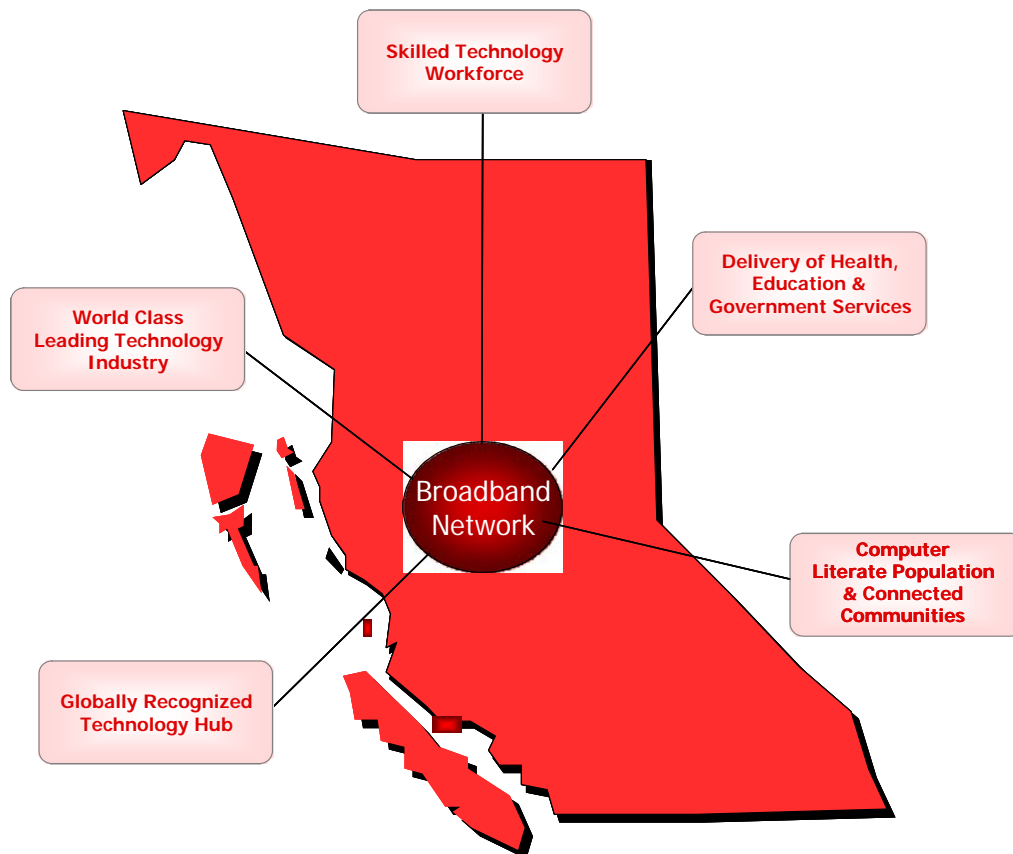


Premier's Technology Council

3rd Report

September 23, 2002



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.

The 3rd Report of the Premier's Technology Council is based on continuing consultations, research and analysis by Council members and staff as well as two key events – an IT Procurement Symposium and an e-Health Roundtable both held in Vancouver on June 13 and 14, 2002, respectively. In addition, between April and June, 2002, the PTC received presentations and written submissions from many different organizations and individuals. Every effort has been made to consider all information obtained and to be as accurate and consistent as possible in our use and analysis of all research materials. However, errors or omissions may have occurred. Please notify the Premier's Technology Council of any significant inaccuracies by e-mail at:

Premiers.TechnologyCouncil@gems8.gov.bc.ca

Table of Contents

Executive Summary	1
Introduction	17
IT Procurement	19
Introduction	19
Findings of the IT Procurement Symposium.....	23
Continuing the Dialogue.....	34
PTC Recommendations on IT Procurement.....	34
e-Health	37
Introduction	37
The e-Health Roundtable.....	38
Advantages of Telehealth	46
e-Health Roundtable Findings	46
Conclusion	50
PTC Recommendations on e-Health	50
Government Response to previous PTC Recommendations	52
The Process.....	52
PTC Recommendations Implemented by Government	52
Venture Capital	53
Recruiting Talent.....	54
Conclusion	55
Appendix A: A Sample of Government IT Procurement Models	57
Appendix B: IT Procurement Symposium Detailed Information	63
Appendix C: e-Health Roundtable Detailed Information	69
Appendix D: Government White Paper on the Proposed Amendments to the Small Business Venture Capital Act	79
Appendix E: Glossary	89
Appendix F: Summary of Recommendations	93
Appendix G: Consultations and Written Submissions	101
Appendix H: PTC Members, Staff, Acknowledgements	102

This page has been left blank intentionally.

Executive Summary

Introduction

This is the third report of the Premier's Technology Council (PTC). The Council, comprised of leading members of British Columbia's high-tech and academic communities, was created on August 20, 2001, to advise the Premier on all technology-related issues facing the Province and its citizens. Its goal is to make British Columbia one of the world's top ten technology centres by 2006.

For this report, the PTC changed its usual practice of working in Task Groups, to concentrate on two subjects that were repeatedly raised during its second quarter regional consultations : (1) the procurement of Information Technology goods, services, and solutions (**IT procurement**), and (2) health services that could be delivered more efficiently and effectively via a province-wide broadband network (**e-health**). To address these important topics, the PTC conducted numerous consultations with representatives from both the private and public sectors, and it organized and hosted two well-attended, day-long events: an IT Procurement Symposium, and an e-Health Roundtable.

IT Procurement

During its consultations, the PTC heard many concerns raised about the government's current procurement process. The main concern was that a traditional commodity-based procurement system was inadequate to deal with the more complex, IT solutions-based requirements of government today.

While the PTC was conducting its consultations, the government was working on a Procurement Reform Discussion Paper in response to its New Era commitment to evaluate the processes by which the government procures its \$8 billion of goods and services each year. The Paper describes possible recommendations for legislation and policies to create a competitive, accountable framework promoting fair and open procurement throughout British Columbia.

To ensure that government had an opportunity to address all of the concerns raised by the IT industry, the PTC hosted an IT Procurement Symposium. The objectives were to bring both vendors of IT products and services and government representatives together in an open and public forum to discuss issues concerning the IT procurement process in British Columbia.

IT Procurement Issues: Pre-Symposium Research and Consultations

Through extensive consultations with senior industry and government officials, the PTC was able to identify a large number of issues related to the current procurement system. Moreover, research conducted by PTC staff identified a

range of IT procurement models that have been applied in other jurisdictions to deal with the unique characteristics of IT procurement (Appendix A). By examining these models as well as the body of procurement issues raised during the consultations, it became clear that current government IT procurement practices, policies and procedures are well-suited to the acquisition of standardized commodities such as furniture, asphalt, and even desktop computers; however, British Columbia's current procurement processes are not designed to support the acquisition of complex IT business solutions with multiple inter-dependencies. Furthermore, they do not encourage (and in many instances actively discourage) the IT industry to apply its expertise in developing creative and cost-effective solutions to improve government operations and enhance services.

Findings of the IT Procurement Symposium

The IT Procurement Symposium was held at the University of British Columbia Robson Square Conference Centre in Vancouver on Thursday, June 13, 2002. A total of 108 invited guests from large and small companies and government participated in the day-long event. Industry represented 77% of the total and government 23%. Of the industry participants, 45% were from the Lower Mainland, 30% were from the Victoria area, and the remaining 25% were from the regions and outside the province.

During the symposium, participants were divided into breakout groups, each composed of both government and industry representatives. These groups were asked to identify the most pressing tactical and strategic issues related to IT procurement in British Columbia and, more importantly, identify solutions to their prioritized list of issues.

Top Five Tactical Issues in IT procurement:

1. There is a strong requirement for more IT procurement training and skills for both government and industry.

The need to educate both government and industry in the British Columbia IT procurement rules, policies, and applications was identified by all participants as one of the top priorities. While the industry needs an easy-to-follow guide to the procurement system, government managers need to develop skills to initiate and manage complex procurement partnerships, assess a project's value proposition, match business needs to procurement proposals, and draft Requests for Proposal (RFP) and other appropriate procurement documents.

2. The procurement process is too complex, fragmented and lengthy.

Participants were uncertain about “who’s in charge” or who carries ownership and accountability for procurement decisions. Vendors are looking for ways to reduce the number of influencers in order to better manage their scarce sales and technical resources. They often feel forced to present their proposals to several groups, including the office of the CIO, various groups in the Ministry of Management Services (Common IT Services, Purchasing Commission, Procurement and Supply Services, etc.), the telecommunications group in the Ministry of Competition, Science and Enterprise, as well as to members of the ministry or department that originated the RFP. To make matters worse, according to both vendors and government, the goals of these influencers often differ. There is an obvious need to streamline the lengthy and cumbersome procurement process.

3. There is a lack of consistent procurement practices across government.

Symposium participants complained of inconsistencies in terms and conditions, evaluation criteria, evaluation committee competencies, contract language, legal terms, and contract negotiation. These inconsistencies place an unnecessary burden on the resources of both vendors and government.

4. Current procurement terms and conditions (particularly those related to unlimited liability and intellectual property) create an unfair business environment.

Current terms and conditions make it difficult, sometimes impossible, for vendors to participate in procurement. Vendors are currently required to accept unlimited liability. Current terms and conditions also require government to own all intellectual property created by a vendor during the term of a procurement contract. This requirement extends to all partners involved in the project work, and is both impractical and unrealistic.

5. One size does not fit all in the procurement of IT goods, services, or solutions.

The consensus from government and industry alike is that buying information technology services is different from buying commodity products such as pens and pencils. IT changes rapidly, is essentially solutions-based rather than products-based, and has the ability to enable business transformation.

Another aspect of this issue concerns smaller suppliers who feel they should not be forced to compete for smaller or less complex IT projects

based on the same set of requirements (such as number of employees, revenue, etc.) as larger vendors competing for much more costly or complex projects.

Top Five Strategic Issues in IT Procurement:

1. IT procurement processes and organizational structures are too fragmented, complex, and lengthy.

The issue of “who’s in charge” affects the procurement process both on a strategic, as well as a tactical, level. The fragmented nature of the current IT procurement process was identified as one of the greatest obstacles to reform of the system. From a strategic perspective, this obstacle becomes even more challenging and problematic the more complex the IT business solution that is being tendered.

2. Government lacks a clear IT vision and strategy.

The provincial government’s policy of fair, open and competitive tendering is clearly understood and supported by both vendors and government. The province’s IT vision, however, becomes increasingly unclear and inconsistent as one moves from the Premier’s Office and Cabinet, to the CIO’s office, to the ministries and departments and finally out to the vendor community. Symposium participants expressed frustration with policy disconnects between senior government representatives. They also expressed the need for a senior government official to drive a process to develop a new benefits-driven procurement model, to facilitate government-wide and industry education, and to gain endorsement of this new model throughout government.

3. There is a conflict between lowest-cost vs. benefits-driven procurement.

When purchasing commodities, the current lowest-cost method of procurement works very well. However, this method is not effective for procuring more complex IT products and services. Vendor proposals for complex IT solutions are often broken down into discreet components by government, and the components are then tendered in a competitive bid through the lowest-cost model, a process that both inhibits innovation in the vendor community and severely reduces overall value for government. Procurement of more complex IT solutions requires a process that considers benefits, or value, rather than an exclusive focus on price.

4. Government and industry do not share equitably in both the risks and rewards of IT initiatives.

Responsible stewardship of taxpayer dollars requires government to adopt a conservative approach to the procurement of goods and services often

based on risk aversion. Government employees are rewarded for adhering to strict policies and procedures, ensuring that goods and services are acquired at the lowest cost and that procurement decisions are “appeal-proof”. While an appropriate instrument for commodity procurement, this risk-avoidance approach does not work as well for the complex IT solutions that are required to bring business transformation to government.

Besides identifying the importance of having government and industry share more equitably in both the risks and the rewards of an IT initiative, symposium participants felt that the risk involved in IT partnerships should be managed rather than avoided.

5. JSP (Joint Solutions Procurement) is a tool which is underutilized, poorly understood and incompatible with current procurement models.

Symposium participants felt that JSP provides a vehicle for creating strategic benefits-driven partnerships to solve government business problems. This procurement tool has been in existence for many years and government resources are in place to administer the program. Unfortunately, JSP has been significantly underutilized as a procurement tool and requires review and modernization to be fully operational.

Summary

The IT Procurement Symposium was the first effort in the province to bring both government and industry together in a public forum to address the diverse and challenging issues related to the complex topic of IT procurement. Symposium participants came up with several solutions to address each one of the top ten issues related to the current procurement of IT goods, services, and solutions in British Columbia. Although this body of work represents only a starting point, the PTC strongly believes that the proposed solutions that emanated from the Procurement Symposium should be taken into serious consideration by government as it undertakes procurement reform.

There is no doubt that the recent Procurement Symposium has generated a great deal of interest, activity, and a resulting spirit of urgency, on the part of both industry and government. Above all, significant expectations were raised on both sides that the momentum would not be lost, and that the joint investment of time and effort would lead to a concrete and swift response by government to the issues identified and the solutions presented.

