

Asia, India and South America, traditional export markets for BC's PSTS industries, now educate very large numbers of professionals. According to the Colvin (2005) internationally, China's engineering graduates will number over 600,000, India's over 350,000, America's 70,000. This is compared to Canada's 10,031(Canadian Council of Professional Engineers; 2003) Moreover, these countries are competing against BC for basic technical services at a very low cost both on and offshore. It is unrealistic to expect BC firms to compete on price, however, they are still able to compete by providing specialized technology and experience.

To achieve the knowledge and experience required to be internationally competitive, new graduates need the opportunity to work in the industries. Much of the work that new graduates are initially engaged in is relatively routine and it is difficult for international clients to accept Canadian costs for this work when a similar service can be purchased in Asia or Eastern Europe at a significant discount. This "commoditization" of the learning opportunity for new graduates significantly reduces BC's opportunity to progress its Engineers to the point where they have the advanced expertise necessary to be valued in the international market..

Other jurisdictions have taken several steps to help rectify the problem:

- Queensland offers Incentives of up to $2,000 to employers for each engineering student. Depending on size of the employers, they may not be required to pay payroll taxes (CPP, EI) in relation to wages paid to apprentices and eligible trainees. (http://www.trainandemploy.qld.gov.au/client/for_business_and_employers/funding_incentives.html).

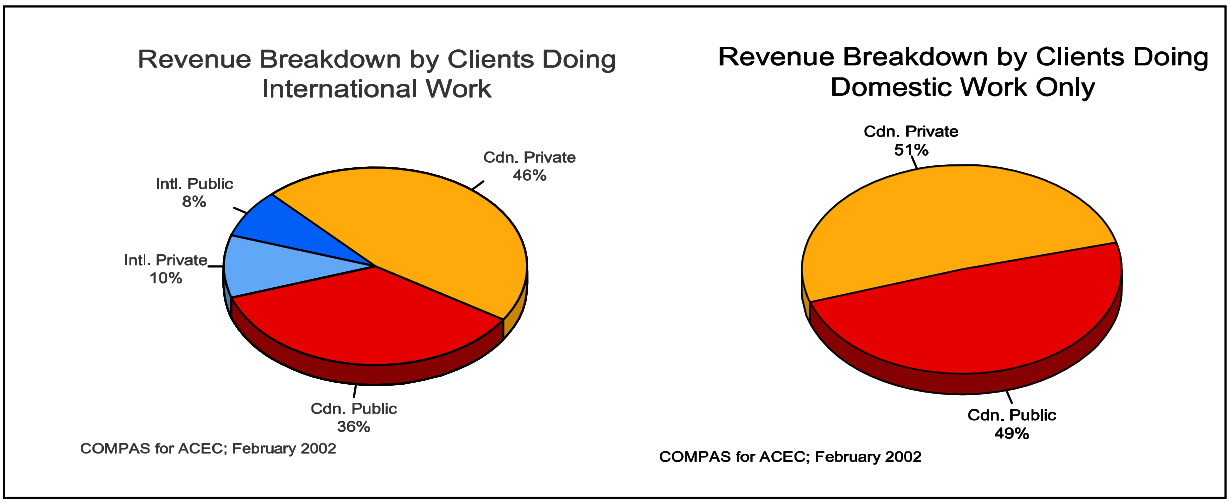
- The apprenticeship training bonus was introduced in Austria to recognize the industries' activities for the training of young people. Each training enterprise receives €1,000 per calendar year for each apprentice to compensate the enterprises' average wage costs for apprentices during the vocational school period. No contributions to sickness insurance need to be paid by neither the employer nor the apprentice during the first two years of the apprenticeship period (apprentice is fully insured). The contributions to accident insurance are waived for the entire training period (insurance coverage remains intact). (http://www.bmwa.gv.at/NR/rdonlyres/9F64FE9D-6C2C-4D67-ADFB-8AFFB69FD813/16524/DieLehreengl2004.pdf) It is important to note that in Austria both engineers and architects go through an apprentice program that is similar to the system for trades programs in BC.

- Ontario offers tax credits of 10% (or 15% in the case of small businesses) of the employee's salary or wages, to a maximum of $1,000 for the duration of each four-month placement for each student enrolled in cooperative education programs and leading-edge technology programs. (http://www.edu.gov.on.ca/eng/general/postsec/openingdoors/employers/; www.raereview.on.ca/en/pdf/finalreport.pdf).

For British Columbia's consulting Industry to retain its enviable international reputation and remain competitive, Government and industry should encourage and facilitate more students obtaining post-graduate degrees. Further, it must be recognized that professional training does not end with graduation from university and Government should support training of professionals during co-op work terms, and internships after graduation. Industry also needs to take a role by expanding the number of co-op students/interns that they employ. The benefit of this would be an expanded knowledge-based industry with advanced technologies and business acumen.

