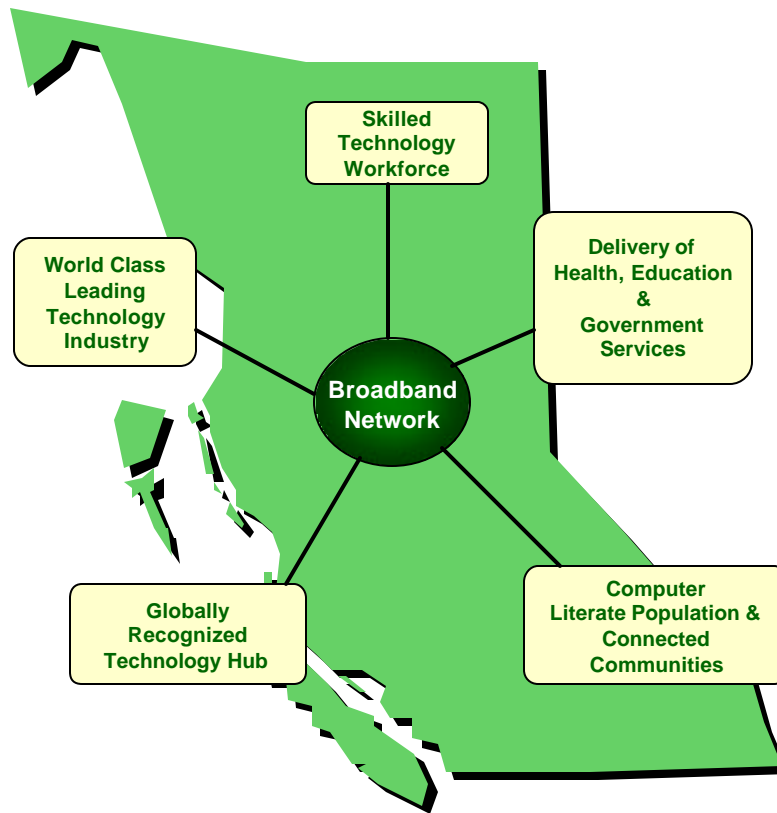


Premier's Technology Council

First Quarterly Report

November 22, 2001



We believe that with strong cooperation between the provincial government and private enterprise, British Columbia will be one of the world's top ten technology centres by 2006.

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EXECUTIVE SUMMARY

On August 20, 2001, Premier Gordon Campbell announced the formation of a Premier's Technology Council (PTC). Comprised of leading members of the B.C. technology community and academia (see *Appendix A – PTC Members*), the PTC's mandate is to provide advice to the Premier on all technology-related issues facing British Columbia and its citizens.

The PTC's work begins with the recognition that B.C. is the most connected province in Canada. More than six out of ten of our citizens have access to the Internet. According to a recent survey by Ipsos-Reid, 49 percent of British Columbians think the tech sector will contribute the most economic activity and jobs to the B.C. economy in the future. People in this province get it – they have a demonstrated comfort with technology and a willingness to adopt technical innovation into their daily lives. However, the PTC believes that beyond simply using technology, B.C. is capable of moving towards a leadership position in the ongoing tech revolution. All PTC members feel that our province is in a unique position to seize the initiative and turn B.C. into a global hub for technology research, development and manufacturing.

In order to focus its efforts, the PTC has identified the following key issues as critical to a successful diversification of the provincial economy and to improving the quality of life of our citizens. The PTC is examining ways to:

- **Remove barriers that keep many British Columbians from participating in the knowledge-based economy and from accessing the educational, social, and cultural benefits delivered through broadband networks.**
- **Identify areas where technology can make government more efficient and improve the delivery of government services throughout the province, including education and health care.**
- **Ensure the growth and development of a vibrant, globally-competitive technology industry in British Columbia.**

To address these issues, the PTC has formed four task groups:

ACCESS & OPPORTUNITY – to identify the digital divide that exists in the province and suggest ways to bridge it; to provide the training and skills development necessary so those British Columbians who wish to participate can have an opportunity to do so.

GOVERNMENT OPERATIONS & SERVICES – to identify government services that can be effectively delivered via a telecommunications network (e-government) and to suggest improvements in government’s prioritizing, acquiring and implementing technology to reduce costs, expand services, and increase operational efficiency.

INDUSTRY GROWTH & DEVELOPMENT – to identify policies that will accelerate the development of a vibrant, competitive technology industry in British Columbia.

MARKETING & PUBLIC AWARENESS – to promote B.C. worldwide as a globally recognized technology centre, and raise the awareness of the B.C. public of the social, economic, and cultural benefits of being digitally literate.

The task groups have begun to solicit input from technology professionals in the public and private sectors as well as from representatives of B.C. communities and other interested parties. This process of consultation will continue over the next 90 days.

SUMMARY FINDINGS OF THE TASK GROUPS

ACCESS & OPPORTUNITY TASK GROUP

The major goal of this group is to advise government on how to make broadband access available to every community in British Columbia. The group has defined community as a location in B.C. with a place name, a public school, a library, or a health care facility, and has adopted a broadband definition similar to that set out by the National Broadband Taskforce of 1.5 megabits per second. The work of the Access group has particularly focused on identifying root causes for the digital divide, which is the gap between those communities and people who can access the Internet and those who cannot. The group has been examining four different kinds of access that contribute to the digital divide and will be making recommendations on how to bridge the access gap within each category.

Network Access – Although B.C. residents are more connected than other Canadians, few have access to high-speed, “always-on” broadband networks. While areas with high population density are connected, most B.C. communities do not have access to broadband services.

Status: The task group is investigating three potential models for bridging the network access gap. Each of these models assumes that the private sector will build and run the broadband infrastructure, and that the most cost effective way to bridge the digital divide is through leveraging of public sector demand for network services.

1. Corridors of Strength Model: Aggregated government demand is split into three areas (backbone transport; open access POP's; and local community access distribution) with the potential for several contracts and vendors to provide network services in each community.
2. Government Aggregator Model: Single prime contractor builds and operates the network on behalf of the government. In this model the prime contractor, who is not a supplier, will hire sub-contractors to build out the network. Government leverages up-front commitment of public sector demand to motivate the contractor to deliver broadband to all communities.
3. Winner Take All Model: Single supplier provides total service – including all wide area backbone transport and local distribution service. This model allows a large supplier to make trade-offs between profitability from high-margin areas and less economically viable low-volume remote locations in order to supply broadband at a single price to all B.C. communities.

Skills Access – Many citizens lack the digital literacy skills required to use the Internet effectively. The first step is basic computer training – people need to see the computer as a simple, non-threatening tool. The second step is familiarizing people with the Internet and how to access it.

Status: The group is investigating the most cost effective models for delivering free computer literacy training to every B.C. community, as well as developing programs to overcome language barriers, lack of awareness, and other obstacles to digital literacy in the province.

Economic Access – Not everyone can afford or can gain access to a computer or to a high-speed connection to the Internet. In some ways, a person living in poverty in the inner city can be as disenfranchised as someone in the remotest regions of the province. Bridging the digital divide includes access for those who cannot afford the Net at any price.

Status: The group is investigating how to overcome the lack of sufficient public Internet access sites in B.C. communities as well as the restricted hours of operation and limited access to terminals in most existing sites. In addition, the task group is examining ways to develop incentives (such

as tax credits, interest-free loans, recycling of equipment, mentorship programs, etc), to make computers and Internet access available to low income families and other disadvantaged individuals and groups, as well as to schools and other public access sites that are currently under-served or lack resources.

Impact Access – Many people in the province are unaware of the impact that digital technology can have on their lives. They don't understand the relevance of broadband connectivity, and are unaware that high-speed access to the Internet can open up a world of practical information about health and education, finances and government services, news, hobbies and friends.

Status: In conjunction with the Marketing & Public Awareness Task Group, the Access group is investigating how to develop a cost-effective marketing strategy that will promote the social, cultural, and economic benefits of access to broadband services, and will highlight the increasing availability of e-government services throughout the province.

GOVERNMENT OPERATIONS & SERVICES TASK GROUP

British Columbians from all parts of the province are using the Internet today to access and share information and conduct business from their homes or offices. The task group notes that the B.C. government was an early adopter of using the Internet to distribute information, and today all government publications and bulletins are routinely made available on-line within a few hours of their creation. Through the Chief Information Office, the government has established BC Connects, an Internet portal that provides interactive services and on-line information to the citizens and businesses of British Columbia. A recent Accenture study ranked British Columbia first, beating out second-place Ontario, in delivering government services on-line.

The Government Operations & Services task group is focused on providing a framework that will enable B.C. government to maintain this lead. Converting paper-based methods and processes into an on-line format will directly increase and broaden e-government services available to British Columbians, while also enabling the government to control and reduce the overall cost of operations.

There are three areas where government can increase the efficiency and effectiveness of its services, and at the same time make a significant impact on its bottom line:

e-health – On-line delivery of health care services and information is a top priority. Improved access to and sharing of health care records and services will result in improved health care across all regions; more effective use of specialists; efficient recruitment and retention of

professionals; reduced costs for travel; and greater efficiencies and speed in delivering information to all communities in the province.

e-learning – Distance should not be a barrier to British Columbians who wish to gain a high quality education. E-learning can bring the classroom to students, K-12 through college, and support career skills upgrading and effective lifelong learning. As the province evolves from a resource based economy, e-learning can help stimulate the development of skills which will drive the economic diversification necessary to support small communities – and do it in a cost-effective manner.

e-procurement – An on-line procurement process can ensure that government purchasing is offered to the widest possible supplier community and that government obtains best value for its dollars. Government, taxpayers, and vendors will benefit from a procurement strategy that uses the Internet to co-ordinate purchasing across all ministries, while speeding delivery and tracking supplier performance.

Status:

In order to build upon B.C.'s current leadership position in e-government, the focus of the task group over the next quarter will be to increase and enhance the delivery of on-line government services by:

- Providing guidance to the government in setting the priorities for implementing an e-government framework.
- Recommending policies that will ensure that all new government processes or services that are developed are native, digital applications.
- Focusing on e-health, e-learning, and e-procurement in order to construct a matrix of existing e-government initiatives currently underway or completed. Identify priorities within each area that can lead to immediate efficiencies in government service delivery and a reduction and/or avoidance of costs.

INDUSTRY GROWTH & DEVELOPMENT TASK GROUP

The technology industry is a significant part of the B.C. economy with 49% of British Columbians believing that it will be our most important sector in the future. With the global economy moving to the information age, the task group believes that British Columbia has everything it takes to become a global technology

leader, and with the support of government, the growth of our technology sector will contribute in a major way to the future prosperity of our province.