PTC Recommendations on IT Procurement

The British Columbia government should:

- Examine the scope of its current procurement reform initiative to ensure it adequately addresses the unique nature of IT procurement and permits adoption of a benefits-driven procurement model based, above all, on the business objectives rather than the technology requirements of government.
- Identify a senior government official to drive both a strategy and implementation process around IT procurement reform. This official will also be responsible for fostering development and adoption of new IT procurement tools and models; facilitating government-wide and industry education; and championing support throughout government.
- Create a joint government and industry task group to address the wide range of issues associated with IT procurement reform, with particular attention to the prioritized list of issues and proposed solutions emanating from the Procurement Symposium as well as the larger list of tactical and strategic issues identified by the PTC during its consultative process.
- Continue the momentum. Hold a follow-up IT procurement symposium within 120 days. The joint industry/government event should include a progress report from government outlining its response to the set of recommendations contained within this report, as well as future plans, deliverables, and timelines.

This report has identified a number of areas where the Government of British Columbia should modify its IT procurement processes. Clearly, the Province lags best practices in many areas. However, the PTC also wishes to assert that, in this respect, the Province is not alone. Issues of intellectual property and liability, for example, are relatively new concerns within the context of IT procurement, and currently challenge the private sector as well as governments. Moreover, joint solutions or partnership-based procurements are complex and require significant investment in management and technical expertise by both government and industry. Indeed, by their very nature, these large projects can become large problems.

The PTC acknowledges that procurement processes in government have given rise to legal challenges – one bidder's open access can be viewed by others as unfair advantage. Admittedly, court decisions have driven some of the conservatism in government procurement. The Council also recognizes that government must often make very difficult choices. While striving to achieve value for money in its purchases and to protect the ability of its businesses to access offshore markets, government cannot provide the preferential purchasing

that many of the Province's small companies believe is needed to help them grow.

It is important to note that while better practices arguably exist in some jurisdictions in Canada and elsewhere in the world, the Council could find no jurisdiction that has "solved" IT procurement. By addressing this issue, British Columbia can significantly improve its IT procurement practices and at the same time become a world leader. The PTC believes this report provides both a good background framework for discussion and strong recommendations to that end.

e-Health

Introduction

In the PTC's last report, the Government Operations and Services Task Group expressed its strong conviction that the successful delivery of e-health services in British Columbia requires province-wide access to a ubiquitous, cost-effective broadband network. It is in this context that the PTC decided to investigate the potential of broadband technologies to drive improved access to province-wide health care, particularly in British Columbia's remote and rural communities.

The PTC felt that with the recent consolidation of 52 separate health regions into six large Health Authorities, the government was now in a better position to implement an integrated e-health strategy for the province. To assist in this endeavour, the PTC believed it was necessary to identify those e-health applications that would have the greatest impact on improving the delivery of health care services throughout the province. Accordingly, the PTC decided to work with researchers at Simon Fraser University to convene a one-day e-Health Roundtable. The purpose of the Roundtable was to bring together some of British Columbia's leading health care providers (physicians, nurses and specialists), health educators, and selected representatives of the provincial and federal governments to address the following question:

Which e-health applications will have the greatest impact in improving access to health care services and reducing professional isolation, particularly in the remote and rural communities of British Columbia?

The e-Health Roundtable

On June 14, 2002, the PTC hosted twenty-nine participants at an all-day e-Health Roundtable at the Simon Fraser University Morris J. Wosk Centre for Dialogue in Vancouver. Participants included some of British Columbia's leading health care providers, health educators, and selected representatives of the provincial and federal governments. Roundtable participants agreed on the value of e-health applications in meeting urgent needs in British Columbia's

health care system. In particular, they stressed the potential of **telehealth** — the use of communications and information technology to deliver health and health care services, information and education over large and small distances – as the prime e-health application for addressing these needs.

Examples of Telehealth applications

Roundtable participants identified two different forms of telehealth information exchange:

1. Real-time (synchronous) point-to-point or multi-point videoconferencing. This enables medical consultation to occur over a distance. It also has the potential to deliver effective real-time education to health care professionals as well as to the general public.
2. Asynchronous exchange of patient information. Rather than exchanging information in real-time, health professionals access images, text, audio, or video (e.g. x-rays, retinal scans, dermatological images, etc.) that have been previously stored and forwarded from other locations.

Roundtable participants also outlined five basic categories of telehealth in which synchronous or asynchronous interactions could have a significant impact on the well-being of patients, patients' families, and health care providers, as well as on the costs and timeliness of service delivery. They also provided concrete examples for each telehealth category.

Category 1 - Emergency or On-call Consultations

In remote and rural communities, primary care physicians or nurse practitioners can be confronted with a wide range of medical emergencies. The ability to consult an emergency room physician and have that physician participate in patient diagnosis and triage provides a significant benefit to the primary care provider and the patient.

Category 2 - Scheduled Consultations

People living in remote and rural communities have extremely limited access to medical specialists. In many cases, patients have to travel to larger centres to see a specialist, incurring high costs, losing time from work, and losing contact with their local family and community support networks. For many situations (ranging from pediatric conditions, dermatological conditions, and chronic conditions such as diabetes, to treatment of mental health problems, post-natal care, and post-operative follow-up), the use of real-time videoconferencing and/or the exchange of high-resolution images would provide patients with timely access to appropriate specialists.

Category 3 – Professional Medical Education

Recruitment and retention of medical professionals is an on-going challenge in remote and rural communities. The lack of local access to medical education – both at the post-secondary level and through continuing medical education – contributes significantly to the shortage of health care professionals outside of major urban centres. If doctors and nurses in training, as well as practicing doctors and nurses, are able to remain in their regions while receiving the benefit of high quality, technology-delivered instruction from leaders in the field, the ability to attract and retain health care professionals outside of urban centers would increase significantly.

Category 4 – Public Health Education and Skill Building

The same technology infrastructure that supports the delivery of professional medical education can be used to support public health education and skills building. As the health care system moves from reactive to preventive medical care, the education of the public on topics ranging from smoking cessation to parenting skills becomes increasingly important.

Category 5 – Homecare and Selfcare

Homecare is health care provided in a patient's home. The providers may include health care professionals, community service providers, or even family members. Selfcare is a term coined in recognition that individuals are increasingly being expected to take more responsibility for their own health care. Telehealth technologies are beginning to emerge that allow patients, especially the chronically ill or elderly, to continue to live independently in their homes, rather than being confined to a health care institution.

e-Health Roundtable Findings

Telehealth is a proven concept. Roundtable participants stated clearly that the time for pilot projects is over, and that the province must make the benefits of telehealth a reality for all British Columbians. To this end, the participants had a number of recommendations, including:

- deploying a province-wide broadband network infrastructure capable of supporting telehealth initiatives

Participants felt strongly that the first requirement for the successful implementation of telehealth in British Columbia is a reliable, interoperable, high-speed network connecting health care providers throughout the province.

- creating a British Columbia telehealth strategy integrated with the provincial Health Services Plan

British Columbia needs to articulate a provincial telehealth strategy. Participants were unanimous that this strategy should be incorporated in the Health Services Plan, and each Health Authority should be required to develop a plan and timeline for implementation of the provincial telehealth strategy. Participants also reinforced the PTC's Second Quarterly Report recommendation to establish an e-health think tank.

- establishing a community consultation process to identify the specific telehealth applications that will address critical needs in each community

At the same time as a province-wide high-speed network is being deployed, the Roundtable participants recommended conducting a community-by-community needs assessment to determine which telehealth services will be of the greatest benefit to each community.

- developing a plan to sustain and continue existing telehealth initiatives in British Columbia while the provincial telehealth strategy is being developed

A number of telehealth pilots are underway in British Columbia. These pilots, often funded by the federal CHIPP(Canadian Health Infostructure Partnerships Program), range from the use of videoconferencing to provide scheduled consultations with specialists and on-call emergency consultations, to the asynchronous exchange of high resolution retinal scans for analysis by an ophthalmology specialist. Many pilots in British Columbia are nearing completion and the issue of sustaining funding is a serious concern for each project. Existing pilots should be transitioned into programs with sustained funding and at the same time the benefits of telehealth should be extended to communities throughout British Columbia.

- coordinating provincial e-health initiatives across ministries and all levels of government

e-Health and telehealth initiatives in British Columbia are actively being pursued by numerous institutional, governmental and non-governmental provincial and federal organizations. Furthermore, federal and provincial e-learning initiatives frequently overlap with e-health initiatives, offering the potential for cost sharing and the leveraging of scarce resources. Participants recommended that a telehealth coordinator be appointed and tasked with the mission of coordinating all telehealth initiatives in the province, regardless of originating organization.

- establishing a provincial coordinating centre for technology-enabled learning for health professionals in the next 12 months

This centre would be responsible for development of models of technology-enabled health education to promote the recruitment and retention of rural health professionals. It would also support interdisciplinary, team-based practice models, and standardize the quality of care of patients across the province. Such a centre would be in a position to establish private-public partnerships for the development and implementation of continuing professional education. It would also attract developmental funding from other agencies sharing a common interest in knowledge translation (e.g. Canadian Institutes of Health Research (CIHR), INFOWAY, Health Canada, etc.).

- addressing structural issues related to billing, licensure, and liability

In order for telehealth initiatives to become widespread and successful, it will be necessary for the government to address structural issues related to compensation for physicians, licensure of doctors and nurses, and legal liability related to distant delivery of health care services. These issues have been addressed in other jurisdictions, both within Canada and elsewhere, and models exist that the provincial government can look to in establishing a policy framework for telehealth in British Columbia.

- implementing a common Electronic Health Record

While not a prerequisite for initiation of telehealth services such as videoconference-enabled consultations, the electronic patient health record is universally recognized as contributing significantly to the quality of telehealth care. On the one hand, Roundtable participants did not feel that development of a telehealth strategy and deployment of telehealth initiatives should await the development of an EHR. On the other hand, they clearly saw the value of an EHR to telehealth.

Summary

The Roundtable participants stated clearly that e-health, and in particular telehealth, will contribute significantly to improving access to health care services for patients and reducing professional isolation for health care providers, especially in British Columbia's remote and rural communities. With a network infrastructure in place, the cost to acquire telehealth equipment is low. At the same time, significant benefits such as improved access to health care, improved health outcomes, and increased patient satisfaction can be realized without increasing costs.

The government has the opportunity to improve access to timely and effective health care for all British Columbians, and reduce professional isolation in remote and rural communities by integrating a coordinated telehealth strategy into the provincial health services plan and by ensuring that the communities of British Columbia are served by a high-speed network infrastructure that will support the delivery of telehealth services.

e-Health Recommendations

The PTC believes that the recommendations of the Roundtable are an important first step in identifying the critical elements necessary for the deployment of telehealth in British Columbia. Two of the recommendations from the e-Health Roundtable reaffirm recommendations contained in earlier PTC reports, namely:

- the deployment of a reliable, interoperable, high-speed network that will connect health care providers throughout the province; and
- the establishment of an e-health think tank responsible for the development of a clinical, educational, and administrative e-health strategy for the province.

In addition to reaffirming the importance of government response to these two recommendations, the PTC also recommends that the government:

- establish an e-Health Task Force composed of both government representatives and health care professionals to address the recommendations arising from the e-Health Roundtable. In addition, the mandate of the e-Health Task Force would include:
 - coordinating and leveraging current e-health initiatives, including clinical and educational telehealth projects;
 - the implementation of an Electronic Health Record (EHR), in conjunction with other levels of government and across ministries. This standard EHR would be adopted by all Health Authorities, institutions and businesses providing health care services in the province;
 - address the licensure, liability and billing issues and the resulting changes required to existing policy or legislation to enable health care givers to participate in telehealth; and
 - conduct a community consultation process to identify specific telehealth applications that will address critical needs in each community.

The PTC notes that this set of recommendations builds upon those put forward in its second report outlining the necessity to apply province-wide health information and information technology standards across all six Health Authorities. The successful implementation of the recommendations outlined in this report is contingent on government carrying out the PTC's previous recommendations on e-health (Appendix F).

Government Response to Previous PTC Recommendations

The PTC notes that government is taking action on the recommendations emanating from its first two reports. A comprehensive, government-wide process has been created to address the contents of PTC reports. In addition, government has already taken action on several specific recommendations.

The Process

The Premier appointed the Honourable Rick Thorpe, Minister of Competition, Science and Enterprise, to lead a cross-government initiative to address PTC recommendations.

The 53 recommendations in the PTC's first two reports affect a number of ministries and organizations across government including: Competition, Science and Enterprise; Management Services; Community, Aboriginal and Women's Services; Education; Advanced Education; Chief Information Office; Finance; Health Services; and Health Planning.

A working group representing these ministries has been convened to consider the PTC recommendations and report back on future actions. The recommendations may be implemented directly by the ministries with responsibility or be referred to Cabinet for decision. This group is chaired by the Ministry of Competition, Science and Enterprise, and will report back to Minister Thorpe in the Fall.

PTC Recommendations Implemented by Government

In our second report, the PTC observed that government had announced programs to implement two of its earlier recommendations:

- (1) doubling the number of computer science and engineering graduates in the province's universities, colleges and technical institutions within the next five years; and
- (2) creating 20 leadership research chairs in the fields of medical, social, environmental, and technical research in British Columbia.

More recently, government has taken steps to address two more recommendations in the areas of:

- (1) attracting venture capital investment; and
- (2) recruiting talent to grow the technology industry in the province.

Venture Capital

1. Accelerating 'Early Stage' Technology Investment:

In the Second Quarter, the PTC's Industry Growth and Development Task Group recommended that the provincial government proceed promptly with streamlining amendments to the *Small Business Venture Capital Act* (SBVC Act) to address the acute need for early stage capital investment in technology companies.