### 3.3.3 Sustained and balanced public-sector spending on public-sector infrastructure is essential for growth and development

Approximately 50% of engineering industry business is a direct result of public-sector projects:




Considering the high reliance the industry has on the public sector, policy shifts that rapidly reduce or expand spending on infrastructure are debilitating. Since the CEBC began conducting the Annual Financial Survey, fluctuations of the provincial economy have been reflected in both revenue and employment figures. Overall revenues fell 11% from $760 million in 1998 to $674 million in 1999. This can be primarily attributed to the decline in the BC market, while international revenue remained relatively constant as compared with previous years (CEBC 2000).

To overcome these fluctuations, Government should treat capital expenditures in a similar manner to operating expenditures, with consistent long-term investment. Government needs to take a more balanced and diverse approach to capital investment that doesn't overheat or depress any particular industry segment. The benefit of this would be a sustainable BC industry that provides for long-term employment, development of entry-level staff, and investment in new technology.

### 3.3.4 Government to set the standard for procurement of technical services based on quality

Procurement of engineering and architect consulting services by Government is often price-based. This is quite different than what occurs in the US where procurement of consulting services is required by legislation to be based on value, with price negotiations only with the firm selected as the most qualified. Precedents for Quality Based Procurement in the US include:

1. Public Law 92-582 (Brooks Bill) passed in 1972 confirms that QBS is in the nation's best interest in federal procurement on civilian agency projects.
2. Missouri law RSMo 8.285 - 8.291 (mini-Brooks bill) passed in 1983 specifies that state agencies and political subdivisions that don't have a written procedure must use QBS.
3. Public Law 100-464 passed in 1988 reaffirms the Brooks Law and adds specific services covered by the law.
4. The American Bar Association's Model Procurement Code for State and Local Governments (2/1979) specifies QBS as the preferred method of procuring services from design professionals. (http://www.mspe.org/displaycommon.cfm?an=2).

The primary reason for the above legislation is the knowledge that when minimizing the investment in the design of public infrastructure results in routine solutions which may require greater capital to complete, operate and maintain than one developed with a greater investment in the creative engineering process. It has long been recognized that the design of public infrastructure is but a tiny proportion of the total project life cost. Perceived savings by commoditizing the initial consulting services are typically almost imperceptible to the total project cost and often result in a significant loss of opportunity to enhance and preserve public assets. Further, the least-cost procurement results in the "commoditization" of services which, as we have already discussed, does not allow sufficient revenue for staff development or R&D.

The provincial Government should mandate a value-based procurement system for all professional services. The "two-envelope" system is preferred, with only the preferred consultant's price envelope opened for negotiations. The benefits of this would include:

- protecting the public investment and public safety by ensuring adequate fees are available to provide a complete service
- encouraging development of "total-value solutions", providing a long-term positive ROI
- government becoming a partner in innovation.

### 3.3.5 Universities can enhance research and development partnerships with industry

Currently, intellectual property agreements create barriers that inhibit industry investment in university research. Moreover, present levels of private investment at B.C.'s Universities, for research-related partnering is less than at other major Canadian Universities. It is recommended that intellectual property agreements with universities be revised to facilitate increased partnering, and increase private investment. Benefits would include:

- enhanced R&D of new technologies and processes
- more and better opportunities to compete internationally
- when industry and universities work together, innovation and economic activity increase.

## 3.4 A Profile of the Learning & Training Industry

Professional services provided by learning and training companies and organizations include the provision of educational consulting related to the design and implementation of educational programs and services, the provision of certified educational programs, training of teachers and administrators, training related to the use and implementation of educational software, systems, and other educational resources. This part of the 'industry' also includes services such as corporate training.

Export potential from the sector includes:

- foreign student revenue
- revenue generated from offshore campuses
- revenue generated by school boards related to international student activity
- export of educational products including: educational consulting; teacher training; learning systems and software; educational resources (textbooks and print material)
- establishment of teaching and research partnerships overseas.

### 3.4.1 Value of the industry

International students represent a worldwide business valued at $2.2 trillion. Differing reports suggest Canada has anywhere from 1-5% of the international education industry. (Leadlay, 2005) According to a report issued by BC Progress Board on December 7, 2005 "Annually, the education sector is responsible for generating more than $2 billion from its international education activities. Approximately one-third of this revenue flows directly to the education organizations as tuition, while the balance is spent by international students on housing, food and leisure activities (BC Progress Board; 2005 p9).