The group recommends that government:

- Educate a world class technology workforce – Implement a plan to double the number of computer science and electrical engineering graduates from B.C. post-secondary institutions. Continue encouraging universities to foster technology graduates in other disciplines and to support an increased number of technology-related spaces in all fields of post-secondary education.
- Establish Research Chairs at B.C. colleges and universities – Fully fund the R&D grants that are a primary factor in attracting senior researchers and educators to B.C. Establish 20 B.C. Research Chairs in the fields of medical, social, environmental, and technological research. These chairs will be instrumental in attracting the necessary faculty for increased academic spaces and addressing the significantly low levels of per capita research and development spending in B.C.
- Attract senior professionals – To accelerate industry growth and learning, the province needs seasoned professionals in middle and senior technical, management and marketing positions. This will involve:
 - Changes to immigration policy to enable targeted professionals to work and live in B.C. This will involve reform of spousal employment rules to recognize that most families have more than one working family member and to allow those other members to have a career in Canada.
 - Establishment of an Info-Office to aid in the recruitment of out of province technology workers and relocation of technology companies to B.C. This office will provide a central source of information on B.C. schools, communities, taxes, housing, health care, legal and other information critical to a decision to relocate.
 - Implementation of a competitive provincial stock option program for B.C. workers. Stock ownership allows workers to participate in the success of their efforts, aligns company policy with the workers' best interests, and increases government revenues in successful companies where ownership is outside of B.C.
 - Resolution of cross-boarder security issues with the U.S. We need to ensure an unimpeded flow of goods, services and above all, talented people between B.C. and the U.S.

Status :

The task group over the next 90 days will focus its efforts to further detail the above recommendations and encourage government to move quickly to implement change in the above areas.

MARKETING & PUBLIC AWARENESS TASK GROUP

The group believes that B.C. can be globally recognized as one of the top ten centres of technology and that such recognition will lead to great economic benefits and career opportunities for British Columbians. To be globally recognized, B.C. must have a vibrant presence along with a well thought-out marketing and communications plan. Such a marketing plan needs to include a strong brand tag line, as well as a digitally literate and connected work force and a vibrant technology industry with global leaders.

The task group is also focusing its efforts on raising public awareness of the increasing amount of information and number of services that are available over the Internet. An essential element of bridging the digital divide is to raise the awareness of all British Columbians about the opportunities presented by the knowledge-based economy. Government cannot fully achieve the potential cost benefits of delivering its services electronically over the Internet until citizens are able and willing to use this new tool.

The group recommends:

- That B.C. establish a domestic and international campaign to promote B.C.'s quality of life, superior infrastructure, education system, technology community and business-friendly environment. Key to this campaign is a brand or marketing tag line that capitalizes on the positive perceptions of B.C. as a great place to live as well as a place of technology innovation and leadership.
- That B.C. educate the public on the benefits of being fully connected, including access to relevant Internet-based applications and information, and increasing e-government services.

Status :

The group has begun to work with marketing leaders to develop a strong brand or marketing tag line that can convey to people our excellent quality of life and natural physical beauty along with a strong technology-savvy work force, culture of innovation, technology leadership and global leadership in the new economy.

The group is also beginning to define a public awareness campaign that educates British Columbians on the relevancy of being digitally literate, how to get there, and how to take advantage of government services as they become available on-line.

PUBLIC CONSULTATION

It is the clear intention of the PTC that this report will form the stimulus for further discussion with the public, communities, the government, and industry as we drive toward recommendations that can be supported and implemented over the course of our mandate. To this end, the Council wishes to put in place a process of public consultation in order to receive input.

The PTC believes, that it is essential to solicit direct input from communities including citizens, community groups, businesses, and local government. Over the next 90 days the PTC will engage in a consultative process that will include requesting written submissions from interested groups and individuals, meetings with select organizations, and a limited number of regional meetings.

Introduction

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In order to focus its efforts, the PTC has identified the following key issues as critical to a successful diversification of the provincial economy and to improving the quality of life of our citizens:

- **Remove barriers that keep many British Columbians from participating in the knowledge-based economy and prevent them from accessing the educational, social, and cultural benefits delivered through broadband networks.**
- **Identify areas where technology can make government more efficient and improve the delivery of government services throughout the province, including education and health care.**
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To address these issues, the PTC formed four task groups:

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MARKETING & PUBLIC AWARENESS – to promote B.C. worldwide as a globally recognized technology centre, and raise awareness of the B.C. public of the social, economic, and cultural benefits of being digitally literate.

The task groups have begun to solicit input from technology professionals in the public and private sectors as well as from representatives of B.C. communities and other interested parties. This process of consultation will continue over the next 90 days.

Vision

VISION

The Premier's Technology Council believes that broadband Internet access will enhance the future prosperity of all British Columbians. Our province is part of an increasingly integrated national and global economy. B.C. forestry and mineral products compete worldwide. The same must be true for our technology and knowledge-based industries.

Future competitive advantage in all industries, from mining to bio-technology to tourism, requires the increased use of advanced information and communication technologies. First among these technologies is the Internet – the worldwide network that links people, companies and economies. The PTC firmly supports the development of a fast, reliable and secure provincial Internet infrastructure so that all British Columbians can participate fully, both today and tomorrow, in the opportunities enabled by Internet communications.

British Columbia is the most connected province in Canada. More than six out of ten British Columbians have access to the Internet and three out of four of our small businesses are using this technology. We rank first in the nation with the number of individuals and businesses on-line and we're the only province in Canada with a secure, high-speed network connecting all government offices and schools, encompassing approximately 4,000 locations. A recent study by consulting firm Accenture Ltd. of New York ranked British Columbia first among Canadian provinces in delivering government information and services on-line.

We are in a position to enhance B.C.'s attractiveness and market our strong position to both domestic and foreign investors as the preferred technology destination within Canada, if not North America.

Most citizens recognize the importance of being on-line, and we are poised to take full advantage of the opportunities offered by a province-wide information technology network. Others will join us in due course. In this kind of revolution – industrial and technological – it pays to be out in front. Leadership here will create and sustain its own economic momentum.

Although B.C. has a slim lead today, we will not maintain this position unless we are prepared to deal with the fact that the majority of B.C. communities do not have access to the significant opportunities provided by a broadband network. The PTC also believes that access to network infrastructure in itself is not sufficient. British Columbians also need sufficient public Internet access points and relevant computer literacy skills, as well as access to appropriate content and applications, that will

enable all of us to participate fully in the new knowledge-based economy. Finally, the PTC also envisions that within five years, B.C., having developed a skilled technology workforce, supporting an educational infrastructure second to none, and boasting a leading technology industry, will be globally recognized as one of the top ten technology centres in the world.

Guiding Principles

GUIDING PRINCIPLES

To guide the PTC and provide direction to those engaged in implementing its recommendations, the following principles have been established.

- British Columbia's greatest resource is our people. Technology education and digital literacy must be provided as base level skills in public education and the B.C. workforce. B.C. must establish a culture of innovation and entrepreneurship to enable individuals and the economy to flourish.
- Access to technology awareness and education should be offered to all British Columbians, including First Nations, women, the disabled and other groups requiring additional support.
- B.C. should build on the existing network of access sites and learning centres, in order to give all B.C. communities access to the social, cultural and economic benefits of information technology.
- B.C. laws, regulations and policies should be structured and, where necessary, modified to enable the use of digital information in the delivery of government services and access to information by businesses and the citizens of B.C.
- B.C. must have a broad, vibrant and innovative technology industry to diversify the provincial economy and provide expanded opportunities for British Columbians to lead in the knowledge economy. B.C. already has many of key ingredients needed for the technology industry to thrive and become a global player.
- The technology industry is broadly defined to encompass all advanced technology based sectors including information technology, new media, alternative energy and biosciences.
- The use of information technology is critical to the success of all industries in the province, traditional and emerging ones, and not just the advanced technology sectors.
- British Columbia should strive to gain economic and social competitive advantage wherever possible, support innovation and entrepreneurship, and develop a dynamic and friendly business investment climate.
- PTC recommendations should focus broadly on the technology industry, particular sectors therein, and industry innovation, rather than on individual companies.

- The PTC endorses the extensive groundwork of the National Broadband Task Force, but believes that their body of recommendations should be examined and adapted to represent the needs of the citizens and communities of British Columbia.
- B.C. should leverage federal initiatives wherever possible, to enhance our investment and expedite the deployment of technology-based initiatives.
- Policy recommendations should support private/public sector partnerships wherever feasible and should not require a large outlay of public funds and subsidies.

Operating Guidelines

OPERATING GUIDELINES

As the members of the PTC are all leading professionals within the B.C. technology community and academia, it must be understood that:

- a. each Council member is participating in the PTC as a volunteer, bringing specialized knowledge and expertise to the Council, and
- b. each member of the PTC is affiliated with a private or public company or institution.

In order to avoid any perceived conflict of interest, the following guidelines have been established and agreed upon by the members of the PTC:

1. The PTC and its members (other than the Premier) are independent of the government.
2. PTC members have been asked to volunteer their time and expertise to the benefit of the province of British Columbia.
3. The PTC's role is to provide independent and impartial advice to the Premier on all matters relating to technology in the province of British Columbia.
4. The PTC members believe that the government should pursue technology solutions that incorporate open standards and provide for maximum present and future flexibility.
5. It is the role of government to engage in an open and fair process of tendering for goods and services to carry out the recommendations of the PTC as it sees fit.

PTC members (in the course of conducting research or interviews to give the advice government has asked them to provide) may find themselves in circumstances that could give rise to a perceived conflict of interest. In such circumstances, PTC members are required to declare their conflict of interest and to remove themselves from participation in any discussion of such matters, and to remove themselves from voting upon specific recommendations that might arise related to these matters. This provision also extends to the role of individuals whose time and efforts have been volunteered by Council members in support of the work of the PTC. As long as any reasonable perception of conflict has been disclosed and addressed in the manner prescribed above, the work of PTC members shall not preclude their organizations from participating in any existing or future government projects.

Section A

Access & Opportunity

A. ACCESS & OPPORTUNITY

INTRODUCTION

The PTC has been challenged by the government to recommend solutions to bridge the digital divide, but what exactly is the digital divide? While many simply call it the gap between those who physically have access to the Internet and those who do not, the Council believes the term is much broader in scope, and that there are many ways in which the digital divide is manifested. We have grouped them into four areas of access: **Network Access**, **Skills Access**, **Economic Access**, and **Impact Access**.

The PTC defines these terms as follows:

Digital Divide, Community, and Broadband

The term “digital divide” has been in popular use since 1998 and was originally coined to describe a gap between those people and communities who can make effective use of information technology and those who cannot. A community, for the purposes of this report, is defined to mean anywhere in B.C. with a place name, a public school, a library, or a healthcare facility. While the definition of broadband varies widely (often as low as 400kbs in the United States), the task group has adopted a broadband definition of 1.5 megabits per second.