The PTC is pleased to note that a White Paper has been completed proposing the streamlining revisions to the SBVC Act (Appendix D). Many of the proposals being considered have taken into account the PTC recommendations. Representatives from the Ministry of Competition, Science and Enterprise have met with the Industry Growth and Development Task Group along with other key advisors in the venture capital community to discuss the proposals prior to legislation drafting. This group has provided further guidance and recommendations that the Ministry will incorporate in the final draft legislation.

Additional Recommendation on SBVC Amendments

To meet the acute need for seed and early stage venture capital within the province, the PTC strongly recommends that the proposed amendments to the SBVC Act be passed by the legislature prior to the beginning of 2003. Failure to do so will discourage and inhibit the facilitation of more early stage capital within British Columbia, and will put us further behind other jurisdictions.

2. Levelling the Playing Field for Tax Credit Investment in British Columbia:

In the Second Quarter, the PTC examined the venture capital situation in the province. It noted with concern that a single labour-sponsored fund had the right to raise and invest venture capital with the assistance of tax credits. This not only provided an unfair competitive advantage, it discouraged the creation of other funds and had the potential to result in a shortage of venture funds for businesses in British Columbia.

The PTC is pleased to note that the government has taken the initial steps to address this monopoly and level the playing field. On June 21, 2002, the government announced that it had approved regulatory change that "removes the requirement that eligible sponsors of a labour-sponsored fund have a paid

membership of at least 150,000 people, and makes it possible for available tax credits to be allocated to more than one labour-sponsored venture capital corporation.”

The process for selection of a new entrant into the labour fund market is now underway. Other changes scheduled for the fall of this year include a review of investment pacing requirements for labour funds which governs how quickly capital is invested in new venture opportunities. Also planned is a review of valuation methodologies needed to ensure accountability and transparency for all parties involved.

The PTC also notes that the government has committed to reviewing the current \$12 million tax credit cap in the next budget cycle.

Recruiting Talent

In its first two reports, the PTC identified a number of barriers to recruiting talented technology professionals to British Columbia. When the Ministry of Education recently announced changes to its International Student Policy resulting in a substantial fee for foreign students attending our elementary and secondary public schools, PTC members were quick to point out the negative impact this policy would have across the entire technology industry. The Ministry of Education’s initial decision would have made attracting and relocating uniquely talented people with school-aged children an even greater challenge. In fact, this decision had the potential to cause an *en masse* migration of these people from the province.

The PTC is pleased to note that the government is listening. Based on public concerns with recent changes to the International Student Policy, the government recognized that these changes had a much greater impact than initially anticipated. Accordingly, the Ministry of Education’s decision to eliminate funding for dependent children of people resident in British Columbia on either employment or student authorizations has been reversed. The PTC applauds the government for its responsiveness and courage to act swiftly to redress this situation.

Conclusion

PTC members have been deeply impressed by how many people and organizations were willing to volunteer considerable time and effort to shape the issues and work together to identify solutions related to reforming IT procurement processes and implementing e-health services in British Columbia. The sense of ‘community’ was clearly evident during the IT Procurement Symposium and the e-Health Roundtable. So too was the sense of commitment and determination. There was commitment to do what it takes to address the issues and there was

determination to ensure that the momentum is not lost and that joint action continues between government and key stakeholders.

At the IT Procurement Symposium, more than a hundred leaders from industry and government discussed tactical and strategic issues. They identified the most pressing issues, proposing a total of 34 solutions. Of the many findings, solutions, and recommendations, three stand out:

- a traditional commodity-based system is inadequate to deal with the much more complex, IT solutions-based requirements of government today;
- there is a need for leadership, focus and coordination within government. The present process is fragmented and involves too many players, none of whom is accountable;
- there is an overwhelming desire to continue the momentum to work jointly toward significant IT procurement reform.

The e-Health Roundtable brought leading health care providers, health educators and members of the provincial and federal governments together. Participants saw e-health, particularly telehealth, as a means to address two urgent needs: improving delivery of health care services and reducing professional isolation, particularly in rural and remote communities. The Roundtable identified several key findings and made a number of important recommendations, among which three stand out:

- there is a need for leadership, focus and coordination within government;
- there is a need to establish a think tank to create a vision for e-health;
- there is an overwhelming desire to continue the momentum initiated through the e-Health Roundtable.

The PTC is also gratified to learn that the government is listening. Not only has it established a positive process to address the PTC recommendations from previous reports, but it has already acted to implement several, including increasing the potential availability of new venture capital within the province.

As we mark our first anniversary, the Premier's Technology Council is examining its accomplishments to date. With the publication of our third report, we will have made nearly 60 recommendations to government, as well as generated a significant body of specific proposals emanating from the IT Procurement Symposium and e-Health Roundtable. More importantly, the Council has been a focal or rallying point for the technology community and has given the community a voice that government is heeding. The PTC is determined to ensure that British Columbia becomes one of the world's top 10 technology centres by 2006.

In the near future, focusing on the key goals of recruiting talent and attracting investment to British Columbia, the PTC will be working with the Premier's Office to plan and conduct a BC Marketing Mission to California.

Introduction

This is the third in a series of ongoing reports that describe the activities of the Premier's Technology Council. The Council, comprised of leading members of British Columbia's technology industry and academic communities, was created on August 20, 2001, to advise the Premier on all technology-related issues facing the Province and its citizens. Its goal is to make British Columbia one of the world's top ten technology centres by 2006.

The First Quarterly Report, published November 22, 2001, identified three key issues critical to successfully diversifying the provincial economy and improving the quality of life of our citizens:

1. 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.
2. Identify areas where technology can make government more efficient and improve the delivery of government services, including education and health care, throughout the province.
3. Ensure the growth and development of a vibrant, globally-competitive technology industry in British Columbia.

That report also described the process and structure the PTC devised to address the issues, including its four Task Groups:

- Access & Opportunity
- Government Operations & Services
- Industry Growth & Development
- Marketing & Public Awareness (dissolved after the Second Quarter)

Although most of the PTC's effort focused on process, structure and roles, the Council was still able to make eight recommendations to government in the areas of industry growth and marketing.

The Second Quarterly Report was released on April 2, 2002. During its second quarter, the PTC held a series of regional meetings in Prince George, Fort St. John, Nelson, Terrace, Nanaimo, Kelowna, and Kamloops. The PTC heard presentations and received written submissions from municipal governments, businesses, vendors, libraries, educational institutions, health agencies, First Nations, community groups, associations and other interested parties.

Based on the consultations, presentations, and its own research, the four PTC task groups made 45 recommendations to government.

For the 3rd Report, the PTC temporarily set aside its task group structure to concentrate on two issues that were repeatedly raised during the second quarter consultations – IT procurement and e-health. Continuing its practice of obtaining community input, the council conducted numerous consultations with representatives from both the private and public sectors and it conducted two well-attended, day-long events: an IT Procurement Symposium, and an e-Health Roundtable. This third report discusses these events and reports the outcomes.

The PTC reports are available on-line at the government's web site at www.gov.bc.ca.

IT Procurement

Introduction

Earlier this year, the PTC conducted a series of consultations throughout the province to solicit ideas on how to bridge the digital divide and to develop a world-class, dynamic technology industry in British Columbia. During discussions with both industry and government, many concerns were raised about the government's current procurement process, particularly as it related to IT goods and services. Chief among these concerns was the belief that a traditional commodity-based procurement system was inadequate to deal with the more complex, IT solutions-based requirements of government today. The PTC became convinced that an innovative, flexible, and competitive IT procurement system could not only help bridge the digital divide but also serve as an economic development tool.

During its regional consultations, the PTC observed that while British Columbia has an advanced, high-speed public sector network infrastructure, the province lags behind other jurisdictions in the way network components, and other government IT products and services, are procured. Upon further investigation, it became clear that IT procurement was central to the work of all three of the Council's task groups:

- the government's purchasing influence might be applied in creative ways to prompt telecommunications suppliers to provide network equipment and services based on the next generation of broadband infrastructure (Access and Opportunity Task Group).
- there is the potential for IT procurement to streamline and enhance government processes and electronic service delivery (Government Operations and Services Task Group).
- IT procurement decisions could stimulate economic development throughout the province (Industry Growth and Development Task Group).

While the Council was hearing expressions of concern regarding IT procurement, the government, through the Procurement and Supply Services Division of the Ministry of Management Services, was working on a Procurement Reform Discussion Paper (<http://www.pc.gov.bc.ca>). This reform is based on a New Era commitment to evaluate the processes by which the government procures its \$8 billion of goods and services each year. The Paper describes possible recommendations for legislation and policies to create a competitive, accountable framework promoting fair and open procurement throughout British Columbia.

Although the Procurement Reform Discussion Paper examines the procurement of all types of goods and services in the province, the current reform process is uniquely relevant to the \$350 million that is spent on IT products and services each year. The Discussion Paper, in fact, recognizes the importance and

uniqueness of IT procurement. It also considers the changing role of IT procurement within the context of emerging industry trends such as the increasing use of outsourcing, e-procurement, and sophisticated contracting processes. The Paper also recognizes the challenges in embracing these trends, such as a fragmented buyer environment, the lack of consistent skills, the lack of effectiveness of some procurement tools, the lack of a consistent procurement strategy, the need for a reporting process and broader supply planning, as well as the challenges posed by decreasing budgets and implementing shared services. The reform document clearly recognizes that IT is a strategic area for procurement and consequently for procurement reform.

Timing is everything. With the government looking at procurement reform and the PTC hearing concerns about IT procurement from both the supplier and buyer communities, the opportunity to bring an industry perspective to this important subject could not be overlooked. Consequently, the PTC decided to host an IT Procurement Symposium in order to bring suppliers and government representatives together in an open and public forum to discuss issues concerning the IT procurement process in British Columbia.

IT Procurement Issues: Pre-Symposium Research and Consultations

Through extensive consultations with senior industry and government officials, the PTC was able to identify a large number of concerns or issues related to the current procurement system. The issues were analyzed and grouped into two categories: tactical (changes to the existing system), and strategic (more fundamental change, requiring new procurement models or public-private partnerships). The key issues, based on more than 20 one-on-one meetings with companies, industry organizations, and government departments are listed in Tables 1 and 2.

Prior to the symposium, research was conducted by PTC staff to identify a number of IT procurement models. Research revealed that many innovative models have been applied in other jurisdictions to deal with the unique characteristics of IT procurement. The PTC discovered models for pilots, incubations, managed skunk works, benefits-based procurement, transaction-based procurement, shared services, joint solutions, third-party procurement, strategic partnerships, and outsourcing. The list of procurement models the PTC identified is in Appendix A.

Table 1: Tactical Issues Concerning IT Procurement in British Columbia

1. The current procurement process is complex, resource-intensive, inefficient, and takes far too long.
2. The current process and organizational structures for IT procurement are fragmented:
 - There are too many players/influencers/organizational units (Purchasing Commission, Finance/Risk Management, Legal Services, Common IT Services (CITS), CIO, ministries, elected officials)
 - There are conflicting goals and agendas
 - There is no single point of ownership, contact and accountability for the process and the outcome
3. There is a lack of consistent procurement processes and practices across government, including:
 - Lack of consistent terms and conditions
 - Lack of consistent evaluation criteria and varied competencies of evaluation committee members
 - Lack of standardized contract language
 - Lack of consistent process in contract negotiation
 - Inconsistency in specifying technology standards
4. There are currently inadequate appeal and conflict resolution processes for:
 - Unsuccessful bidders
 - Conflict escalation for successful bidders
 - Heavy-handed binding arbitration is currently the only option
5. The current IT procurement process lacks evaluation metrics:
 - There is no calculation of Return on Investment (ROI)
 - There is no calculation of Total Cost of Ownership (TCO)
 - Only direct product and service costs are considered. Additional costs may include staff training, vendor training, staff utilization, and maintenance
 - Only IT functionality benefits are considered. Additional benefits may include business driver metrics (e.g. spin-off benefits such as tax revenue generation)
6. The current requirement that vendors accept unlimited liability is an unfair business practice that discourages and restricts vendor participation and innovation.
7. The current requirement that government own all vendor and partner intellectual property is an unfair business practice that discourages and restricts vendor participation and innovation.
8. Individuals involved in government procurement lack the appropriate skills and training to write Request for Proposal (RFP), Request for Information (RFI), and Invitation to Quote (ITQ), negotiate contracts, evaluate technology solutions, manage vendor relationships, engage in cross-team collaboration, and establish metrics to measure business value (i.e. TCO, ROI, and business case analysis).
9. Vendor and industry representatives lack awareness of government IT procurement rules and processes, organizational structure, procurement models, and legal constraints:
 - Training materials and information do not currently exist
 - No designated job function for the provisioning of vendor education
10. The current procurement practice, which implements Master Standing Offers (MSO) as an exclusive contract, limits competition.
11. Current vendor qualification criteria (e.g. cash flow, size of customers, performance history) limit the participation of small and regional vendor in the bidding process.
12. Current IT procurement policies based on "One Size Fits All" model are ineffective. For example, different policies may be appropriate for small vs. large projects, commodities vs. solutions.
13. Current IT procurement processes are restrictive and encourage abuse of the system (e.g. contract splitting and work-arounds) due to a "need to get it done".
14. The current vendor qualification process is unduly lengthy and arduous for all vendors.
15. Current procurement policies do not support, and in many instances prohibit, communications between government and the vendor community for:
 - Problem and requirements definition prior to issuing a RFP
 - RFP clarification
 - RFP weighting and evaluation criteria
 - Advanced notice of pending RFP
16. Funding and political approval is not always secured prior to issuing a RFP.