The Vancouver Economic Development Commission estimates that ESL organizations in the Greater Vancouver area generate $500 million each year from tuition and student housing alone. The total annual impact on the Greater Vancouver area of sort-term ESL students is approximately $760 million. These numbers were also reflected in a report recently prepared on September 21, 2005 by the Ministry of Advanced Education titled "International Education as an Economic Sector." Needless to say, this figure does not cover similar activities in communities such as Victoria, Nanaimo, Prince George, Kamloops, and Kelowna, activities that likely push the economic impact of this sub-industry up to $1 billion annually (BC Progress Board, 2005).

In 2003/2004, over 9,300 international students were registered in BC's K-12 system, contributing over $230 m to the provincial economy. This includes 120.8m in direct revenue through school fees. (Ministry of Advanced Education; 2005 p2).

Offshore campus, international program delivery, international contracts, joint research and other international linkages also bring significant (but unquantified) benefits to the BC economy.

### 3.4.2 Learning and training industry challenges

Other countries competing for learning & training opportunities have coordinated approaches that enable them to capture large contracts and opportunities. According to the Ministry of Advanced Education, some competitor jurisdictions have considerably higher funding and activity levels for international education initiatives than BC. The Ministry of Advanced Education currently has 2 staff and no additional funding for international initiatives. Nova Scotia, which has a much lower number of international students (5094 in 1994) has a dedicated organization with three staff and an annual budget of $1m. Ontario, which has only slightly higher student visa rates (57,806 compared to 44,307 in BC in 2004) will have a budget of $10m by the year 2010 (Ministry of Advanced Education; 2005; p18).

Meanwhile, BC companies and institutions are left to their own devices when it comes to both identifying and approaching large offshore markets, particularly in China. On the international stage, BC's education providers come up against highly coordinated and government supported marketing and promotion campaigns from the UK, Australia and New Zealand. Similarly, Ontario and Quebec education providers have adopted a coordinated approach to marketing and promotion in the international arena, again with government support. In contrast, marketing and promotion in BC's international education industry is carried out, for the most part by individual organizations. In British Columbia each post-secondary institution currently pursues its own marketing efforts, through its own channels. As a consequence, the province presents a confused and uncoordinated image to the marketplace (Ministry of Advanced Education; 2005).

To make matters worse, BC institutions and school boards often compete for the same opportunities in the Asian market, confusing their potential customers.

To overcome these problems, private industry should create a VQA equivalent for accreditation (ideally with Government support) and promote BC companies and institutions that meet the criteria under the BC brand. In addition, a network of BC representatives in target Pacific Rim markets would provide on-the-ground support to build relationships in countries with potential to establish offshore education services. Benefits would include:

- quality assurance for buyers and for local public-sector partners
- better overseas profile for BC providers
- a united front that gives credibility to qualified providers.

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# Appendix – Data Tables

### Engineering Revenues

| *Source: 54133-Engineering Services (Stats Canada 2003)* | | | | | |
|---|---|---|---|---|---|
| Operating Revenues ($M) | Quebec | Ontario | Alberta | BC | Canada |
| 2003 | 2,369.4 | 3,686.5 | 2,612.0 | 1,512.9 | 11,044.5 |
| 2002 | 2,346.1 | 3,772.5 | 2,563.2 | 1,414.6 | 10,866.3 |
| 2001 | 2,274.2 | 3,748.6 | 2,252.6 | 1,438.9 | 10,446.0 |
| Population | 7,503,502 | 12,280,731 | 3,164,400.0 | 4,158,649.0 | |
| Per Capita | 315.8 | 300.2 | 825.4 | 363.8 | |

### Engineer Graduates Per Capita

| *Source: Canadian Council of Professional Engineers 2003* | | | | |
|---|---|---|---|---|
| Undergraduates Degrees Awarded | Quebec | Ontario | Alberta | BC |
| 2003 | 2,606 | 4,479 | 1,078 | 683 |
| 2002 | 2,510 | 4,097 | 918 | 635 |
| 2001 | 2,467 | 3,644 | 829 | 670 |
| Population | 7,503,502 | 12,280,731 | 3,164,400 | 4,158,649 |
| Per Capita (x1000) | 0.35 | 0.36 | 0.34 | 0.16 |

### Architectural Revenues

| *Source: Architectural Services Industry-Stats Canada; 2004* | | | | | |
|---|---|---|---|---|---|
| Operating Revenues ($M) | Quebec | Ontario | Alberta | BC | Canada |
| 2004 | 323.4 | 868.2 | 234.1 | 340.2 | 1,920.3 |
| 2003 | 323.3 | 901.2 | 211.1 | 297.6 | 1,873.1 |
| 2002 | 296.1 | 911.9 | 227.4 | 269.5 | 1,824.7 |
| Population | 7,503,502 | 12,280,731 | 3,164,400 | 4,158,649 | |
| Per Capita | 43.1 | 70.7 | 74.0 | 81.8 | |