Network Access

Network access is broadly defined as the ability of B.C. communities and citizens to access broadband Internet resources. B.C. residents might have access to the Internet, but not to the high-speed “always-on” services provided by a broadband connection. While much can be achieved by narrow band telephone lines, we believe that future needs will demand that broadband connections be extended to all B.C. communities, such that every British Columbian can access a broadband network.

At present, high-speed broadband is available predominantly in the more populated areas of the province, so that the majority of B.C. residents have access to some form of broadband. The majority of B.C. communities, however, do not have access.

Skills Access

Skills access is broadly defined as people having the necessary technical skills to effectively use the Internet. Many people lack the digital literacy skills required to use information technology effectively. Digital literacy

describes the degree to which an individual or a society embraces, understands and uses computers and the Internet. A community's digital literacy level is a good indicator of its ability to use high technology for business, pleasure, health and education.

The first step towards digital literacy is basic computer training. Once computer technology is acknowledged as being simply another non-threatening tool, the user quickly understands the benefits of using this tool to gather, share and profit from information. The province currently has a system of public access sites in libraries situated throughout B.C.; however, these sites often provide only very limited free or low cost training to citizens in rural and remote parts of the province. In addition the insufficient number of terminals (and resulting time constraints per session) is incapable of meeting community demand. Moreover, while limited access facilities exist in many communities, there has been little promotion of the benefits of information technology to the B.C. population and no attempt to improve community capacity in this area. While acknowledging that some B.C. citizens will always have little or no interest in accessing the Internet, the PTC believes there is a role for government to play in improving access to computers and training while promoting the benefits of greater use of information technology in many areas of the province.

Economic Access

Economic access is broadly defined as people having sufficient funds to access and use computers and the Internet. Citizens might not be able to afford the cost of a computer or access to a high-speed connection to the Internet. While narrow band access costs are comparable throughout the province, broadband access costs vary widely between communities. Hence, a divide in access and usage develops between more densely populated urban centres and the remote, less populated regions of our province. It is also worth noting, however, that a person living in Vancouver's downtown east-side can be just as much a victim of the digital divide as a person living in the remotest regions of our province.

Impact Access

Impact access is broadly defined as people having the necessary personal, social, cultural and economic incentives to incorporate computers and the Internet into their daily lives. Many people are unaware of the impact digital technology can have on their lives. They don't understand the relevance of broadband connectivity or that high-speed access to the Internet can open up a world of practical information about health and education, finances and government services, news, hobbies and friends. Over time, the impact of having access to the

Internet can be substantial. Once they achieve digital literacy, individuals tend to seek out Internet-based applications offered by both the private sector and government.

Potentially, applications in such areas as e-learning and e-health can have enormous impact and may require increasing the number of terminals and public Internet access sites to meet community need.

MISSION OF THE TASK GROUP

B.C. is currently the most connected province in Canada – and a region's connectedness can be a good indication of its productivity and overall health as a modern society.

Our goal is for B.C. to maintain and build on this leadership position and to provide effective access to the Internet to all its residents.

With full access to the broadband Internet infrastructure, B.C. citizens and enterprises can develop a leadership role in the present and future global economy, and the entire province will reap the rewards.

Access to information technology and networks is a vital tool for those communities that want to become less dependent on natural resources, as well as those in the process of reinventing themselves as a result of shifts in the economy.

As usage grows, so does the need for broadband access. Broadband offers the potential to improve the delivery of healthcare and education while changing the way government is delivered in B.C. and the way citizens communicate with the government, neighbours and friends.

Proprietors having access to e-business tools will generally gain a distinct edge over competition in other, less connected jurisdictions.

Both citizens and government will benefit through electronic delivery of government services, such as licence renewals and registrations, throughout B.C. via a province-wide high-speed network. Citizens and businesses need to have convenient access to emerging e-government services and be fluent in navigation and use of on-line applications and resources. Citizens need to know how useful the Internet can be if they're to use it often and productively in a knowledge-based society.

OBSTACLES TO PUBLIC ACCESS AND DIGITAL LITERACY

A. PUBLIC ACCESS

1. Economic barriers – the lack of funding for computer equipment by individuals, small businesses and institutions; cost of being connected, at home or in the community; and the cost of maintaining and upgrading existing systems.
2. Lack of public access sites available to B.C. residents and restricted hours of operation.
3. Lack of capital funding to renew equipment and provide ongoing training so that public access workers, e.g. librarians, can support users.
4. Lack of floor space to expand current service sites and no incentive for the private sector to set up access sites.
5. Urban and regional disparities in infrastructure, and varying quality of access (rural connections often use low-speed dial-up technology).
6. Lack of awareness of public access. In some community groups, complacency is a major hurdle.
7. Fear of using technology.
8. Perceived lack of security.
9. The difficulties that citizens with English as a second language face in accessing and understanding the Internet.
10. Perceived legal and liability implications.
11. In First Nations communities, obstacles to public access are represented by many of the same hurdles listed above. In addition there are no access points in most First Nations communities and very few community champions to promote the use of information technology.
12. Access for special needs.

B. Digital Literacy

1. Lack of free, publicly available training in basic computer operation, Internet access and information technology and a lack of certified trainers.
2. Lack of public, on-line support.
3. Complacency – a marked lack of interest and awareness of digital training.
4. The cost of delivering awareness and education. Training and support costs are an issue in every community as are the language barriers found in certain segments of the population.
5. Lack of criteria or tools for measuring success.

NETWORK INFRASTRUCTURE

British Columbia is a large province with rugged terrain and widely spaced, often small communities. Network construction is difficult, and expensive. The Access & Opportunity Task Group believes that the way to bring better access to advanced network services to B.C. communities is to use existing infrastructure, wherever possible, and to use the purchasing power of the provincial government (B.C.'s largest user of networks) to help lever better access for communities.

The provincial government data and voice network in B.C. (Shared Provincial Access Network – SPAN BC) is unique in Canada. It connects 400 Towns, over 2000 educational institutions, all provincial pharmacies, hospitals and over 1,500 government locations. The government benefits from having a single, secure network that offers protection against cyber-attacks, protects confidential information and is provided in a cost effective manner both because of the size of the network and the competitive way services are procured.

In order to advise government on how it may be possible to bring better access to broadband to B.C. communities through the leveraging of government purchasing of network services, the task group is examining three different potential models. These are:

1. Corridors of Strength model
2. Government Aggregator model
3. Winner Take All model

It should be noted that there are other network infrastructure models besides the three discussed in this report; moreover, these models are not necessarily discrete or independent of each other, and the blending of elements to create hybrid models is certainly possible. The PTC will be undertaking a consultative process with industry and government over the next few months to develop recommendations concerning an appropriate network infrastructure model for B.C.

The three models are based upon two fundamental assumptions: that the private sector will build and run the broadband infrastructure, and that the most cost effective way to bridge the digital divide is through leveraging of public sector demand for network services.

As suggested above, the PTC feels that since government has limited upfront investment dollars to commit as an incentive for telecommunications companies to extend their networks into remote areas of the province, operational spending into these rural areas should be leveraged as part of any procurement process. Our current estimate is that government (including core government, Crowns, health boards, etc.) spends in excess of \$100 million per year in this area. Since telephone, as well as data, is now a mainly digital service, the government's telephone costs could perhaps also be aggregated as a tool to help bridge the digital divide.

There has been research done within government to determine the infrastructure costs of building a high-speed network from the ground-up in British Columbia. This work was done to aid in negotiations with telecommunications companies. This research suggests that a broadband network capable of delivering essentially unlimited bandwidth to 154 communities (comprising 86% of the population) would cost in the range of \$250 to \$350 million. This number includes approximately 9,600km of installed fibre and the transmission equipment necessary to deliver an open Point of Presence (POP) in each community. There were two ways of arriving at this estimate. The first was to use the formulas provided by telephone and cable companies to the National Broadband Taskforce and the second was to start from scratch with the cost of fibre optic cable and begin to estimate construction costs. Both estimates arrived at a similar number. These figures have been verified at the low end of the range by IMS Experts – conseils, a Quebec-based engineering firm acknowledged as one of Canada's premier designers of fibre-networks.

Corridors of Strength Model (CSM)

In this model, delivering high-speed access into communities is split into three distinct areas:

- (i) wide area backbone transport – these are the high-capacity, fibre-optic lines between communities
- (ii) open access POP's – a POP is a Point of Presence within a community, which is the point where the backbone terminates and devices are put in place to let Internet service providers, government users, or community networks connect to the network. More simply put, a POP is an exchange point where service providers meet up with users.
- (iii) local community access distribution. This is the local distributions system that could utilize the cable system, fibre-optics, phone lines or wireless devices.

Under this model there is the potential for three levels of contract and the possibility for three different companies to run the network in each community.

The key distinguishing feature of CSM is that the government directs its efforts towards the problem of bringing a supply of broadband to all communities at similar pricing throughout the province. This motivates innovation and frees local entrepreneurs or community network groups within the communities to solve the local access distribution problem, without the fear of being stranded as an “island” of connectivity (i.e. Prince Rupert is unique because the municipality owns its own telephone company. However, its efforts to bring better access to citizens have been difficult over the past several years because it does not have high-capacity links to the outside world at an affordable price).

The Corridors of Strength model gets its name from the concept that in the corridors (between towns) the tendering process will permit telecommunications companies, or new start-ups, to provide network services on a regional basis, depending on where the regions have fibre or facilities currently located. For example, an organization that currently only owns fibre between two towns in Northern B.C. could be a provider of backbone capacity in just that area (or corridor) of the province. This regional tendering process is meant to maximize competition and ensure lower overall costs. A second tendering process could be used to select a manager of the open POP's and the third would be to pick carriers to connect government buildings in each community.

CSM provides the greatest degree of flexibility of the three models. There are potentially more contracts, with a higher number of vendors in this model than the others. This increases the administrative burden of the

network but may be balanced by the fact that aspects of the network are managed on a local and regional basis. Regional participation may in turn lead to a much higher degree of regional economic development than would otherwise occur. The other two models both offer greater initial potential cost savings because they take maximum value from the bulk buy represented by the government demand aggregation. However, they may stifle competition over time and as a result, government may face much higher prices as competitors leave the field. Another potential advantage of CSM is that a separate manager for the POP in each community should mean active management of the facility responsive to local needs and the development of additional value added features such as peering at a local level.

Government Aggregator Model (GAM)

In this model, government would tender to a single prime contractor to take on the role of building and operating a broadband network throughout the province on behalf of the government. This contractor would strive to use existing facilities wherever possible, but would also be free to build facilities on behalf of the government where cost justified or where no other options exist. With this model, government could own any new facilities constructed.

This model in some ways represents a new type of public utility. The goal of this utility would be to make broadband infrastructure equally available and affordable throughout the province to both the public and private sectors. To achieve this goal the utility would take advantage of the competitive market place for broadband services where such markets exist and build or stimulate the building of broadband infrastructure elsewhere.