Table 2: Strategic Issues Concerning IT Procurement in British Columbia

1. Government currently lacks a clearly articulated and well understood IT vision and strategy:
 - Leadership is not evident, which leads to confusion, ambiguity, and inconsistency for both vendors and government
 - Confusion exists surrounding process, accountability, standards, qualifications, and ownership of the requirements, etc.
2. Current processes and organizational structures for IT procurement are fragmented:
 - There is a silo approach rather than a cross-government approach
 - There are conflicting goals and agendas among too many organizational units and influencers
 - There is no single point of ownership and contact for the process and the outcome
 - Authority for decision-making and accountability are unclear. Vendors feel responsible for making presentations to the Purchasing Commission, Finance/Risk Management, Legal Services, CITS, CIO, ministries, deputy ministers, assistant deputy ministers, ministry CIOs and elected officials
3. Current procurement policies do not support, and in many instances prohibit, communication between government and the vendor community, and do not support adequate inter-governmental communications.
4. The current IT procurement process focuses on buying technology components at lowest cost rather than acquiring benefits-driven business solutions. This model requires government to act as a system integrator.
5. The current piecemeal/componentized IT procurement model discourages innovative business solutions. The public procurement process jeopardizes vendors' intellectual property and vendors are therefore reluctant to participate in the tendering process.
6. The current IT procurement practices focus on proprietary vendor products vs. open industry standards. Present proprietary vendor standards limit innovation and competition. For example, focusing on vendor-specific products rather than industry standards (such as Extensible Markup Language (XML) for interoperability) limits choice, increases risk, increases costs, and limits participation by the wider vendor community.
7. Current IT practices do not provide opportunity to incubate or pilot innovative solutions, including those from BC-based technology companies.
8. Current IT procurement processes do not provide a venue for vendors to make unsolicited proposals, which have tremendous opportunity to provide innovative benefits-based solutions.
9. A public policy conflict exists between putting New Era principles into operation around technology: innovation and the current implementation of an open and fair tendering process.
 - The current government invites the vendor community to bring in new ideas
 - Many of these ideas involve vendor proprietary solutions
10. Vendors are reluctant to disclose innovative proprietary solutions as required by the current tendering process as disclosure compromises their intellectual property.
11. A public policy conflict exists between open, fair, and competitive tendering and using IT procurement as an instrument for economic development.
12. Under the current procurement framework, bureaucrats are not rewarded for innovation and risk-taking.
13. Government and industry do not share equitably in both the risks and rewards inherent in IT initiatives.
14. The current Joint Solutions Procurement (JSP) model is not well understood, is underutilized, and does not conform to the risk adverse, rules-based approach of the current government procurement model.
15. The current process and organizational structure do not support cross-government collaboration or government-industry partnerships.
16. The current IT procurement model lacks the framework for evaluating the benefits of outsourcing and/or partnering vs. government provision of IT services and solutions.
17. Government and industry currently lack the training, skills, and understanding to build and sustain creative IT partnerships.

A fundamental principle of the PTC is that information technology is essential for government to: improve its operational efficiency, improve access to and delivery of its services, and improve economic opportunities for the people of British Columbia. In order for government to achieve these goals, a coherent IT strategy must be developed in which the acquisition and deployment of information technology is closely meshed and seamlessly integrated with the business of government.

By examining the body of procurement issues raised during the consultations with representatives of the IT business sector and government ministries, it became clear that current government IT procurement practices, policies and procedures are not supportive of solutions-based procurement of IT. While well-suited to the acquisition of standardized commodities such as furniture, asphalt, and even desktop computers, the current procurement methods are not designed to support the acquisition of complex IT business solutions with multiple inter-dependencies. Furthermore, they do not encourage (and in many instances actively discourage) the IT industry to apply its expertise in developing creative and cost-effective solutions to improve government operations and enhance services.

Findings of the IT Procurement Symposium

The IT Procurement Symposium was held at the University of British Columbia Robson Square Conference Centre in Vancouver on Thursday, June 13, 2002. A total of 108 invited guests from large and small companies and government participated in the day-long event. Industry represented 77% of the total and government 23%. Of the industry participants, 45% were from the Lower Mainland, 30% were from the Victoria area, and the remaining 25% were from the regions and outside the province. (For more details, see list of participants in Appendix B).

During the symposium, participants were divided into breakout groups, each composed of both government and industry representatives. These groups were asked to identify the most pressing tactical and strategic issues related to IT procurement in British Columbia and, more importantly, identify solutions to their prioritized list of issues.

Top Five Tactical Issues in IT Procurement:

1. There is a strong requirement for more IT procurement training and skills for both government and industry.
2. The procurement process is too complex, fragmented and lengthy.
3. There is a lack of consistent procurement practices across government.
4. Current procurement terms and conditions (particularly those related to unlimited liability and intellectual property) create an unfair business environment.

5. One size does not fit all in the procurement of IT goods, services, or solutions.

Top Five Strategic Issues in IT Procurement:

1. IT procurement processes and organizational structures are too fragmented, complex, and lengthy.
2. Government lacks a clear IT vision and strategy.
3. There is a conflict between lowest-cost vs. benefits-driven procurement.
4. Government and industry do not share equitably in both the risks and rewards of IT initiatives.
5. JSP (Joint Solutions Procurement) is a tool which is underutilized, poorly understood, and incompatible with current procurement models.

Top Five Tactical Issues:

1. There is a strong requirement for more IT procurement training and skills for both government and industry.

The need to educate both government and industry in the British Columbia IT Procurement rules, policies, and applications was identified by both the tactical and strategic breakout groups as one of the top priorities.

It was called by many different names: “*Procurement 101*”, “*GMOP for Dummies*” but the need for training of both government and vendor communities was voiced by almost all symposium participants. We heard that vendors need easy-to-follow guides to the procurement system. These guides would set out in a clear and concise manner government policies and procedures, and provide contact information. One vendor explained how, after 18 years of working with the procurement system, he considers his imperfect understanding a competitive advantage but is challenged in passing this information on to new employees.

We also heard that those involved in IT procurement for the government need to develop skills to initiate and manage complex procurement partnerships, assess a project’s value proposition, match business needs to procurement proposals, and draft RFP and other appropriate procurement documents. In fact, there are a host of procurement tools from which a procurement specialist can choose, including ITQ, MSO, RFP, RFI, RFQ, JSP, and NOI. However, most government procurement people lack knowledge of the benefits and applicability of these tools in different situations, as well as their applications, processes, and associated legal issues. It is recognized that procurement needs are changing and the current procurement system is not structured and equipped to handle complex relationships. New skills and tools are required.

Proposed Solutions: symposium participants recommended the following:

- Current procurement tools should be reviewed and government employees should be trained in their use. It is recognized that some of these tools are currently underutilized and may require review, updating, vetting, enforcing and application to be fully effective.
- Government employee training should include senior or executive involvement to ensure that consistent messages are spread from the decision-making to the operational level.
- An on-line training course for vendors could increase vendor understanding of the procurement process. Items identified for inclusion in the training program include reporting and responsibility structure, and rules and procedures for each procurement tool.
- A mechanism for providing feedback to government on what worked and what did not work in each RFP process would facilitate improvement of in-house RFP writing skills for ministry employees.
- An e-procurement workflow and document management system could provide government with some of the complex vendor management capabilities required for partnerships.
- When skills are not available in government, external skills should be sought. Areas where external skills may be applied include RFP writing and contract negotiation.
- The government should pursue knowledge transfer from the local and international private sector, as well as from the public sector in other jurisdictions which have initiated more complex business partnerships and in which best practices are beginning to emerge.

2. The procurement process is too complex, fragmented and lengthy.

Participants were uncertain about “who’s in charge” or who carries ownership and accountability for procurement decisions. Vendors are looking for ways to reduce the number of influencers in order to better manage their scarce sales and technical resources. They often feel forced to present their proposals to several groups, including the office of the CIO, various groups in the Ministry of Management Services (CITS, Purchasing Commission, Procurement and Supply Services, etc.), the telecommunications group in the Ministry of Competition, Science and Enterprise, as well as to members of the ministry or department which originated the RFP. To make matters worse, according to both vendors and government, the goals of these influencers often differ.

There is an obvious need to streamline the lengthy and cumbersome procurement process. There is a need to reduce the burden on companies, some of which have hundreds of procurement engagements with the government each year and must start from scratch each time they

enter a competition. During the lengthy, bureaucratic process for a particular procurement, technology can change, companies can change, time-to-market can be significantly delayed, and significant unnecessary costs can be incurred for both vendors and government.

Proposed Solutions: symposium participants recommended the following:

- Differentiated procurement policies should be applied based on cost, commodity/service mix, simplicity or complexity, degree of risk, and geography. Once differentiated, simplified procedures would provide an appropriate streamlining for engagements with similar characteristics.
- Government should create a database registry of qualified vendors. Procurement specialists within government would have electronic access to this database, which would include standard information required for every procurement. This central repository would eliminate the need for vendors to submit duplicate information for each procurement engagement.
- Government should post a list of vendors interested in a RFP. This would allow a company to evaluate the likelihood of being a successful bidder and gauge investment of further resources in the proposal stage. A circulated list of interested vendors also provides an opportunity for partnering with complementary vendors.
- Government should appoint a single point of ownership, contact, and accountability for the procurement process and its outcomes. Wherever this ownership rests, it is critical that the person or department have an understanding not only of the procurement process but also the business need being satisfied.

3. There is a lack of consistent procurement practices across government.

Symposium participants complained of inconsistencies in terms and conditions, evaluation criteria, evaluation committee competencies, contract language, legal terms, and contract negotiation. These inconsistencies place an unnecessary burden on the resources of both vendors and government.

Proposed Solutions: symposium participants recommended the following:

- An application template could standardize elements such as references, qualifications of the company, and qualifications of individuals to help streamline and add consistency to the process. Many of these elements are common to all procurement engagements.
- Intra-departmental training could leverage existing talent within government. It was recognized that there are pockets of expertise

scattered throughout government, which are currently difficult to bring together for a single project.

- Enforcement of procurement policies and procedures, once communicated, could improve consistency.

4. Current procurement terms and conditions (particularly those related to unlimited liability and intellectual property) create an unfair business environment.

Current terms and conditions make it difficult, sometimes impossible, for vendors to participate in procurement. Vendors are currently required to accept unlimited liability. Depending on the size of the contract, this may in some cases be a justifiable requirement for small companies and/or individual contractors. However, for large companies, it is impractical, unrealistic, and unfair from a business practice perspective to place no limit on the amount of liability the vendor must assume, regardless of the size of the contract.

Current terms and conditions also require government to own all intellectual property created by a vendor during the term of a procurement contract. This requirement extends to all partners involved in the project work, and is both impractical and unrealistic.

Proposed Solutions: symposium participants recommended the following:

- Vendor liability should be capped. It is recognized that this cap will be high – multiple times the value of the contract.
- Current requirements for intellectual property ownership should be clarified to the vendor community. Participants felt that the wording of current standard contract language used in government contracts does not actually reflect government intentions. For example, while the contract wording with regard to intellectual property is so broad it encompasses a grant of third party copyright, participants felt that the government does not actually expect or believe it is being granted third party copyright. Consequently, symposium participants proposed that the contract language be reviewed to ensure that the rights requested are only those in which the government has a legitimate interest.
- The requirement for government ownership of intellectual property should be reviewed and modified to include less onerous requirements, such as royalty payments.

5. One size does not fit all in the procurement of IT goods, services, or solutions.

The consensus from government and industry alike is that buying information technology services is different from buying commodity products such as pens and pencils. IT changes rapidly, is essentially solutions-based rather than products-based, and has the ability to enable business transformation.

Solutions procurement is more complex and time intensive, and requires greater innovation and collaboration from government and vendors, and more outside-of-the-box and long-term thinking. The procurement framework must move from a componentized, rules-based system to a flexible and integrated solutions-based approach. With this transition comes a need for different rules and guidelines.

Another aspect of this issue concerns smaller suppliers who feel they should not be forced to compete for smaller or less complex IT projects based on the same set of requirements (such as number of employees, revenue, etc.) as larger vendors competing for much more costly or complex projects. Participants also observed that the costs of a project and its complexity are often two very different things. For example, the purchase of \$2 million worth of desktop computers, and the purchase of \$2 million worth of software customization and consulting services have very different levels of complexity. In other words, it is not necessarily the dollar value of the contract that leads to the need for differentiation in procurement methodologies, but a combination of cost and complexity. All participants agreed that a two-tier IT procurement system would allow for greater flexibility.

Proposed Solutions: symposium participants recommended the following:

- Government needs to create a two-tier system of procurement: one for commodities and one for more complex services, solutions and partnerships. Projects should be differentiated and assigned appropriate policies and procedures. For example, different requirements should exist based on the dollar size of the purchase, whether it is a commodity or a service being acquired, and both the degree of complexity and risk involved.
- Training is needed to improve staff awareness of the tools available as well as the correct application of these tools to specific procurement needs based upon such variables as the size and complexity of the project.

Top Five Strategic Issues:

1. IT procurement processes and organizational structures are too fragmented, complex, and lengthy.

The issue of “who’s in charge” affects the procurement process both on a strategic, as well as a tactical, level. Agreeing with their tactical breakout group colleagues, participants in the strategic breakout sessions saw that the fragmented nature of the current IT procurement process represented one of the greatest obstacles to reform of the system. From a strategic perspective, this obstacle becomes even more challenging and problematic the more complex the IT business solution that is being tendered.