The PTC believes that innovation and competition are necessary conditions to accessible and affordable broadband access and that these cost-reduction drivers succeed in a diverse market place characterized by numerous market participants both large and small. It is, therefore, worth noting that within GAM, the prime contractor would need to be a neutral market entity or non-supplier. To further the goal of neutrality, the prime contractor would also be responsible for operating the broadband access points – open access POP's – thus ensuring affordable and available access to all market place participants. Government would get its services directly from the prime contractor. Market participants, such as ISP's, would use the utility's broadband services as part of their supply chain to end customers.

In this model government has two tools to ensure that the prime contractor lives up to its obligations. These are: (1) committed up front public sector demand and (2) asset ownership. Committed up front public sector demand would provide a stable fiscal base on which to build the infrastructure. Government asset ownership would leave government in control, giving it the flexibility to replace the prime contractor should there be performance issues.

In this model government commits up front public sector demand to the contractor while retaining ownership of those network assets that it built. The contractor has a stable fiscal base (the up front commitment) while the government has inherent control (the ownership of the asset). Upon expiry of the initial contract term, the government has the option either to continue using the prime contractor or to replace the contractor without having to abandon its investment in the network asset.

A key difference between this model and CSM is that with GAM, the prime contractor, by virtue of its job to manage the entire network, becomes the service provider to all the public sector entities in the province.

GAM provides a high degree of control to government users. As the government is in effect a strategic partner in the network, this model should be particularly responsive to the needs of government users on a day to day basis. Government should be able to accurately predict precise network costs for the length of the contract and a formula for increased demand (scalability) can be built into the contract as well. A potential Achilles heel is the partnership arrangement, where government investment of dollars in the network increases the risk to government. On the other hand, the administrative/management burden to government should be lower than in CSM but higher than in WTA.

It is important to note that a version of this model was recently adopted by the Government of Alberta's SuperNet.

Winner Take All Model (WTA)

In this model, a tender would be issued that would anticipate a single large telecommunications organization providing all wide-area backbone transport and local distribution services. Such a process would allow a large organization to make internal trade-offs between non-economic areas and high-margin areas to deliver a single price, fully managed solution.

WTA is a straight outsource of government network services. Use of local vendors, regional carriers and all other aspects of the network would be up to the successful vendor. Government would be contracting a network that connects government offices, premise to premise across the province. This model offers what will probably be the lowest initial price for the service and the lowest administrative/management burden to government. The costs would be likely to increase on a long-term basis as the potential for competition disappears as other carriers leave the field. Operations of open POP's would be part of the contract though there would likely be a tendency for the POP to only be open on one side, meaning that bandwidth would be available for local ISP's and businesses but the services would only be available from the successful vendor.

A key advantage of this model may be the ability to structure the contract to allow a great deal of flexibility around the payment schedule. Annual costs could be set at a fraction of the actual cost in the first few years and then escalated through the later stages of the contract. To date, WTA is the only tested model of those which the PTC is examining.

As much of the thinking behind both CSM and GAM is relatively new and, in some cases, hypothetical, the PTC has attempted to capture the features and advantages and disadvantages of the three models in the following chart. Acknowledging that much of the information is open to further discussion and analysis, we have purposefully provided the chart in order to stimulate an active debate about which network infrastructure model can best help bridge B.C.'s digital divide. In fact, the PTC believes that this first quarterly report should be viewed as a provocative instigator for further discussion with industry, government, community and research groups throughout the province, Canada, and abroad.

	Option 1	Option 2	Option 3
	Corridors of Strength Model	Government Aggregator Model	Winner Take All Model
Description	<ul style="list-style-type: none"> • Separates wide area and local access. • Focus on using vendor's in-place fibre facilities and encouraging vendors to build where no facilities exist. • Open Access POP in each community. • Wide area broadband transport is awarded on a cross-section by cross-section, regional or province-wide basis. • Communities are empowered to "do their own thing". 	<ul style="list-style-type: none"> • Prime contractor managing entire network plus POP's. • Government builds and owns fibre facilities where cost justified or where no facilities exist. • Open Access POP in each community. • Local community access for public sector institutions is awarded to prime contractor who uses a variety of subs and private network builds. 	<ul style="list-style-type: none"> • Wide area transport and local area distribution for all public sector entities is awarded to a single organization. • Long term (10 year) commitment. • Could insist on open POP's but they make little sense and would add cost. • In return for term and volume commitments, expectation would be that high bandwidth services (at low cost) be made available to general public.
Competitive marketplace (wide area telecom)	<ul style="list-style-type: none"> • Best environment for thriving telecom competition. • Organizations can compete and win within niches. • Separate competitions for POP's and for local accesses. 	<ul style="list-style-type: none"> • Single prime contractor who is not a supplier, may hire few or many subs. • Competition could be at risk unless government requires the contractor to purchase competitively from local access suppliers. 	<ul style="list-style-type: none"> • One big competition leading to single winner who provides all facilities and services. • Competitive environment withers over time.
Competitive marketplace (local community)	<ul style="list-style-type: none"> • Encourages local entrepreneurs (removes current inhibitor of buying expensive bandwidth to get traffic in/out of town). • Encourages established telecom competitors to set up shop locally as they now have access to bandwidth in/out of town without cost of building facilities or buying from a competitor. 	<ul style="list-style-type: none"> • Theoretically same as option one, with primary difference that all public sector demand has been committed to prime contractor so there is less incentive to set up competitive local access business. • Open POP's still provide basis for local competitive service providers. 	No incentive for local competition.

	Option 1	Option 2	Option 3
	Corridors of Strength Model	Government Aggregator Model	Winner Take All Model
Supports B.C. as a world leader in ICT	Stimulates innovation due to ongoing competitive supply.	Stimulates innovation but to a lesser extent than option 1.	Innovation is inhibited due to lack of competition, except for innovation to reduce costs to provider.
Public sector telecom costs	<ul style="list-style-type: none"> • Short term – lower than today but there is a risk that they could be higher than option 2 or 3 due to ad-hoc approach within communities. • Long term – lowest costs due to best practices approach on many fronts and ability to continually shift vendors and follow pricing curves. 	<ul style="list-style-type: none"> • Short term – should be lower than option 1 due to up-front aggregation and commitment of all public sector demand that includes local access. • Long term – higher than option 1 due to lock-in with one vendor and lack of ability to exploit local fibre projects. 	<ul style="list-style-type: none"> • Short term – should be lowest cost of all as vendors compete aggressively to lock up the business. • Long term – highest cost of all due to elimination of inter-city and local competition. Possibility of structuring the contract to keep costs to a fraction of value in first few years in order to keep down cash requirements of government. Costs would rise as contract matures.
Access to broadband services for citizens	Dependant on emergence of local access competition and non-discriminatory access to wide area capacity.	Same as option 1.	Dependant on winning vendor making services available in each town.
What does government have to manage?	Cost of connecting to the open POP in each town and non-discriminatory access to wide area capacity.	Same as option 1.	Cost and availability of winning vendor's services in each town.
Community support	Highest	High	Medium
Management	Separate management contracts for transport network cross-sections, and POP's. Local community distribution is driven by local community competition.	Prime contractor (not a fibre facilities or telecom company) managing entire network plus POP's.	One contract with winning vendor (the company that provides the facilities).
Number of private sector suppliers	Many	Few	One
Fit with Federal Broadband Task Force	Excellent	Excellent	Questionable –NBBTF places a high priority on open access POP's. Federal Government would be unlikely to fund models that don't align.

	Option 1	Option 2	Option 3
	Corridors of Strength Model	Government Aggregator Model	Winner Take All Model
Other pros	<ul style="list-style-type: none"> • Promotes community-led initiatives. Government can make its demand available on a case-by-case basis in support of those local initiatives. • Flexibility to choose between short-term and long-term contracts as the situation dictates. • Contracts can be staggered 	Government's willingness to potentially build and own facilities could force telecom carriers to be more responsive in granting access to their facilities.	<ul style="list-style-type: none"> • Simplest management model due to single supplier, uniform environment and clear accountabilities. • Smaller, less technical government staff required to manage contract. • Good opportunity for development of a Private/Public Partnership (PPP). • Only proven model.
Other Cons	<ul style="list-style-type: none"> • Requires a higher level of government management capability. • Requires technical and entrepreneurial leadership within the communities to deliver cost effective, technically capable local fibre distribution infrastructure (This may be mitigated to the extent multiple carriers wish to set up local access networks to exploit the open POP.) • Government's ability to attract and retain top-flight management and technical talent to do overall management of the various private sector parties providing the infrastructure. • Currently an unproven model. 	<ul style="list-style-type: none"> • Much more complex tendering process than option 1. • Requires less direct management than option 1, but still requires retention of enough intellectual capital to be able to manage the prime contractor and switch prime contractors if necessary. • Requires long-term contract. • An unproven model. Alberta has only recently begun implementing SuperNet and there are a number of questions and issues to be resolved. 	<ul style="list-style-type: none"> • Neither government nor suppliers can anticipate what future services will be needed and/or appropriate pricing for same in order to be able to capture in a contract. • Requires long-term contract. • Non-competitive re-tendering of business following initial contract; significant advantage for the incumbent. • All control is handed to the supplier.

As indicated above, the Access & Opportunity Task Group believes that using existing government infrastructure and aggregating public sector demand will eliminate redundant expense and bring down costs to all users while enabling better service to all B.C. communities. Determining how to effectively decrease costs while at the same time increase levels of service throughout the province will be the major driver for the PTC in advising government on how to bridge the digital divide.

Over the next few months, the task group will also investigate how the SPAN BC network can work with regional networks, such as that being developed in the Columbia Basin, and municipal networks like those being built by Penticton, Kamloops, and Prince George. The task group also believes that government should lead efforts to define the standards for municipal networks through discussion with municipalities, other provinces, and other stakeholder groups.

Before any of this work can be done, the Access & Opportunity Task Group feels it is essential to understand the current broadband needs against the available network infrastructure of each community in B.C. To this end, we have been working with Information Technology Services Division, Ministry of Management Services, to create a data set of the province which sets out where the problem areas lie in order to determine possible solutions to the digital divide. The table in Appendix B outlines the current broadband infrastructure in the province.

NEXT STEPS

Further work is needed on coming to a firm set of specific recommendations to broaden the network infrastructure in this province to all communities. As well, we need to move forward in developing solutions to address many of the other obstacles for public access and digital literacy and hope to have completed a great deal more work in this area by the next quarterly report.

Section B

Government Operations and Services

B. GOVERNMENT OPERATIONS AND SERVICES TASK GROUP REPORT

British Columbians from all parts of the province are using the Internet today to access and share information and conduct business from their homes or offices. The task group notes that the B.C. government was an early adopter of using the Internet to distribute information, and today all government publications and bulletins are routinely made available on-line within a few hours of their creation. Through the Chief Information Office, the government has established BC Connects, an Internet portal that provides interactive services and on-line information to the citizens and businesses of British Columbia. A recent Accenture study ranked British Columbia first, beating out second-place Ontario, in delivering government services on-line.

As the most connected province in the country, B.C. is well positioned to maintain its lead in Canada, and, in fact, to become a world leader in developing new relationships with its citizens and industry based on digital communications. Activities like completing high school, gearing up for a career change, getting test results from a hospital or clinic, voting in elections, paying taxes or traffic tickets, as well as enabling doctors in remote communities to examine and discuss a patient's X-rays with urban radiologists, can all be done digitally. Putting these and other processes on-line will expand government services, bring greater speed and efficiency to government, make services more universally available, and potentially save government money, all at the same time.

A critical ingredient to developing the inherent value of a provincial broadband Internet infrastructure is the delivery of government services to the citizens and businesses of the province. Access to content and applications, whether generated by the government or private sector, is the reason that people use the Internet. An engaged, knowledgeable citizenry requires access to a deep level of responsive on-line government services. This includes not only access to provincial government services, but to federal and local services as well.

It is the intent of the PTC's Government Operations and Services Task Group to recommend increasing the availability of on-line government and private sector services, while enabling the government to control and reduce its overall cost of operations.

The government, having passed the Electronic Transactions Act earlier this year, has continued to make significant progress in removing most legislative impediments to converting government processes to web-enabled digital formats. As a result, electronic signatures and documents are in most instances the legal equivalents of paper-based services,

making it possible for government to provide more information and services on-line 24 hours a day 7 days a week.

MISSION

The mission of the Government Operations and Services Task Group is to promote a digitally-enabled provincial government where, over time, expanded services are delivered electronically and reliance on inefficient paper-based services begins to disappear. As more key government services are delivered electronically, more of the provincial population will come on-line, leading to greater government efficiencies and reduced costs.

Broadband connectivity is necessary if large data-file applications, integral to e-health and e-learning, are to operate at their full potential. With broadband, B.C. communities will not only gain access to on-line health and education services but will benefit from increased business opportunities, as well as access to video conferencing and new media entertainment.

OBSTACLES AND ISSUES

Structural Impediments to Digital Service Delivery

- The Electronic Transactions Act has cleared most legislative impediments to the delivery of e-government services but there are still unresolved policy and procedural issues in many areas. For example, billing issues are preventing doctors from communicating with patients electronically. Similarly, e-learning delivery is hampered by the processes through which payments are made to school districts, and pressure from stakeholder groups. The task group recommends that the provincial government work with industry and industry associations such as the B.C. Medical Association and the B.C. Teachers' Federation to develop processes that enable the provision and extension of digital services particularly in the areas of e-health, e-learning, and e-commerce.

Internal Access to Information

- Information sharing between ministries is constrained by communications obstacles caused by incompatible information systems. Privacy concerns also limit the sharing of information across ministries and public sector agencies such as hospitals and health facilities.

External Access to Information – Security and Privacy

- Privacy and security policies explaining in detail how information will be managed need to be documented and easily understood. Citizens must have a comfort level that the information provided to the government is secure and will be used only for the purpose intended.

Cultural Transformation of Government Service Delivery

- The government's rapid transition to provide on-line information and services will require significant transformation in existing procedures and processes. The existing culture of government will require support, encouragement, and close management in order to successfully implement the new digitally enabled processes.

Standardization of Government Services and Applications across all Ministries

- It is necessary to ensure that all ministries are adopting the same policies and procedures for key e-government processes including procurement.
- Accountability measures need to be established and managed.

Input of information

- Current processes do not support the input of information into on-line information systems. For example, a doctor examining a patient will usually write notes into a patient's paper-based file rather than inputting that information into an on-line system. As a result the notes are not easily accessible and can not instantly be shared among medical professionals.

Status:

The Government Operation and Services Task Group has identified e-health, e-learning, and e-procurement as three areas that can drive B.C.'s e-government initiative. By making these areas the signature pieces of an on-line strategy, government will have the opportunity to enhance services, reduce costs, and solidify its lead in the area of e-government. Moreover, it will demonstrate clearly to the public that a new era has arrived in the way in which the government communicates with and delivers services to the citizens of the province.

- **E-health** offers the provincial government the potential to increase access to a range of medical services while bringing down costs for both the government and the user community. A win / win situation develops for both the government and the users of the services having access to specialized services at their location.
- **E-learning** can bring the classroom to the student. Distance should not be a barrier to accessing any educational programs. K-12 students, college or university students, companies retraining workers, or lifelong learners seeking new skills, can all be aided through distance learning on-line.
- **E-procurement** applications, processes and procedures can improve interaction between the public and private sector. These processes will provide substantial savings for the government through consolidated ministry purchasing, increased private sector access to government tenders and the streamlining of services provided.

NEXT STEPS

The focus of the Government Operations and Services Task Group over the next quarter will be to:

- Promote a regulatory environment that enables the development and use of on-line information and services across all government ministries.
- Provide transparent, easy access to all government services by business and citizens on-line 24 hours a day, 7 days a week.
- Expand government applications and services to establish better communications with social service workers and medical service providers, making electronic records and other information available to those who are authorized to access it.
- Encourage government and private industry partnerships in the delivery of government services at a lower cost.
- Conduct a survey of all ministries to construct a matrix of existing e-government initiatives currently underway or completed. This information will be used to assess the transferability of the existing services and initiatives to other ministries.

- Raise the awareness of the B. C. government's Joint Solutions Procurement Initiative to encourage multi-vendor environments that create cost and risk sharing solutions and shared private /public sector accountability.
- Encourage the government to standardize information that can be broadly shared across ministries without violating privacy concerns.

Section C

Industry Growth and Development

C. INDUSTRY GROWTH & DEVELOPMENT

INTRODUCTION

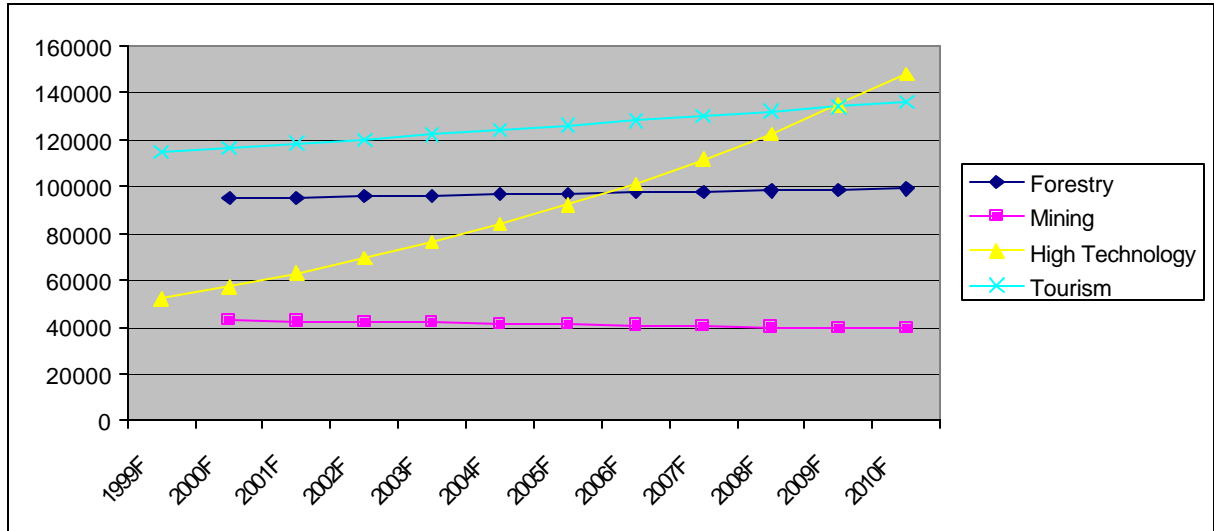
The technology industry has become a key pillar in the economic foundation of every major developed nation. Its importance to the economy of B.C. is demonstrated by its superior performance and growth against every other sector in B.C. At 7,800 companies and 61,000 employees in 2000, the B.C. high-tech industry is already significant within the B.C. economy.

Year	BC Technology Employment	Technology Employment Growth	Overall BC Employment Growth
1996	40,800	5.20%	0.10%
1997	43,800	7.30%	2.70%
1998	46,100	5.20%	0.90%
1999	52,000	10.00%	0.10%
2000	60,890	16.00%	4.10%

Source: B.C. Stats

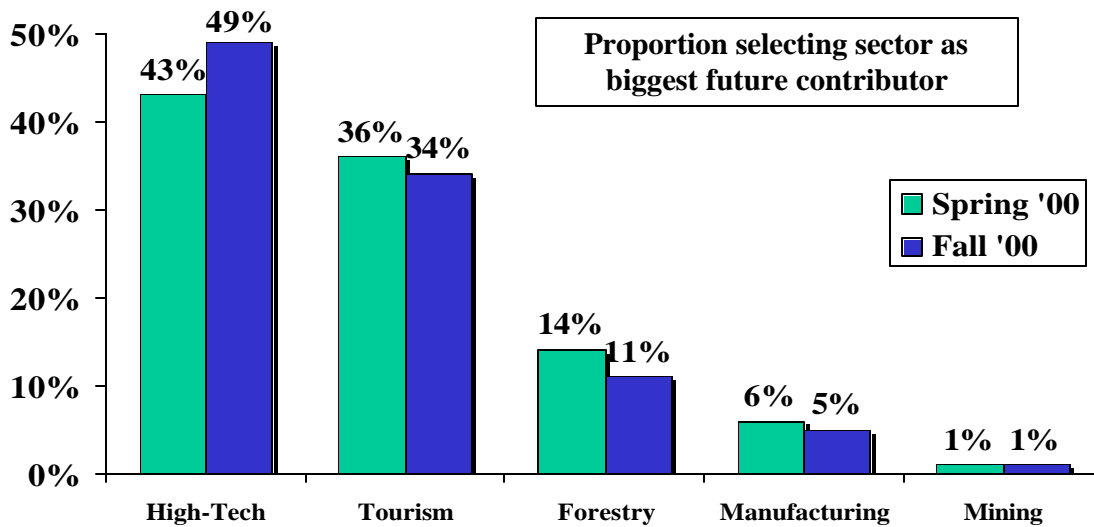
At a realizable growth rate of 10% per annum the industry is poised to become the most significant industrial sector in the province within the next 5 -10 years.

Projected employment growth of key industry sectors:



Source: B.C.TIA and B.C. Stats, 2000

The people of B.C. understand and are committed to the emergence of the knowledge-based industry within the provincial economy. When asked to identify the industrial sector that will contribute the most to their future economic prosperity, more British Columbians chose high technology than any other sector (Ipsos-Reid-B.C.TIA poll).