The fragmented nature of the current procurement process is represented in current procurement methodology, architecture, and accountability. The current procurement methodology is disparate and inconsistent, and fails to differentiate among IT commodities, services, and solutions. In addition, despite recent attempts to apply common IT standards, the vendor community feels that there is little evidence of a common, usable architectural framework for government IT that is needed to support its decentralized business activities. Participants felt that the government still operates in silos of different ministries. As a result of this fragmentation in both procurement process and organizational structure, the accountability flow is unclear. Participants felt that in order to clarify the issue of accountability, the individual or group with the decision-making capability as well as control of project funding must be made explicit to both government and the vendor community.

Proposed Solutions: symposium participants recommended the following:

- Government should develop a common IT architecture that supports decentralized, customized, and localized decision-making. This architecture should be based on interoperable industry standards (such as XML) rather than specific product standards.
- Government should develop an integrated methodology that is understood and embraced by all departments and levels of authority. This methodology should include centralized and standardized terms and conditions, legal contracts, contractual processes, and distinctive procedures for goods and services. It should also include central control of the IT budget, and make accountability explicit to both government and the vendor community.

2. Government lacks a clear IT vision and strategy.

The provincial government’s policy of fair, open and competitive tendering is clearly understood and supported by both vendors and government.

The province's IT vision, however, becomes increasingly unclear and inconsistent as one moves from the Premier's Office and Cabinet, to the CIO's office, to the ministries and departments, and finally out to the vendor community. Symposium participants expressed frustration with policy disconnects between senior government representatives.

Both government and industry representatives strongly asserted that an overriding province-wide IT strategy that included business goals for each ministry is absent. Once more the PTC heard that a strategic integrated IT architecture framework is not evident. The PTC also heard that the current procurement tools do not facilitate the innovation vision outlined in the New Era document and within senior government directives. Vendors expressed uncertainty in how to provide value to the province without clear objectives by which to navigate.

Symposium participants felt that just as the British Columbia government has successfully communicated a vision for a procurement system that promotes fair and open competition, government employees need to hear a similar unified message that encourages and rewards innovation, partnerships, and benefits-driven procurement. A high-level champion needs to drive a process to put the tools in place to foster these new models, to facilitate government-wide and industry education, and to gain endorsement of this new model throughout government. Most importantly, government employees need to see evidence that embracing this new way of thinking will be rewarded.

Proposed Solutions: symposium participants recommended the following:

- Government should appoint an "e-czar", an individual who is responsible for the IT vision for the province and translating the vision into strategy and clear objectives for all departments. To be effective, this position should hold considerable authority and have access to adequate funding.
 - Government should require senior ministry involvement in the procurement of IT in order to help bridge the gap between the strategic and operational levels.
 - Government should communicate directional statements from the CIO office to vendors through the BCBid system. This would allow vendors to incorporate the provincial IT strategy goals in each project proposal.
 - The CIO office should publish an annual report on the successes and developments from the past year and plans for the coming year. This would communicate an IT roadmap and vision for the province.
3. There is a conflict between lowest-cost vs. benefits-driven procurement.

When purchasing commodities, the current lowest-cost model of procurement works very well. However, this method is not effective for

procuring more complex IT products and services. Vendor proposals for complex IT solutions are often broken down into discreet components by government, and the components are then tendered in a competitive bid through the lowest-cost model. Government then attempts to provide the systems integration required to glue all of these individual lowest-cost components together into an effective IT solution. Symposium participants felt strongly that the current process both inhibits innovation in the vendor community and severely reduces overall value for government. They concluded that procurement of more complex IT solutions requires an evaluation that considers benefits, or value, rather than an exclusive focus on price.

Procurement is typically initiated by a business need in a ministry. The ministry works with internal resources to determine the technology that is required to solve the business need. This process can take months and is conducted in isolation from the vendor community. By the time the technology solution is tendered, detailed technology specifications can be obsolete. Tendering the solution in its final form also does not leverage the innovative capabilities of the vendor community. The PTC heard that a more effective model might involve tendering the business problem, for which the vendor community would work with government to develop the technical specifications. This would provide more innovative solutions to government in a fraction of the time.

Many vendors have developed competitive advantages based on IT business solutions that embed unique intellectual property. These vendors are increasingly hesitant to participate in a process that is likely to strip their valuable intellectual property from a proposal and tender it to competitors willing to undercut their price. Symposium participants felt that moving towards partnership models of procurement might ensure that intellectual property continued to be shared and exchanged in the province.

Participants agreed that moving towards a partnership-based and benefits-driven model of IT procurement would be a considerable departure for government. These types of engagements would require different vendor management skills, renewal of existing procurement tools such as the JSP, implementation of value-based metrics, and an understanding of total cost of ownership.

Symposium participants strongly agreed that the focus of any IT procurement must be on the business requirements rather than the technology requirements. As a result, the ministries themselves need to play a significant role in developing the benefits-driven business case and tracking value-based evaluation metrics that reflect that business case. While purchase cost has typically been the basis of government cost

calculations, assessment based on total cost of ownership will necessarily include costs of upgrading, maintenance, training, and staff utilization, as well as spin-off benefits to local economies and improvements in service. Rather than scrutinizing each line item of a project cost, the total cost must be evaluated, which will require more complex accounting systems and a different concept of accountability.

Proposed Solutions: symposium participants recommended the following:

- Government should create two streams of procurement: a lowest-cost model for commodities, and a benefits-driven model for complex services and solutions.
 - Government should initiate the proposal process by issuing draft RFP. This would provide an opportunity for vendors to provide input on the RFP in a transparent system.
 - Government should conduct a benefits-driven procurement pilot.
4. Government and industry do not share equitably in both the risks and rewards of IT initiatives.

Responsible stewardship of taxpayer dollars requires government to adopt a conservative approach to the procurement of goods and services, often based on risk aversion. Government employees are rewarded for adhering to strict policies and procedures, ensuring that goods and services are acquired at the lowest cost and that procurement decisions are “appeal-proof”. While an appropriate instrument for commodity procurement, this risk-avoidance approach does not work as well for the complex IT solutions that are required to bring business transformation to government. These complex partnerships necessarily introduce a greater degree of risk to the procurement process.

Symposium participants agreed, at least conceptually, that partnerships between government and the vendor community are easily embraced. They also acknowledged, however, that in practice an equitable sharing of risk and reward can be difficult to realize. Significantly, vendors and government asserted that they both were eager to become involved in partnerships but each was concerned about being forced to assume the entire risk without being adequately compensated. While both groups felt that the other side was unwilling to assume enough risk in IT solutions-based partnerships, both sides also agreed that government employees did not enjoy the same potential to participate in the rewards as do employees in industry. Because both sets of employees typically work side-by-side on an IT implementation, this inequity threatens to undermine the collaborative spirit of the partnership.

Besides identifying the importance of having government and industry share more equitably in the upside of a successful project, symposium participants acknowledged that risk-taking is a part of almost every IT project implementation. At the same time, they offered many examples of how the risk involved in IT partnerships could be managed rather than avoided. Participants concluded that strong involvement of both parties in all stages of a project reduces risk.

Proposed Solutions: symposium participants recommended the following:

- Each party involved in procurement must share in the risks and put some “skin in the game”. This “skin” may include joint application development, intellectual property, system integration services, tax breaks, etc.
 - Both government and industry must be willing to share the benefits provided by procurement partnerships. These benefits may include cost savings, royalties, transactional revenue, etc.
 - Government and industry should adopt risk management tools such as limiting risk by methodology, employing a standard actuarial approach to risk management, placing code in escrow, and using a third-party review process. Senior levels of government should be involved in the procurement of IT solutions to ensure that the strategic business goal of managing rather than avoiding risk is followed by all government employees.
5. JSP (Joint Solutions Procurement) is a tool which is underutilized, poorly understood and incompatible with current procurement models.

Symposium participants felt that JSP (Joint Solutions Procurement) provides a vehicle for creating strategic benefits-driven partnerships to solve government business problems. This procurement tool has been in existence for many years and government resources are in place to administer the program. Unfortunately, JSP has been significantly underutilized as a procurement tool and may require review and modernization to be fully operational.

Proposed Solutions: symposium participants recommended the following:

- Review the JSP model to ensure that it meets current needs of benefits-driven procurement.
- Create a JSP practice including guidelines for relationship management, methodology and procurement tools.
- Provide education to both government and industry on methodology and accountability for the revised JSP model.

Continuing the Dialogue

The response to the IT Procurement Symposium was overwhelmingly positive. Indeed, 96 percent of those providing feedback stated that they found the event useful and would be interested in attending a similar event. Participants affirmed that they found the opportunity to raise, discuss and understand issues from both government and industry perspectives extremely useful.

Symposium participants also expressed a strong desire for the momentum of the event to be continued. The majority voiced a desire to formalize the symposium into a recurring forum within a concrete framework with clearly specified goals and timelines. Participants all felt strongly that a follow-up event should be held within 6 months and should include a progress report from government, as well as future plans and timelines. Further, participants noted that in planning for future IT procurement events, the particular concerns of regional and smaller IT companies also be addressed.

PTC Recommendations on IT Procurement

Government procurement is complex. The Province spends billions of dollars purchasing goods and services through a system involving thousands of people. Today's practices have evolved from more than a century of largely commodity-based procurement experience. The system now faces a major challenge to adapt to the needs of the information age. Government business needs are changing. Information technology is rapidly becoming critical to effective government. Not only is IT a means to improve government operations, it is also becoming the actual means of delivery of health and education as well as the range of other services that government provides to its citizens. In other words, information technology is fundamental to the re-engineering of business processes that all governments today must face.

The challenge for the procurement process is that IT procurement is different from procurement of traditional commodities. The rate of change of technology is so rapid that the traditional system is too slow to effectively address needs. Furthermore, IT is now so pervasive in the business of government that purchases made in isolation are generally ineffective. It is in this context that solutions-based procurement has evolved as a new concept, and the current procurement system needs major change to adopt it.

Although the \$350 million spent on IT represents just over four percent of what the government spends annually on all goods and services, IT purchases have a disproportionately significant impact. Information Management/Information Technology (IM/IT) can fundamentally change government – the services that are delivered, the way they are delivered, and the way government organizes to deliver them.

The IT Procurement Symposium was the first effort in British Columbia to bring both government and industry together in a public forum to address the diverse and challenging issues related to the complex topic of IT procurement. With the assistance of many people in industry and government, the PTC is able to offer in this report a series of jointly proposed solutions to some of the most important tactical and strategic issues related to IT procurement in British Columbia. Although this body of work represents only a starting point, the PTC strongly believes that the proposed solutions that emerged from the Procurement Symposium should be taken into serious consideration by government as it undertakes procurement reform. The PTC also believes that the government must address the other twenty or so issues identified during the consultative process with industry and government representatives that took place prior to the symposium.

There is no doubt that the recent Procurement Symposium has generated a great deal of interest, activity, and a resulting spirit of urgency on the part of both industry and government. Above all, significant expectations were raised on both sides that the momentum would not be lost, and that the joint investment of time and effort would lead to a concrete and swift response by government to the issues identified and the solutions presented. The Premier's Technology Council, therefore, recommends that government:

- Examine the scope of its current procurement reform initiative to ensure it adequately addresses the unique nature of IT procurement and permits adoption of a benefits-driven procurement model based, above all, on the business objectives rather than the technology requirements of government.
- Identify a senior government official to drive both a strategy and implementation process around IT procurement reform. This official will also be responsible for fostering development and adoption of new IT procurement tools and models; facilitating government-wide and industry education; and championing support throughout government.
- Create a joint government and industry task group to address the wide range of issues associated with IT procurement reform, with particular attention to the prioritized list of issues and proposed solutions emanating from the Procurement Symposium as well as the larger list of tactical and strategic issues identified by the PTC during its consultative process.
- Continue the momentum. Hold a follow-up IT procurement symposium within 120 days. The joint industry/government event should include a progress report from government outlining its response to the set of recommendations contained within this report, as well as future plans, deliverables, and timelines.

This report has identified a number of areas where the Government of British Columbia should modify its IT procurement processes. Clearly, the Province lags best practices in many areas. However, the PTC also wishes to assert that, in this respect, the Province is not alone. Issues of intellectual property and liability, for example, are relatively new concerns within the context of IT procurement, and currently challenge the private sector as well as governments. Moreover, joint solutions or partnership-based procurements are complex and require significant investment in management and technical expertise by both government and industry. Indeed, by their very nature, these large projects can become large problems.

The PTC acknowledges that procurement processes in government have given rise to legal challenges – one bidder’s open access can be viewed by others as unfair advantage. Admittedly, court decisions have driven some of the conservatism in government procurement. The Council also recognizes that government must often make very difficult choices. While striving to achieve value for money in its purchases and to protect the ability of its businesses to access offshore markets, government cannot provide the preferential purchasing that many of the Province’s small companies believe is needed to help them grow.

It is important to note that while better practices arguably exist in some jurisdictions in Canada and elsewhere in the world, the Council could find no jurisdiction that has “solved” IT procurement. By addressing this issue, British Columbia can significantly improve its IT procurement practices and at the same time become a world leader. The PTC believes this report provides both a good background framework for discussion and strong recommendations to that end.

e-Health

Introduction

In the PTC's last report, the Government Operations and Services Task Group expressed its strong conviction that the successful delivery of e-health services in British Columbia requires province-wide access to a ubiquitous, cost-effective broadband network. It is in this context that the PTC decided to investigate the potential of broadband technologies to drive improved access to province-wide health care, particularly in British Columbia's remote and rural communities.