Source: Ipsos-Reid/B.C.TIA Poll, 2000

Our vision is for B.C. to be globally recognized as one of the top ten technology centres in the world, with a highly skilled technology workforce and an education system structured to support and respond to industry needs. We believe this is achievable and that B.C. already has many of the key ingredients needed for success. However, we are aware that government policies can have either a positive or negative impact on the growth, and rate of growth, of a vibrant technology industry in B.C. The Industry Growth & Development Task Group will examine, prioritize and make specific recommendations on key government policies that can create a strong, positive impact on the development of the technology industry in this province.

MISSION

The task group's mission is to create a positive business and public policy environment within B.C. to enable the sustainable growth and prosperity of the B.C. technology Industry.

GOALS

By definition, the success of a knowledge-centred sector such as the technology industry is dependent on the talent and skills of technology entrepreneurs and having a supply of skilled, motivated workers. Therefore, to promote the industry's growth the central focus of public policy at all levels of government must be centred around and focused on people.

To create an environment for success, all groups involved, including academia, government and the industry must be prepared to work together on four key goals, including:

1. Creating an education environment that fosters the production of superior talent and knowledge, and reaches out to young people from an early age to raise awareness of the opportunities of high-tech careers. The focus on education must span the learning experience – K-12, secondary, post secondary education and continuing education. We need to provide our youth with the learning required to participate in the opportunities of tomorrow.
2. Developing a training environment that supports and promotes life long learning and permits every individual to identify and pursue a career path in high technology. To satisfy this requirement, a province-wide infrastructure base must be established. We want to ensure that all British

Columbians can develop the skills and have the opportunities to participate in the knowledge-based economy if they so desire.

3. Creating a climate of personal opportunity that promotes the retention of talent produced within the province and country. To achieve this climate, several factors must be satisfied including a competitive tax and investment environment, adequate source of capital, an excellent education system, social justice, and a strong system of health and safety. The quality of life and natural amenities in B.C. provide a competitive advantage that we need to maintain and build on.
4. Developing a public policy environment that promotes and facilitates the recruitment of senior talent from outside of the province and country. To achieve this environment the criteria in item 3 above must be satisfied, coupled with a progressive immigration system that facilitates the entry of highly skilled workers and their families from around the world.

OBSTACLES AND ISSUES

B.C. does not produce enough technology graduates to satisfy the growth needs of the technology industry.

Per capita spending on R&D in Canada is much lower than in competing countries, and is much lower in B.C. than in competing provinces.

Besides high-tech, British Columbia is very strong in such areas as biotechnology, health services, and fuel cell technology. However, the success of the B.C. technology industry is not well known in other jurisdictions, or even for that matter within the province itself. Similarly, there is very little awareness of the major improvements in competitive capability recently brought about by changes at the federal and provincial levels.

All of these obstacles prevent us from producing, attracting and retaining the world-class business and academic talent we need to ensure the competitive growth of the British Columbia technology industry.

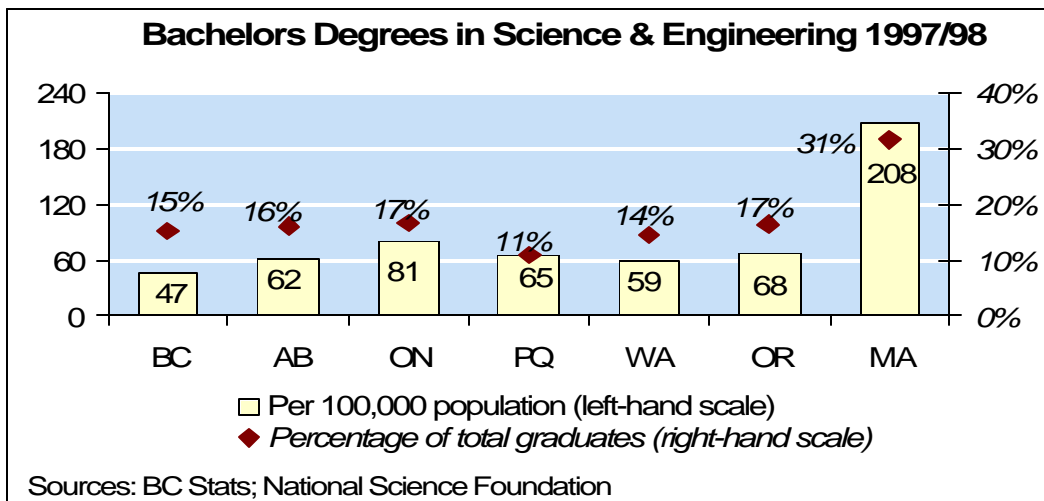
RECOMMENDATIONS

1. **B.C. implement the proposed plan to double the number of computer science and electrical engineering graduates from B.C.'s post-secondary institutions. Continue to seek ways to increase the capacity of universities to produce additional technology graduates in other fields.**

B.C. produces extremely qualified university and college graduates in the areas of computer science and engineering. Despite the high calibre of science and technology graduates, however, B.C. produces far fewer than the national per capita average. Moreover, for every student accepted into these programs, as many as four additional applicants are rejected – and many more don't even bother to apply – due to lack of educational space in the programmes. .

Application criteria are extremely high and a significant percentage of our youth who are qualified and interested are not able to get the education they require to play a major role in the future digital economy. There is a global shortage of talent and a huge appetite for our youth to get the learning they need to meet this demand. In addition to doubling the number of computer science and engineering grads, the Industry Growth and Development Task Group wants to ensure that there is a sufficient supply of educated workers for all of the technology industries, including biotech, the health sciences, fuel cell technology, etc.

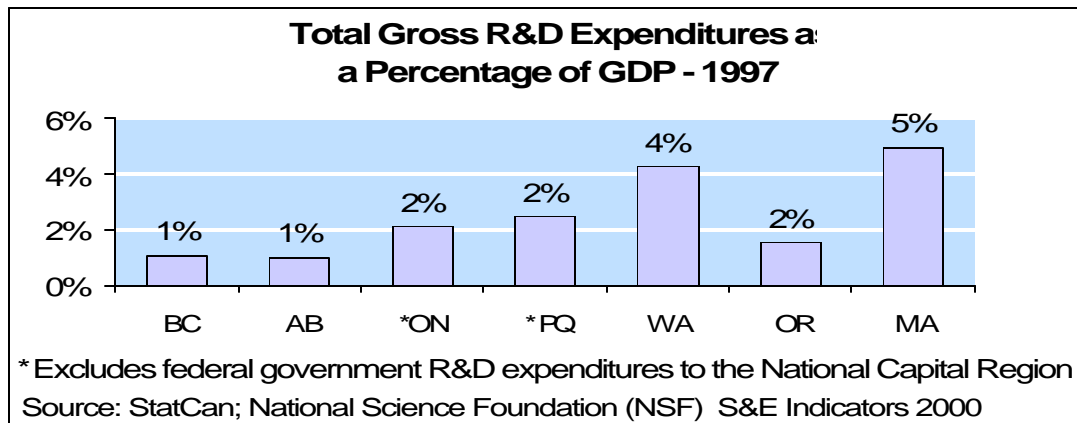
(Fig i) *B.C. Science and Engineering Graduates*



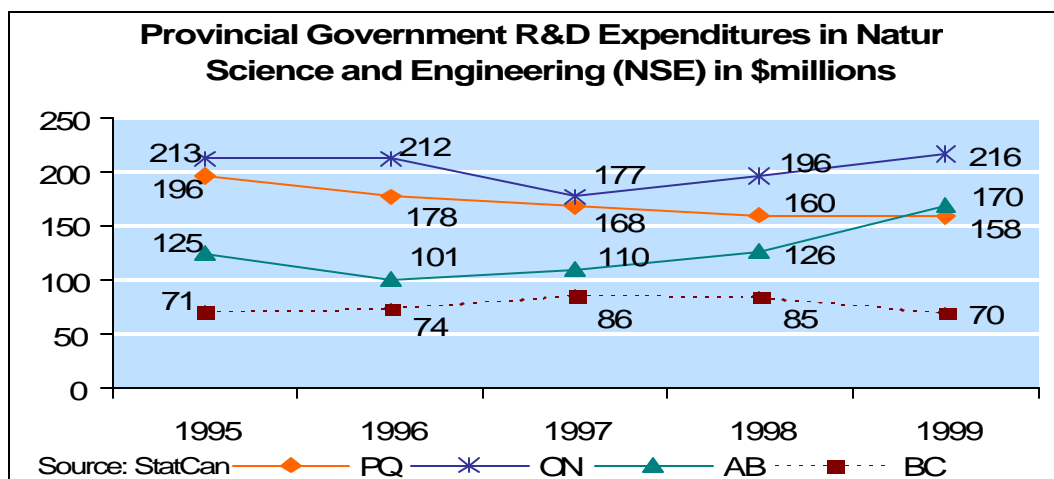
2. Establish B.C. Research Chairs

Research and research labs are primary factors in the attraction of senior researchers and professors to B.C. We simply do not compare favourably with competing jurisdictions (Fig i).

(Fig ii) *Gross R&D Expenditures as a Percentage of GDP*



(Fig iii) *Provincial Expenditures in R&D - Flat or Declining*



The government should establish 20 B.C. Research Chairs in the fields of medical, social, environmental, and technological research. These chairs will be instrumental in addressing a second major impediment to industry growth: the significantly low levels of per capita research and development spending in B.C., while also helping to attract the key world class faculty we need at our universities. In short, the task group believes that it is essential to attract top-notch researchers to our universities, and we will continue to advise government that investing in technology research should be a priority.

3. Attract senior talent to B.C.

B.C. is just starting to reach critical mass in the technology industry but a key factor inhibiting the growth of the industry is the lack of experienced middle and senior technical, operational, marketing and management talent. To accelerate the growth of this industry and to provide an experienced management-base for tech workers to learn from, we also need to focus on attracting and retaining senior talent to, or back to, British Columbia.

There are multiple approaches to this, but we believe the most effective approach involves a combination of:

- immigration policy changes that make it easier for talented individuals and their families to live, work and move to B.C. This will involve reforming of spousal employment rules to recognize that most families have more than one working family member and to allow those other members to have a career in Canada.
- a central information office that makes it easier for those considering relocating to B.C. to garner information about B.C., our schools, communities, tax structure, housing, medical system.
- a clear win on stock options taxation program that helps offset the tax differentials at a very low cost to government. Employee stock ownership allows people to participate in the success of their efforts, aligns employee interest with those of the company, is broadly implemented within the technology industry, and has been a big contributor to employee wealth and government revenues where the investors or company headquarters may not be local.
- encourage the resolution of issues related to border security in order that the flow of goods, services, and people between B.C. and the U.S. can remain unimpeded.

SUMMARY

The B.C. technology industry is rapidly becoming a central pillar of the B.C. economy. To ensure its continued growth and development a public policy framework must be established that supports the key needs of the industry, highly qualified and talented people, adequate support for the conduct of research and development, and a business environment that supports investment and entrepreneurship.

NEXT STEPS

Over the upcoming quarter, the Council will:

1. Encourage the government to move forward on a detailed plan to double the number of computer science and electrical engineering spaces in the next five years.
2. Identify other areas of critical technology training requiring increased academic spaces.
3. Advise government on ways to produce, attract, and retain an increasing number of world-class technology researchers within B.C. universities and research institutes.
4. Encourage government to establish a central information office targeted specifically at individuals and companies who wish to relocate to B.C., and detail the inventory of information to be found in this office:
5. Detail changes to the immigration regulations that will allow family members to work in B.C.
6. Encourage the government to move forward on a stock option program.
7. Encourage the resolution of cross border security issues with the U.S. We need to ensure an unimpeded flow of goods, services and above all, talented people between B.C. and the U.S.

Section D

Marketing and Public Awareness

D. MARKETING & PUBLIC AWARENESS

INTRODUCTION

Building a vibrant B.C. technology industry cannot be accomplished without an effective marketing and communications plan. Attracting investment and people to the province will be easier if potential investors and entrepreneurs are aware that B.C. is one of the most connected areas in the world and an exciting place in which to live, work and play.

Although great progress has been made by this government in a very short time to create a competitive business environment, the new B.C. is not well known. The perception still held by many outsiders is that B.C. is over-taxed and resource-dependent. To promote B.C. as a business-friendly, technically advanced society we must deliver a new message.

An essential element of bridging the digital divide is to raise the awareness of all British Columbians about the opportunities presented by the knowledge-based economy. Until digital literacy and computer access becomes universal, government cannot take full advantage of the cost benefits associated with using the Internet to communicate with its citizens.

MISSION

B.C. will be globally recognized as one of the top ten global technology centres through the creation of leadership positions in digital literacy, broadband access, a vibrant technology industry with globally recognized leaders, and a focused and coordinated program of brand marketing.

GOALS

The goals of this task group are to encourage the B.C. government to:

1. market B.C. domestically and internationally, as a competitive jurisdiction in which to invest capital (financial and human) and to conduct technology business as a result of its vibrant technology community, better quality of life, superior infrastructure, first-rate education system, and business-friendly environment.

2. provide a welcoming and informative environment for potential internal and external investors to the province, and facilitate their investigation and investment opportunities. We need an office where companies can get the information they need to understand B.C. and where people can go to get other information on other aspects of residing in B.C. such as schools, health care, tax policies etc.
3. create enabling government policies and processes that are simple, clear, concise and create an atmosphere that encourages investment.
4. raise awareness among select groups including ex-patriot Canadians and British Columbians and site-selection consultants about B.C.'s new business-friendly environment and about the emerging opportunities and competitive advantages of B.C. from both a personal and business perspective.
5. design and implement indicators to measure the province's success in achieving awareness among and within both domestic and external audiences.
6. achieve specific targets related to investment and employment growth.

OBSTACLES AND ISSUES

- Changing the current perception of Canada and B.C. as resource-based economies within a high-tax non-business-friendly environment.
- Establishing a clear and compelling high technology brand for the province that capitalizes on the existing high regard for the physical beauty of our environment.
- Finding the resources required for a sustained marketing effort.
- Establishing clear targets and assigning responsibilities and accountability for achieving results.
- Developing and implementing a technology economic development strategy, including identifying target sectors and a marketing plan.
- Coordinating the efforts of various agencies and groups with an interest in marketing the B.C. technology sector.
- Establishing clear messages and measurable outcomes for multiple target audiences and jurisdictions.

- Coordinating a clear, coherent and consistent message that incorporates the messages contained in current provincial and federal marketing efforts.

NEXT STEPS

1. Develop a brand and/or tag line that captures B.C.'s key competitive advantages including: quality of life, superior infrastructure and education, a vibrant technology community and a competitive and business-friendly environment.

This action plan will form the basis for a subsequent marketing plan targeted to site-selection professionals, technology CEO's and ex-patriot Canadians and British Columbians.

2. Define the components of a public awareness campaign that will describe the relevance of the Internet to the lives of British Columbians, and thereby help bridge the digital divide.
3. Recommend a delivery structure for both marketing and public awareness and a funding model to sustain both efforts.
4. Broaden the task group to ensure delivery of the Next Steps outlined above.

NEXT QUARTERLY WORKPLAN

SUMMARY

This report outlines the progress and areas of focus of the PTC over the past 75 days. Over the next quarter we expect to delve into much greater detail on the issues highlighted herein, with the goal of having a series of solid recommendations to bring forward to the Premier.

Each of the task groups will continue to focus its efforts over the next quarter on a set of key issues.

Access and Opportunity

(1) Infrastructure

Work with government to determine the appropriate means of leveraging the SPAN BC network and other government on-line services toward a province-wide broadband network available to the public. Agree on a network infrastructure model and make recommendations so that the government can begin the tendering process for the supply and delivery of a province-wide broadband network.

(2) Public Access and Digital Literacy

Work towards a definition of what constitutes *sufficient access* for B.C. communities and what defines a *base level* of computer and Internet skills for citizens and businesses in the province. Determine which applications, services, and kinds of content are relevant to which B.C. communities

Government Operations & Services

(1) Provide guidance to the government in setting the priorities for implementing an e-government framework.

(2) Survey all ministries to construct a matrix of existing e-government initiatives currently underway or completed. Use this information to assess the transferability of these initiatives throughout all ministries.

- (3) Identify specific services and applications in the areas of e-health, e-learning, and e-procurement that will best serve the needs of B.C. communities and businesses, and will at the same time increase government efficiencies and reduce operational costs.
- (4) Provide guidance to the government in order to:
 - a) solicit partnerships with the private sector and to develop and supply government services, and delivery of content.
 - b) establish multi-vendor environments that create risk and cost sharing solutions.
 - c) establish/adopt shared accountability models.

Industry Growth & Development

- (1) Finalize the proposal to double the number of graduates in computer science and engineering along with increased available spaces in other areas of technology in high demand.
- (2) Finalize the proposal to create 20 Research Chairs.
- (3) Finalize the proposal on stock incentive program.
- (4) Propose changes to the immigration policy to allow family members to work in B.C.

Marketing & Public Awareness

- (1) Develop a brand name or tag line for technology in B.C.
- (2) Determine information needs for an investment office and information office for relocation.

Public Consultation Process

It is the expectation of the PTC that this report will form the stimulus for further discussion with the public, communities, the government, and industry as we drive toward recommendations that can be supported and implemented over the course of our mandate. To this end, the Council wishes to put in place a process of public consultation in order to receive input from interested parties.

The PTC believes, however, that it is essential to solicit direct input from communities including citizens, community groups, businesses, and local government. Over the next 90 days the PTC will engage in a consultative process that will include requesting written submissions from interested groups and individuals, meetings with select organizations and a limited number of regional meetings.

Anyone wishing to get in touch with the Premier's Council can write to Premiers.TechnologyCouncil@gems8.gov.bc.ca, or to Premier's Technology Council, 730 - 999 Canada Place, Vancouver, BC, V6C 3E1.

Appendices

Appendix A

Premier's Technology Council Members

Chair

Honourable Gordon Campbell
Premier
Office of the Premier

Co-Chair

Mr. Paul Lee
Sr. Vice President & Worldwide
Studios Chief Operating Officer
Electronic Arts, Inc.

Members:

Mr. Greg Aasen
Chief Operating Officer
PMC-Sierra Inc.

Dr. Victor Ling
Vice President, Research
B.C. Cancer Agency

Ms. Barbara Alexander
Regional Sales Manager, B.C.
Microsoft Canada Co.

Mr. Douglas Manning
Chief Executive Officer & President
Bridges.com

Ms. Shannon L. Byrne
President & Chief Executive Officer
Paradata Systems Inc.

Mr. Ian McBeath
President & Chief Executive Officer
Inflazyme Pharmaceuticals Inc.

Mr. Michael Calyniuk
Senior Audit Partner
PricewaterhouseCoopers

Mr Amos Michelson
Chief Executive Officer
Creo Products Inc.

Mr. Norm Francis
Chair
Pivotal Corporation

Mr. Firoz Rasul
Chief Executive Officer
Ballard Power Systems

Mr. George Hunter
Executive Director
B.C. Technology Industries Association

Dr. Donald Rix, MD
Chair
Cantest Ltd

Mr. Greg Kerfoot
Chief Executive Officer & President
Crystal Decisions

Mr. David Sutcliffe
Chair & Chief Executive Officer
Sierra Wireless, Inc.

Mr. William Koty
Director, Division of Applied Technology
Continuing Studies
University of British Columbia

Mr. Jim Yeates
Chair
Burntsand Inc.

President

Dr. Gerri Sinclair

Technology Council Task Groups

Access and Opportunity

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Greg Aasen
Victor Ling
William Koty
David Sutcliffe
Doug Manning
Barb Alexander (Sub-committee Chair)

Government Operations & Services

Mike Calyniuk (Chair)
Barbara Alexander
Jim Yeates
Shannon Byrne

Industry Growth & Development

Norm Francis (Chair)
Greg Kerfoot
Don Rix
Paul Lee

Marketing & Public Awareness

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Competition, Science, and Enterprise

Science, Technology and Telecommunications Division
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Appendix B

GAP ANALYSIS OF BC BROADBAND AND ACCESS TO CABLE MODEM AND ADSL IN COMMUNITIES

	Communities	Population	GAPS				
			No Fiber within 2km	Fiber near Community but no evidence of CHSS	No BBTF equivalent services available	Fiber in Community but no pipe out	No Identified local champion
1	Sechelt Ind Gov Dist 1	35	0	1	1	1	1
2	Silverton	250	0	1	1	0	1
3	Wells	265	0	1	1	0	1
4	Zeballos	274	1	0	1	0	1
5	Lytton	318	0	1	1	0	0
6	Slocan	337	1	0	1	0	0
7	Hazelton	359	1	0	1	0	0
8	Sayward	432	1	0	1	0	1
9	Granisle	433	1	0	1	0	1
10	Alert Bay	556	1	0	1	0	1
11	Port Clements	567	1	0	1	0	1
12	New Denver	600	0	1	1	0	0
13	Radium Hot Springs	651	0	1	1	0	1
14	Midway	682	0	1	1	0	1
15	Stewart	700	1	0	1	0	1
16	Belcarra	712	0	1	1	0	1
17	Clinton	718	0	1	1	0	0
18	Greenwood	758	0	1	1	0	1
19	Port Edward	761	1	0	1	0	1
20	McBride	769	0	1	1	0	0
21	Sechelt Ind Gov Dist 2	849	0	1	1	1	1
22	New Hazelton	865	0	1	1	0	1
23	Tahsis	896	1	0	1	0	1
24	Pouce Coupe	912	0	1	1	0	1
	SUBTOTAL		10	14	24	2	18