In British Columbia, as in much of the world, there is a growing shortage of primary health care providers and medical specialists. The nursing shortfall in Canada is expected to increase from 20,000 today to 113,000 by 2010, while the physician/client ratio will decrease from 1:548 to 1:718 by 2021. This shortage is particularly acute outside of major urban centres. People in remote and rural communities have increasingly limited access to health care providers. Physicians or nurses providing primary care in small communities have to deal with a vast array of medical problems without a professional network for decision-making support, without any opportunity to validate their practice, and without local opportunities to engage in ongoing professional education. For these reasons, recruitment of health care professionals into small communities is difficult and burn-out rates are high. Lack of local access to timely diagnosis and treatment for patients has short-term and long-term health consequences. Costs resulting from poor health outcomes are incurred not only in increased long-term medical costs, but also in increased costs in other areas served by the provincial government, including costs to the social welfare and education systems.

In its New Era document, the government recognized the existence of a rural health care crisis that "is placing a terrible burden on patients in communities throughout British Columbia" and acknowledged that:

The provincial government has an obligation to ensure that all British Columbians get the level and quality of care that they are entitled to under the Canada Health Act.

All citizens should have a comprehensive, publicly administered health care system that ensures high quality, timely health services are universally available and accessible to all throughout the province.

The government stated its intention to establish a rural and remote health initiative to "ensure all families get the care they need, where they live, when they need it."

At the same time, the government expressed its intent to develop a "comprehensive Technology Plan to assist health care professionals in delivering

faster more effective treatment to patients through new information technologies and telemedicine.”

Aside from the government’s commitment to establish a health care technology plan, the PTC felt that with the recent consolidation of 52 separate health regions into six large Health Authorities, the government was now in a better position to implement an integrated e-health strategy for the province. In addition, the PTC became convinced that ‘killer’ applications, rather than network infrastructure, would drive the delivery of broadband services to all communities in the province. Hearing anecdotal evidence of a number of successful e-health pilot projects in British Columbia and other jurisdictions, the PTC decided to try to identify those applications that would have the greatest impact on improving the delivery of health care services to the remote and rural communities of the province. Accordingly, the PTC decided to work with researchers at Simon Fraser University to convene a one-day e-Health Roundtable.

The e-Health Roundtable

On June 14, 2002, the PTC hosted twenty-nine participants at an all-day e-Health Roundtable at the Simon Fraser University Morris J. Wosk Centre for Dialogue in Vancouver. Participants included some of British Columbia’s leading health care providers, health educators, and selected representatives of the provincial and federal governments. Most participants had been involved in one or more e-health initiatives, and all of the participants had a strong interest in how e-health could be used to improve the provision of health care services in British Columbia. For more details on the Roundtable, please see Appendix C.

The purpose of the Roundtable was to address the following question:

Which e-health applications will have the greatest impact in improving access to health care services and reducing professional isolation, particularly in the remote and rural communities of British Columbia?

Roundtable participants agreed on the value of e-health applications in meeting two urgent needs in British Columbia: (1) improving access to and delivery of health care services, and (2) reducing professional isolation, particularly in remote and rural communities. In particular, they stressed the potential of **telehealth** — the use of communications and information technology to deliver health and health care services, information and education over large and small distances – as the prime e-health application for addressing these needs.

Telehealth is not a new concept. In Canada, it was first introduced in 1959 by Dr. Albert Jutras, who set up a Tele-radiology Project between 2 hospitals in Montreal. Dr. Jutras was a visionary, predicting 40 years ago that “...the day (will come) when radiological consultations for sparsely populated areas can be conducted by television instead of the present questions and answers over the

radio...” The longest running Canadian telehealth project started in Newfoundland in 1977 and continues to this day.

The governments of Ontario (NORTH Network) and Alberta (Wellnet) are expanding Internet-based telehealth networks to address health care needs in their provinces, while the federal government is also deploying telehealth initiatives within its areas of mandate (e.g. First Nations health care). While British Columbia is behind Ontario and Alberta in this field, a number of telehealth pilots are, nevertheless, underway in the province. These pilots, often funded by the federal CHIPP (Canadian Health Infostructure Partnerships Program), range from the use of videoconferencing to provide scheduled consultations with specialists and on-call emergency consultations to the asynchronous exchange of high resolution retinal scans for analysis by an ophthalmology specialist.

The technology to enable telehealth exists and is well understood, as are the benefits. Telehealth improves the quality of care that is provided to patients and families and promotes cost savings by:

- facilitating equal, timely, efficient and effective access to specialists for patients who live at a distance.
- providing an opportunity for more family members and health care providers involved in the patient’s care to be present during the patient’s consultation.
- enhancing family satisfaction by reducing the time and expense involved with travelling to see a specialist.
- reducing duplicate examinations and testing.
- improving patient health through timely diagnosis and treatment, resulting in a reduction in debilitating conditions, acute episodes and hospitalizations.

Telehealth services also reduce professional isolation by providing distant physicians with a supportive network for diagnostic, investigative and management decisions.

Examples of Telehealth applications

Roundtable participants identified two different forms of telehealth information exchange:

1. Real-time, point-to-point or multi-point videoconferencing. This synchronous form of communications enables many different kinds of medical consultation to occur over a distance. It also has the potential to deliver effective real-time education to health care to professionals as well as to the general public.

2. Asynchronous exchange of patient information, in particular, the exchange of high-resolution still images (e.g. x-rays, retinal scans, dermatological images), stored video (e.g. video of a patient's motor capability), or stored audio (e.g. a recording of a patient's respiration), enabling remote diagnosis and consultation by specialists. Rather than accessing information in real-time, health professionals access images, text, audio, or video that have been previously stored and forwarded from other locations.

Roundtable participants also outlined five basic categories of telehealth in which synchronous or asynchronous interactions could have a significant impact on the well-being of patients, patients' families, and health care providers, as well as on the costs and timeliness of service delivery. They also provided concrete examples for each telehealth category.

Category 1 - Emergency or On-call Consultations

In remote and rural communities, primary care physicians or nurse practitioners can be confronted with a wide range of medical emergencies. The ability to consult an emergency room physician and have that physician participate in patient diagnosis and triage provides a significant benefit to the primary care provider and the patient.

Example – Emergency Consultation Using Videoconferencing

A hypothetical example provided by the Roundtable participants was that of a nurse practitioner in a health clinic in a remote community who is confronted by a patient with a head injury. Uncertain as to the seriousness of the head injury and without the opportunity to consult a physician accustomed to dealing with head injuries, the nurse arranges to have the patient flown to the tertiary care hospital for diagnosis and treatment. The patient, already suffering from a head injury, is put through the stress of being transported and the anxiety of waiting for diagnosis, while substantial costs for both transportation and hospitalization are incurred.

In contrast, the participants described a telehealth interaction where the nurse is able to page an emergency room physician and participate in a videoconference consultation involving herself, the emergency room physician, and the patient. By observing and speaking with the patient using a patient camera, a digital otoscope, digital stethoscope, blood pressure cuff, or other remote monitoring equipment, the consulting physician is able to determine that the patient does not need to be hospitalized, and is able to advise the nurse on the patient's appropriate care. The patient is able to stay in his community where he will have the support of his family. Costs for unnecessary travel and hospitalization will

be avoided. Because patient stress and anxiety will be reduced, health outcomes are improved. In addition, the videoconference has also been a professional education experience for the nurse, improving her ability to diagnose and treat head injuries in the future.

Category 2 - Scheduled Consultations

People living in remote and rural communities have extremely limited access to medical specialists. In some instances, there is no primary care physician in the community. (Where primary care is provided by a nurse or nurse practitioner, a primary care physician can also be considered a specialist with whom consultations must be scheduled.) In those rare instances where specialists are located in non-urban centres, the wait times to see these specialists can be extremely long, potentially creating a negative impact on health outcomes. In many cases, patients living in remote and rural communities have to travel to larger centres to see a specialist, incurring high costs, losing time from work, and losing contact with their local family and community support networks. For many situations (ranging from pediatric conditions, dermatological conditions, and chronic conditions such as diabetes, to treatment of mental health problems, post-natal care, and post-operative follow-up), the use of real-time videoconferencing and/or the exchange of high-resolution images would provide patients with timely access to appropriate specialists.

Several examples of situations where telehealth could provide scheduled access to specialist consultations and have a significant positive impact on patient well-being were provided by the roundtable participants.

Example – Scheduled Video Consultation

Roundtable participants provided an example of the effectiveness of scheduled consultation using real-time videoconferencing involving the hypothetical but not uncommon case of a child in a northern community whose primary care provider suspects the child has an ear condition called otitis media with fluid. Not only is the condition painful, but the infection can impair the child's ability to hear at an age (usually around the age of three) when the acquisition of verbal skills is critical. The treatment of the hearing loss caused by this condition, which is prevalent among First Nations children, is a relatively straightforward surgical procedure involving the temporary insertion of small tubes into the eardrum. However, the condition must first be positively diagnosed and the surgery scheduled. In Prince George, we were told, it can take nine months to get a child an appointment to see the specialist qualified to make this diagnosis, after which the child is put on the waiting list for surgery. This lengthy wait for diagnosis can result in long-term learning disabilities by disrupting the child's development at a critical time.

The waiting period for diagnosis could be reduced to weeks or even days through the use of a scheduled consultation using videoconferencing with a specialist located in the Lower Mainland. Not only would the child receive relief from his condition much more quickly but, by significantly reducing the waiting period for diagnosis at a critical time in the child's life, potentially serious long term learning problems with consequences for the child, the child's family, the community, and the school system would be averted.

Another example provided by a Roundtable participant was the situation of an individual struggling with clinical depression in a small rural or remote community. It is worth noting that distribution of mental illness is geographically disproportionate, with several mental illness categories over-represented in rural and remote communities, while professional caregivers are under-represented outside of urban areas. In this particular example, as in many rural and remote communities, no mental health professional is available for local consultation.

Through a scheduled videoconference, the patient is able to receive treatment from a mental health professional. Because the specialist is located outside of the small community, the patient is not concerned that others in the community may come to know her problems. And, because the videoconference is at the local health centre where people go for all kinds of health consultations, there is no reason her neighbours need even know that she is meeting with a mental health professional. By receiving the care she needs in a timely and accessible manner, this patient is able to treat her depression and avoid acute episodes that could result in hospitalization or even suicide.

Not all scheduled consultations require videoconferencing. There are many situations where the ability to send a high resolution image (for example, an x-ray) to a specialist for diagnosis would reduce the need for patient travel, speed up and improve diagnosis, and improve patient health outcomes. Radiology has driven the development of such asynchronous store and forward technologies, which also have a high utility among dermatologists and ophthalmologists. Timely access to their specialized knowledge improves patient outcomes and supports local physician learning. Often these images are transported via encrypted software. The software creates a patient folder that can include the image and also additional information such as patient history, related images and sound files (e.g. respirations). The family physician and the consultant can annotate the image to highlight the area in question and clarify a diagnosis.

The software compresses the data and encrypts it so that it can be sent via the Internet or through a virtual private network (VPN) tunnel to another licensed software site. The value of asynchronous, store and forward applications is that they encourage a more effective use of specialized medical resources. Urgent

images can be sent and the consultant can be paged. In most cases, however, the consultant is able to check for files at a prescribed time each day, make an assessment and give orders.

Example – Scheduled Consultation Using Asynchronous Image Exchange

An example of this telehealth application provided at the Roundtable was the use of high-resolution digital retinal scans to diagnose diabetic retinopathy, a potential complication of diabetes that damages the eye's retina and leads to blindness. Diabetic retinopathy affects approximately half those diagnosed with diabetes but with timely diagnosis and treatment 90 percent of those with advanced diabetic retinopathy can be saved from going blind. Using digital imagery, it is possible for retinal scans for many patients to be examined by a specialist at a scheduled time. The specialist can quickly diagnose the patients' conditions, annotate the patients' files, and recommend the appropriate treatment. Because the specialist can schedule a block of time to examine all the images transmitted, her time is used much more efficiently. At the same time, there is a time and cost saving to the patient, who would otherwise have to travel to see the specialist. The benefits of early diagnosis and treatment of this condition are significant, not only in improving the patients' health and quality of life, but in obviating the need for more serious medical interventions or long term disability support should a patient lose his sight.

Category 3 – Professional Medical Education

Recruitment and retention of medical professionals is an on-going challenge in remote and rural communities. The lack of local access to medical education – both at the post-secondary level and through continuing medical education – contributes significantly to the shortage of health care professionals outside of major urban centres. If doctors and nurses in training, as well as practicing doctors and nurses, could remain in their regions while receiving the benefit of instruction from leaders in the field, the ability to attract and retain health care professionals outside of urban centers would increase significantly. Recent research actually corroborates the fact that seventy percent of physicians practice within 100 kilometers of where they obtained their medical degrees.

Example – Local Education of Student Doctors and Student Nurses

Through appropriately designed courses incorporating the use of real-time video-conferencing, doctors and nurses could obtain their education while attending an institution such as University of Northern British Columbia (UNBC) which is close to many of the communities most in need of service. Students who obtain their medical qualifications in the North are much more likely to want to practice in that region than those who travel to Vancouver or elsewhere for their education.

Example – Continuing Medical Education

For health care professionals, access to continuing medical education and the ability to participate in an active community of practice is vitally important. Professional upgrading, understanding of best practices, learning techniques of diagnosis and treatment, and validating personal practice are all crucial to maintaining and enhancing the competence and confidence of health care professionals. Yet the rural professional often cannot leave the community because it needs him. Even a short departure may mean that fifty percent of the health services are temporarily unavailable, if he is one of two physicians, nurse practitioners, or health professionals in the community. Technology-enabled learning can allow these professionals to acquire learning while remaining in their own communities. Roundtable participants provided the example of a practitioner in a small community who is able to take advantage of telehealth facilities at the local health centre to participate in a variety of formal (scheduled courses) and informal learning activities including just-in-time, case-based learning. Participation with others engaged in ongoing medical education breaks down the practitioner's sense of isolation. Awareness of best practices and new treatment methods is increased, as is his confidence in his ability to meet health care needs in the community. Through participation in continuing medical education courses, the practitioner also meets other professionals who form the basis of a support network through which the practitioner can share questions, ideas, and advice. While he remains in his small community, the practitioner no longer feels isolated. He is part of a community of practice.

Another example of telehealth's potential for providing professional learning is the use of the electronic health record (EHR) as a learning tool. The health professional is able to examine the EHR like an electronic audit trail and, as if "looking into a mirror," identify areas of practice deficiencies and areas of strength. This would be helpful in continuous improvement for individual practitioners. On the community level, communal learning could take place by using the EHR to identify the practice patterns of a community (for example, the Caesarian section rate in a community) and compare patterns with other communities. By looking for variations in practices and outcomes, communities can identify factors that affect service outcomes.

Category 4 – Public Health Education and Skill Building

The same technology infrastructure that supports the delivery of professional medical education can be used to support public health education and skills building. As the health care system moves from reactive to preventive medical

care, the education of the public on topics ranging from smoking cessation to parenting skills becomes increasingly important.

Example – Public Health Education

To illustrate this telehealth application, roundtable participants provided an example of students in a remote community where the incidence of smokers is very high. Students attending the local high school participate in a proven smoking cessation program offered from Vancouver. As a consequence of participating in this program, a number of the students are able to stop smoking, greatly reducing their risk of bronchitis, emphysema, heart attack, and lung cancer.

Category 5 – Homecare and Selfcare

Homecare is health care provided in a patient's home. The providers may include health care professionals, community service providers, or even family members. Selfcare is a term coined in recognition that individuals are increasingly being expected to take more responsibility for their own health, and make decisions about their own care.

Example – Homecare

Technologies are emerging that enable patients, especially the chronically ill or elderly, to continue to live independently in their homes by giving them access to input from their health care team and personalized health care information in their homes. An example provided by a roundtable participant was that of a patient with chronic obstructive pulmonary disease. The patient's nurse or doctor can make a "video house call" to the patient, remotely monitor the patient's vital signs (blood pressure, breathing, lung and heart sounds) to detect any signs of trouble, and recommend actions or fine tune dosages of medications, recommend office visits or even dispatch emergency help if required. Since the patient is confident that any signs of trouble will be detected by the remote health team, his trips to the doctor are far less frequent than they would be otherwise. Furthermore, because the patient feels less anxious about his condition, stress levels are reduced, improving the patient's overall well-being.

Advantages of Telehealth

Canadian experience has shown that users and providers of telehealth services express a high degree of satisfaction with these services – and that most would be willing to use the system again. Similarly, an independent evaluation of a recent home telehealth project at the University of Calgary has clearly demonstrated the utility and value of home telehealth services.¹

Characteristics of Conventional Homecare compared to Home Telehealth		
<i>Characteristic</i>	<i>Homecare</i>	<i>Home Telehealth</i>
Visit time	16.4 min	10.5 min
Travel time	9.6 min (one way)	None
Avoidable delay time	8.5 min	None
Total time per patient	34.5 min	10.5 min
Mileage costs	Yes	None
Maximum daily case load	8 - 10 Patients (Average = 9)	16 - 20 Patients (Average = 18)

As the chart above indicates, for home telehealth services, the total time the homecare provider spends with the patient is reduced by almost 70 per cent, from 34.5 minutes to 10.5 minutes. This is a result of the elimination of travel time and avoidable delay, as well as the time required for social interaction involved in visiting a patient in his home. Through home telehealth services, mileage costs are also eliminated. The increased efficiencies and cost savings are obvious. The introduction of home telehealth doubles the number of patients who can be served by the same number of homecare providers.

e-Health Roundtable Findings

As previously mentioned, telehealth is a proven concept. The Roundtable participants stated clearly that the time for pilot projects is over, and that the province must make the benefits of telehealth a reality for all British Columbians. To this end, the participants put forward a number of recommendations, including:

1. deploying a province-wide broadband network infrastructure capable of supporting telehealth initiatives.
2. creating a British Columbia telehealth strategy integrated with the provincial Health Services Plan.
3. establishing a community consultation process to identify the specific telehealth applications that will address critical needs in each community.

¹ Scott, Richard E. 2002. Home Telehealth Evaluation. Health Telematics Unit, University of Calgary.

4. developing a plan to sustain and continue existing telehealth initiatives in British Columbia while the provincial telehealth strategy is being developed.
5. coordinating provincial e-health initiatives across ministries and all levels of government.
6. establishing a provincial coordinating centre for technology-enabled learning for health professionals in the next 12 months.
7. addressing structural issues related to billing, licensure, and liability.
8. implementing a common Electronic Health Record.

Discussion of E-health Roundtable Recommendations

1. deploying a province-wide broadband network infrastructure capable of supporting telehealth initiatives

Participants felt strongly that the first requirement for the successful implementation of telehealth in British Columbia is a reliable, interoperable, broadband network connecting health care providers throughout the province. While there are other requirements in order to successfully implement a provincial telehealth strategy, Roundtable participants made it clear that the existence of a reliable high-speed network was a pre-requisite to any provincial telehealth strategy. As one participant said, “Doctors want the linkup to be as reliable and ubiquitous as a telephone.” Only a ubiquitous broadband network can support the videoconferencing and high-resolution image exchange central to telehealth applications throughout the province.

2. creating a British Columbia telehealth strategy integrated with the provincial Health Services Plan

British Columbia needs to articulate a provincial telehealth strategy. Participants were unanimous that this strategy should be incorporated in the Health Services Plan, and each Health Authority should be required to develop a plan and timeline for implementation of the provincial telehealth strategy. Participants also reinforced the PTC’s Second Quarterly Report recommendation to establish an e-health think tank. Among other tasks, the think tank would review the vision document created for the Ministry of Health in 1998 entitled “Telehealth in British Columbia: A Vision for the 21st Century,” and formulate a revised vision that would encompass a clinical, educational, and administrative telehealth strategy for the province.

3. establishing a community consultation process to identify the specific telehealth applications that will address critical needs in each community

At the same time as a province-wide high-speed network is being deployed, the Roundtable participants recommended conducting a community-by-community needs assessment to determine which telehealth services will be of the greatest benefit to each community. As most British Columbians will not be familiar with telehealth concepts, one roundtable participant proposed the concept of “e-Health townhall meetings” in which different telehealth applications would be demonstrated prior to a community process to identify key telehealth applications for the community.

4. developing a plan to sustain and continue existing telehealth initiatives in British Columbia while the provincial telehealth strategy is being developed

A number of telehealth pilots are underway in British Columbia. These pilots, often funded by the federal CHIPP (Canadian Health Infostructure Partnerships Program), range from the use of videoconferencing to provide scheduled consultations with specialists and on-call emergency consultations, to the asynchronous exchange of high resolution retinal scans for analysis by an ophthalmology specialist. Many pilots in British Columbia are nearing completion, and the issue of sustaining funding is a serious concern for each project. Existing pilots should be transitioned into programs with sustained funding, and at the same time the benefits of telehealth should be extended to communities throughout British Columbia.

5. coordinating provincial e-health initiatives across ministries and all levels of government

e-Health and telehealth initiatives in British Columbia are actively being pursued by numerous institutional, governmental and non-governmental provincial and federal organizations. Furthermore, federal and provincial e-learning initiatives frequently overlap with e-health initiatives, offering the potential for cost sharing and the leveraging of scarce resources. Unfortunately, there is a lack of coordination and information sharing across organizations, leading to overlap and duplication, and to fragmentation of resources and efforts. Participants recommended that a telehealth coordinator be appointed and tasked with the mission of coordinating all telehealth initiatives within the province, regardless of originating organization.

6. establishing a provincial coordinating centre for technology-enabled learning for health professionals in the next 12 months

This centre would be responsible for development of models of technology-enabled health education that will promote rural health professionals recruitment and retention and interdisciplinary or team-based practice models, and standardize the quality of care of patients across the province. Such a centre would be in a position to establish private-public partnerships for the development and implementation of continuing professional education and to attract developmental funding from other agencies sharing a common interest in knowledge translation (e.g. Canadian Institutes of Health Research (CIHR), INFOWAY, Health Canada etc.).

7. addressing structural issues related to billing, licensure, and liability

In order for telehealth initiatives to become widespread and successful, it will be necessary for the government to address structural issues related to compensation for physicians, licensure of doctors and nurses, and legal liability related to distant delivery of health care services. These issues have been addressed in other jurisdictions, both within Canada and elsewhere, and models exist that the provincial government can look to in establishing a policy framework for telehealth in British Columbia.

8. implementing a common Electronic Health Record

While not a prerequisite for initiation of telehealth services such as videoconference-enabled consultations, the electronic patient health record is universally recognized as contributing significantly to the quality of telehealth services. On the one hand, Roundtable participants did not feel that development of a telehealth strategy and deployment of telehealth initiatives should await the development of an EHR. On the other hand, they clearly saw the value of an EHR to telehealth. The EHR would give the consulting physician in a telehealth consultation instant access to the patient's history, records of prescribed medications, results of lab tests, medical images (e.g. x-rays, MRIs), or other procedures. Key to the development of the EHR is that it be easy to use and actually helps rather than hinders the health care provider. Too many examples exist of powerful technology solutions that remain unused and therefore useless because they are perceived as cumbersome, difficult to learn, and burdensome.

Another key requirement is that the EHR be built using standards that allow compatibility with the multitude of existing patient information systems in use in medical institutions and doctors' offices. The development of an EHR is being addressed by a number of private and

public sector organizations provincially as well as by a large-scale initiative in the federal government. Roundtable participants recommended that the province coordinate the setting of standards for an EHR with the federal government and the other provinces to facilitate the exchange of patient information across jurisdictions (for example, to support a telehealth consultation between a patient in Vanderhoof and a physician in Edmonton).

Conclusion

The Roundtable participants stated clearly that e-health, and in particular telehealth, will contribute significantly to improving access to health care services for patients and reducing professional isolation for health care providers, especially in British Columbia's remote and rural communities. With a network infrastructure in place, the cost to acquire telehealth equipment is low. At the same time, significant benefits such as improved access to health care, improved health outcomes, and increased patient satisfaction can be realized without increasing costs.

The government can improve access to timely and effective health care for all British Columbians, and reduce professional isolation in remote and rural communities by integrating a coordinated telehealth strategy into the provincial health services plan and by ensuring that the communities of British Columbia are served by a high-speed network infrastructure that will support the delivery of telehealth services.

The Roundtable participants represent a highly informed and dynamic group of professionals committed to using information and communication technologies in a meaningful way to improve the quality of health care for British Columbians. They are a valuable resource for the province as it moves forward in developing its health technology strategy, and many of them could contribute to the e-health think tank proposed above.

PTC Recommendations on e-Health

The PTC believes that the recommendations of the Roundtable are an important first step in identifying the critical elements necessary for the deployment of telehealth in British Columbia. Two of the recommendations from the e-Health Roundtable reaffirm recommendations contained in earlier PTC reports, namely:

- the deployment of a reliable, interoperable, high-speed network that will connect health care providers throughout the province; and
- the establishment of an e-health think tank responsible for the development of a clinical, educational, and administrative e-health strategy for the province.

In addition to reaffirming the importance of government response to these two recommendations, the PTC also recommends that the government:

- establish an e-Health Task Force composed of both government representatives and health care professionals to address the recommendations arising from the e-Health Roundtable. In addition, the mandate of the e-Health Task Force would include:
 - coordinating and leveraging current e-health initiatives, including clinical and educational telehealth projects;
 - the implementation of an Electronic Health Record (EHR), in conjunction with other levels of government and across ministries. This standard EHR would be adopted by all Health Authorities, institutions and businesses providing health care services in the province;
 - address the licensure, liability and billing issues and the resulting changes required to existing policy or legislation to enable health care givers to participate in telehealth; and
 - conduct a community consultation process to identify specific telehealth applications that will address critical needs in each community.

The PTC notes that this set of recommendations builds upon those put forward in its second report outlining the necessity to apply province-wide health information and information technology standards across all six Health Authorities. The successful implementation of the recommendations outlined in this report is contingent on government carrying out the PTC's previous recommendations on e-health (Appendix F).

Government Response to Previous PTC Recommendations

In its previous reports, the Premier's Technology Council made a number of recommendations to government. The Council's reports and its recommendations are the result of extensive research conducted by council members, staff, and professional consulting firms, as well as the extensive rounds of public and industry consultations the council has undertaken. The PTC believes it is important to bring some form of public closure to its activities. This section is intended to provide information on the changes government is making in response to PTC recommendations.