	Communities	Population	GAPS				
			No Fiber within 2km	Fiber near Community but no evidence of CHSS	No BBTF equivalent services available	Fiber in Community but no pipe out	No Identified local champion
25	Kaslo	1097	0	1	1	0	0
26	Cache Creek	1114	0	0	1	0	0
27	Harrison Hot Springs	1116	0	1	1	0	1
28	Hudson's Hope	1134	1	0	1	0	1
29	Montrose	1153	1	0	1	0	0
30	Keremeos	1178	0	1	1	0	1
31	Port Alice	1248	1	0	1	0	1
32	Salmo	1253	0	1	1	0	0
33	Taylor	1258	0	1	1	0	1
34	Masset	1266	1	0	1	0	1
35	Anmore	1306	0	1	1	0	1
36	Fraser Lake	1328	0	1	1	0	1
37	Valemount	1356	0	1	1	0	0
38	Telkwa	1417	0	1	1	0	1
39	Lions Bay	1498	0	1	1	0	1
40	Tofino	1540	0	1	1	0	1
41	Highlands	1649	1	0	1	0	1
42	Pemberton	1657	0	1	1	0	1
43	Gold River	1786	1	0	1	0	1
44	Nakusp	1786	0	1	1	0	0
45	Warfield	1795	1	0	1	0	0
46	Lumby	1796	1	0	1	0	1
47	Ucluelet	1824	0	1	1	1	1
48	Burns Lake	1892	0	1	1	0	1
49	Ashcroft	1995	0	1	1	0	0
50	100 Mile House	2041	0	0	1	0	1
51	Fort St. James	2130	0	1	1	0	1
52	Fruitvale	2165	1	0	1	0	0
53	Tumbler Ridge	2331	1	0	1	0	1
54	Logan Lake	2505	1	0	1	0	1
55	Chase	2602	0	0	1	0	1
56	Cumberland	2718	0	0	1	0	1

	Communities	Population	GAPS				
			No Fiber within 2km	Fiber near Community but no evidence of CHSS	No BBTF equivalent services available	Fiber in Community but no pipe out	No Identified local champion
57	Elkford	2866	0	0	1	0	0
58	Enderby	2920	0	0	1	0	1
59	Princeton	2943	0	1	1	0	1
60	Invermere	2952	0	1	1	0	0
61	Lillooet	2987	0	1	1	0	0
62	Chetwynd	3005	0	1	1	0	1
63	Port McNeill	3081	1	0	1	0	1
64	Lake Cowichan	3086	1	0	1	0	1
65	Sicamous	3145	0	1	1	0	1
66	Bowen Island	3167	1	0	1	0	1
67	Rossland	3825	1	0	1	0	0
68	Gibsons	3895	0	1	1	0	1
69	Sparwood	4167	0	1	1	0	0
70	Houston	4206	0	1	1	0	1
71	Golden	4253	0	1	1	0	0
72	Armstrong	4257	0	0	1	0	1
73	Grand Forks	4297	0	0	1	0	0
74	Oliver	4359	0	0	1	0	1
75	Osoyoos	4379	0	0	1	0	1
76	Fort Nelson	4732	1	0	1	0	1
77	Duncan	4766	0	0	1	0	1
78	Vanderhoof	4830	0	0	1	0	1
79	Peachland	4869	0	1	1	0	1
	SUBTOTAL		16	27	55	1	39
80	Metchosin	5087	0	1	1	0	1
81	Creston	5161	0	0	1	0	0
82	Port Hardy	5228	1	0	1	0	1
83	Fernie	5272	0	0	1	0	0
84	Kent	5506	1	0	1	0	1
85	Spallumcheen	5737	0	1	1	0	1
86	Smithers	6139	0	0	1	0	1
87	Mackenzie	6275	0	1	1	0	1

	Communities	Population	GAPS				
			No Fiber within 2km	Fiber near Community but no evidence of CHSS	No BBTF equivalent services available	Fiber in Community but no pipe out	No Identified local champion
88	Hope	6825	0	0	1	0	1
89	Ladysmith	6963	0	0	1	0	1
90	Kimberley	6976	1	0	1	0	0
91	Castlegar	7427	0	0	1	0	0
92	Qualicum Beach	7477	0	0	1	0	1
93	View Royal	7587	0	1	1	0	1
94	Trail	7728	0	0	1	0	0
95	Merritt	8075	0	0	1	0	1
96	Revelstoke	8213	0	0	1	0	0
97	Sechelt DM	8499	0	1	1	0	1
98	Lake Country	9366	0	1	1	0	1
99	Coldstream	9660	1	0	1	0	1
100	Sooke	9662	0	0	1	0	1
101	Nelson	9677	0	0	1	0	0
102	Whistler	9683	0	0	1	0	1
	SUBTOTAL		4	6	23	0	16
103	Parksville	10613	0	0	1	0	0
104	Quesnel	10794	0	0	1	0	1
105	Summerland	10830	0	0	1	0	0
106	North Saanich	10931	0	1	1	0	1
107	Sidney	11105	0	0	1	0	1
108	Kitimat	11533	0	0	1	0	1
109	Dawson Creek	11715	0	0	1	0	0
110	Williams Lake	12101	0	0	1	0	1
111	Comox	12252	0	0	1	0	1
112	Powell River	13837	1	0	1	0	0
113	Terrace	13871	0	0	1	0	1
114	Colwood	14655	0	0	1	0	1
115	Pitt Meadows	14850	0	0	1	0	1
116	Squamish	15357	0	0	1	0	1
117	Central Saanich	15553	0	0	1	0	1
118	Salmon Arm	16322	0	0	1	0	1

	Communities	Population	GAPS				
			No Fiber within 2km	Fiber near Community but no evidence of CHSS	No BBTF equivalent services available	Fiber in Community but no pipe out	No Identified local champion
119	Esquimalt	16400	0	1	1	0	1
120	Fort St. John	16842	0	0	1	0	0
121	Prince Rupert	17027	0	1	1	0	1
122	White Rock	17371	0	0	1	0	1
123	Oak Bay	17664	0	1	1	0	1
124	Port Alberni	19329	0	0	1	0	1
125	Courtenay	19803	0	0	1	0	1
126	Cranbrook	19874	0	0	1	0	0
127	Langford	20059	0	1	1	0	1
128	Port Moody	23819	0	0	1	0	1
129	Langley City	24287	0	0	1	0	1
130	North Cowichan	27612	0	1	1	0	1
131	Campbell River	31253	0	0	1	0	0
132	Penticton	32542	0	0	1	0	0
133	Mission	32931	0	0	1	0	1
134	Vernon	34678	0	0	1	0	1
135	West Vancouver	42449	0	0	1	0	1
136	North Vancouver City	44944	0	0	1	0	1
	SUBTOTAL		1	6	34	0	26
137	Port Coquitlam	51423	0	0	1	0	1
138	New Westminster	54904	0	0	1	0	1
139	Maple Ridge	63138	0	1	1	0	1
140	Chilliwack	65421	0	0	1	0	1
141	Victoria	74996	0	0	1	0	1
142	Nanaimo	76645	0	0	1	0	1
143	Prince George	81326	0	0	1	0	0
144	Kamloops	82832	0	0	1	0	0
145	North Vancouver DM	85812	0	0	1	0	1
146	Langley DM	89351	0	0	1	0	1
	SUBTOTAL		0	1	10	0	8
147	Kelowna	100433	0	0	1	0	1
148	Delta	101433	0	0	1	0	1

	Communities	Population	GAPS					
			No Fiber within 2km	Fiber near Community but no evidence of CHSS	No BBTF equivalent services available	Fiber in Community but no pipe out	No Identified local champion	
149	Saanich	106814	0	0	1	0	1	
150	Coquitlam	112278	0	0	1	0	1	
151	Abbotsford	115126	0	0	1	0	1	
152	Richmond	165133	0	0	1	0	1	
153	Burnaby	192389	0	0	1	0	0	
154	Surrey	340094	0	0	1	0	1	
155	Vancouver	565905	0	0	1	0	0	
	SUBTOTAL		0	0	9	0	7	
	TOTALS		31	54	155	3	114	

NOTES ON THE GAP ANALYSIS OF BC BROADBAND AND ACCESS TO CABLE MODEM AND ADSL IN COMMUNITIES

This research has been assembled by staff of the Ministries of Management Services and Competition, Science and Enterprise. It was assembled at the request of the PTC to provide a snapshot showing the range of access and services available in B.C. communities and it is not intended to be used on a community-by-community basis. We apologize for any inaccuracies

The information contained in the gap analysis table represents the best information to date government has relating to telecommunications resources in British Columbia. This information has been derived from documents in the public domain and from discussions with major telecommunications services providers in British Columbia. The table addresses 155 incorporated municipalities, which represent approximately 86% of the total population of British Columbia.

Description of Gaps

No Fibre within 2km.

This gap refers to communities that are greater than 2km from any inter-city fibre infrastructure. The consequence of this gap is that fibre infrastructure would have to be built to connect these communities to the inter-city fibre network. The cost of this connection would depend on the distance the communities are from the nearest inter-city fibre optic infrastructure and what topological obstacles exist between this infrastructure and these communities.

Fibre near community but no evidence of conventional high speed services (CHSS).

This gap refers to communities that are connected to or close to inter-city fibre infrastructure but there is no evidence that there are any conventional high-speed services within the communities themselves. Conventional high-speed services refer to business and residential grade Ethernet based services such as ADSL and cable modem. The consequences of this gap are an effort to expand the local distribution, local access and upgrade associated technology and services.

No Broadband Task Force (BBTF) equivalent services available.

This gap refers to communities that are connected to inter-city fibre infrastructure; there is evidence of conventional high-speed services but there is insufficient capacity available to meet the needs as defined by the Broadband Task Force. The Canadian Federal Broadband taskforce defines broadband as: "... A minimum symmetrical speed of 1.5 megabits per second per individual user... Public and commercial facilities will require much higher bandwidth ranging from this minimum to several hundred times more bandwidth." The consequence of this gap is that a major broadband development project would have to be undertaken. This development project would cover the upgrade, re-engineering and expansion of the intercity, local distribution and local access fibre-infrastructure to world-class standards. A parallel project would be needed to develop the network architecture, which would comprise the transmission, switching and routing elements.

Fibre in community but no pipe out.

This gap refers to a community or communities where local broadband infrastructure exists, but they exist as an island of connectivity due to the lack of broadband infrastructure out of that area. The consequence of this gap is that fibre infrastructure would have to be built to connect these communities to the inter-city fibre network. The cost of this connection would depend on the distance the communities are from the nearest inter-city fibre optic infrastructure

and what topological obstacles exist between this infrastructure and these communities.

No identified local champion

This gap refers to communities where no local group has been identified as currently working on development of a local broadband infrastructure. Local champions will be important to identify to ensure their efforts are aligned with the activities of the PTC.