The Process

The Premier appointed the Honourable Rick Thorpe, Minister of Competition, Science and Enterprise, to lead a cross-government initiative to address PTC recommendations.

The 53 recommendations in the PTC's first two reports affect a number of ministries and organizations across government including: Competition, Science and Enterprise; Management Services; Community, Aboriginal and Women's Services; Education; Advanced Education; Chief Information Office; Finance; Health Services; and Health Planning.

A working group representing these ministries has been convened to consider the PTC recommendations and report back on future actions. The recommendations may be implemented directly by the ministries with responsibility or be referred to Cabinet for decision. This group is chaired by the Ministry of Competition, Science and Enterprise.

The working group will report back to Minister Thorpe in the Fall.

PTC Recommendations Implemented by Government

In our second report, the PTC observed that government had announced programs to implement two of its earlier recommendations:

- (1) doubling the number of computer science and engineering graduates in the province's universities, colleges and technical institutions within the next five years; and
- (2) creating 20 leadership research chairs in the fields of medical, social, environmental, and technical research in British Columbia.

More recently, government has taken steps to address two more recommendations in the areas of:

- (1) attracting venture capital investment; and

(2) recruiting talent to grow the technology industry in the province.

Venture Capital

1. Accelerating 'Early Stage' Technology Investment:

In the Second Quarter, the PTC's Industry Growth and Development Task Group recommended that the provincial government proceed promptly with streamlining amendments to the *Small Business Venture Capital Act* (SBVC Act) to address the acute need for early stage capital investment in technology companies.

The PTC is pleased to note that a White Paper has been completed proposing the streamlining revisions to the SBVC Act (Appendix D). Many of the proposals being considered have taken into account the PTC recommendations. Representatives from the Ministry of Competition, Science and Enterprise have met with the Industry Growth and Development Task Group along with other key advisors in the venture capital community to discuss the proposals prior to legislation drafting. This group has provided further guidance and recommendations that the Ministry will incorporate in the final draft legislation.

Additional Recommendation on SBVC Amendments

To meet the acute need for seed and early stage venture capital within the province, the PTC strongly recommends that the proposed amendments to the SBVC Act be passed by the legislature prior to the beginning of 2003. Failure to do so will discourage and inhibit the facilitation of more early stage capital within British Columbia, and will put us further behind other jurisdictions.

2. Levelling the Playing Field for Tax Credit Investment in British Columbia:

In the Second Quarter, the PTC examined the venture capital situation in the province. It noted with concern that a single labour-sponsored fund had the right to raise and invest venture capital with the assistance of tax credits. This not only provided an unfair competitive advantage, it discouraged the creation of other funds and had the potential to result in a shortage of venture funds for businesses in British Columbia.

The PTC is pleased to note that the government has taken the initial steps to address this monopoly and level the playing field. On June 21, 2002 the government announced that it had approved regulatory change that "removes the requirement that eligible sponsors of a labour-sponsored fund have a paid membership of at least 150,000 people, and makes it possible for available tax credits to be allocated to more than one labour-sponsored venture capital corporation."

The process for selection of a new entrant into the labour fund market is now underway. Other changes scheduled for the fall of this year include a review of investment pacing requirements for labour funds which governs how quickly capital is invested in new venture opportunities. Also planned is a review of valuation methodologies needed to ensure accountability and transparency for all parties involved.

The PTC also notes that the government has committed to reviewing the current \$12 million tax credit cap in the next budget cycle.

Recruiting Talent

In its first two reports, the PTC identified a number of barriers to recruiting talented technology professionals to British Columbia. Indeed, the Council continues to work with government to resolve taxation, immigration, spousal employment and education issues that impede the industry's ability to attract and retain top technical talent. When the Ministry of Education recently announced changes to its International Student Policy resulting in a substantial fee for foreign students attending our elementary and secondary public schools, PTC members were quick to point out the negative impact this policy would have across the entire technology industry. Across all aspects of the industry (including IT, communications, electronics and advanced manufacturing, new media, fuel cell, biotechnology, aerospace), British Columbia companies are dependent upon recruiting talented professionals in order to be able to grow and remain competitive. The Ministry of Education's initial decision would have made attracting and relocating uniquely talented people with school-aged children an even greater challenge. In fact, this decision had the potential to cause an *en masse* migration of these people from the province.

The PTC is pleased to note that the government is listening. Based on public concerns about changes to the International Student Policy, the government recognized that these changes had a much greater impact than initially anticipated. Accordingly, the Ministry of Education's decision to eliminate funding for dependent children of people resident in British Columbia on either employment or student authorizations has been reversed. The PTC applauds the government for its responsiveness and courage to act swiftly to redress this situation.

Conclusion

PTC members have been deeply impressed by how many people and organizations were willing to volunteer considerable time and effort to shape the issues and work together to identify solutions related to reforming IT procurement processes and implementing e-health services in British Columbia. The sense of 'community' was clearly evident during the IT Procurement Symposium and the e-Health Roundtable. So too was the sense of commitment and determination. There was commitment to do what it takes to address the issues and there was determination to ensure that the momentum is not lost and that joint action continues between government and key stakeholders.

At the IT Procurement Symposium, more than a hundred leaders from industry and government discussed tactical and strategic issues. They identified the most pressing issues, proposing a total of 34 solutions. Of the many findings, solutions, and recommendations, three stand out:

- a traditional commodity-based system is inadequate to deal with the much more complex, IT solutions-based requirements of government today;
- there is a need for leadership, focus and coordination within government. The present process is fragmented and involves too many players, none of whom is accountable;
- there is an overwhelming desire to continue the momentum to work jointly toward significant IT procurement reform.

The e-Health Roundtable brought leading health care providers, health educators and members of the provincial and federal governments together. Participants saw e-health, particularly telehealth, as a means to address two urgent needs: improving delivery of health care services and reducing professional isolation, particularly in rural and remote communities. The Roundtable identified several key findings and made a number of important recommendations, among which three stand out:

- there is a need for leadership, focus and coordination within government;
- there is a need to establish a think tank to create a vision for e-health;
- there is an overwhelming desire to continue the momentum initiated through the e-Health Roundtable.

The PTC is also gratified to learn that the government is listening. Not only has it established a positive process to address the PTC recommendations from previous reports, but it has already acted to implement several, including increasing the potential availability of new venture capital within the province.

As we mark our first anniversary, the Premier's Technology Council is examining its accomplishments to date. With the publication of our third report, we will have made nearly 60 recommendations to government, as well as generated a significant body of specific proposals emanating from the IT Procurement Symposium and e-Health Roundtable. More importantly, the Council has been a

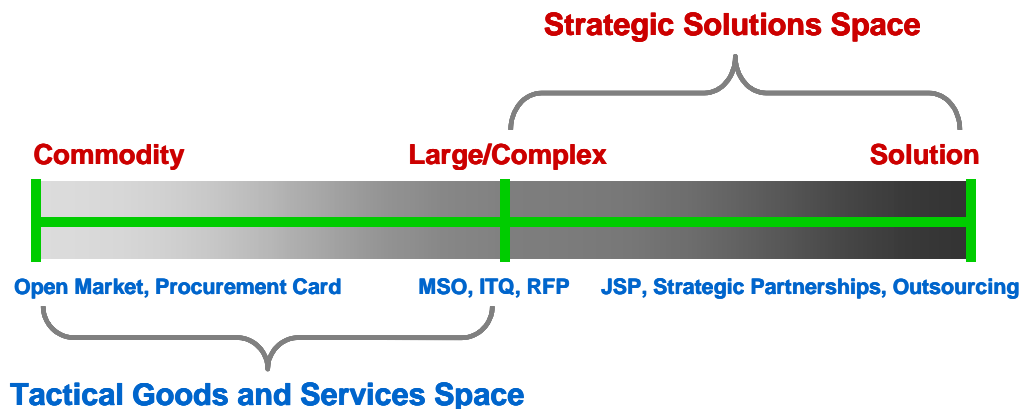
focal or rallying point for the technology community and has given the community a voice that government is heeding. The PTC is determined to ensure that British Columbia becomes one of the world's top 10 technology centres by 2006.

In the near future, focusing on the key goals of recruiting talent and attracting investment to British Columbia, the PTC will be working with the Premier's Office to plan and conduct a BC Marketing Mission to California.

Appendix A: A Sample of Government IT Procurement Models

The Procurement Continuum

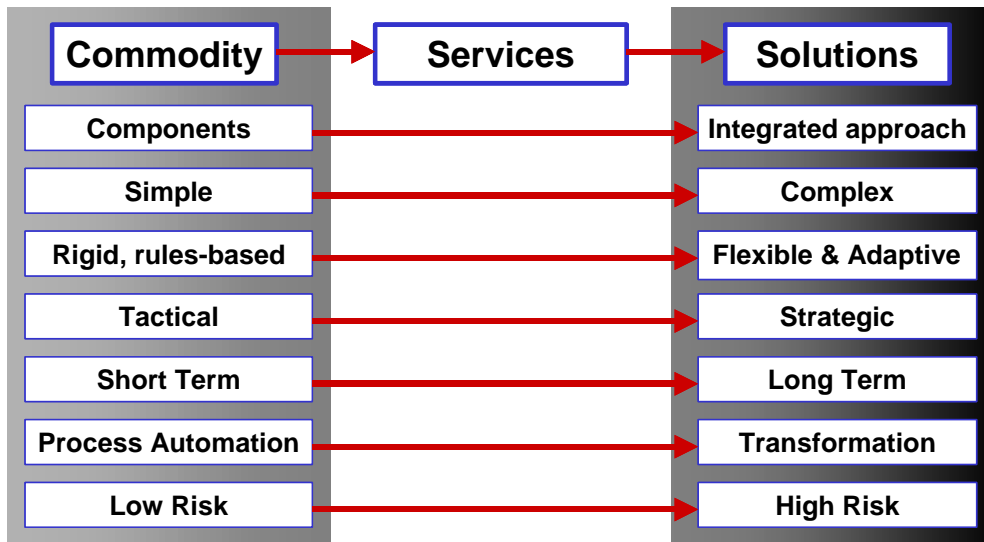
Information Technology (IT) procurement can be illustrated as a continuum with commodity purchase at one end and solutions procurement at the other.



Small or simple purchases of goods and services (commodities) use procurement vehicles such as open market purchasing or debit cards. As purchases increase in volume and/or complexity, vehicles such as Master Standing Offers (MSO), Invitations to Quote (ITQ), and Requests for Proposals (RFP) are employed. Large and/or complex purchases mark the transition from the procurement of tactical goods and services to the procurement of strategic solutions. The *tactical goods and services space* is the general range in which the Government of British Columbia most often procures today.

The *strategic solutions space* ranges from large and/or complex procurement to partnerships and outsourcing arrangements with shared risks and rewards. Purchases in this space are often tendered as problems, as opposed to requirements. They provide government with the opportunity to better leverage private sector innovation, reduce costs and/or improve operations. These purchases are often long term in outlook.

Differences Between Commodity-Based and Solutions-Based IT Procurement Characteristics



The following procurement models have been employed in other jurisdictions in various forms:

Benefits-based Procurement

This is the achievement of benefits by both the government and supplier in the acquisition of a project. Compensation for the supplier is based on results. Benefits-based procurement requires a strong business case, comprehensive risk and reward management, and ongoing performance measurement.

The California Franchise Tax Board employed benefits-based procurement in its acquisition of a tax collection solution. One component of the solution had a return on investment in 45 days, and an additional \$320US million in taxes were collected as a result of the entire solution being implemented.

Transaction-based Procurement

This model requires the government's supplier(s) to make a large investment up front for which they receive an operational fee over an agreed-upon term. Such an arrangement requires the transparency of cost and revenues between the government and its supplier(s) since compensation is dependent on the volume of transactions.

The Ministry of Consumer and Business Services of the Province of Ontario is presently employing this procurement model to fund the building of its government-wide portal and rollout of electronic services.

Shared Services Procurement

Shared services procurement facilitates the spreading of cost associated with the development, risk and management of common services among multiple groups. This model allows for cost savings through aggregation and other benefits associated with having common infrastructure and standards.

Common Information Technology Services (CITS), Ministry of Management Services, Province of British Columbia, currently uses this model to provide desktop computers and support across government. SPAN/BC, the Government of British Columbia's shared data network, is a product of this model.

Joint Solutions Procurement (JSP)

This model is characterized by a short procurement cycle in which a supplier is selected (potentially from a pre-approved list of partners) based upon their ability to work with government to develop a solution to a specified problem. JSP allows government to leverage the innovation and best practices of the private sector. This model requires ongoing communication and co-ordination between government and the selected supplier.

The Kentucky Governor's Office (KGO) employed this model to facilitate a procurement cycle that could take place in less than 30 days. The KGO accomplished this by pre-negotiating prices with professional service providers and issuing clear, simple need statements that allowed providers to offer innovative solutions.

Third Party Procurement

In this model, government contracts a third party to procure specified goods and services on its behalf. This approach allows government to leverage the buying power of a third party and achieve performance metrics that have been reinforced by incentives offered to that third party.

The State of South Australia has employed this procurement model to supply its offices with computer desktops and associated management services.

Strategic Partnerships

This model facilitates the development of partnerships between government and the private sector to address major public issues. In this model, partners are granted discretion in their approach to delivering a win-win solution that enhances services, increases revenue, and/or reduces costs. Both sides are committed to sharing in the risks and rewards of the partnership. Strategic

partnerships are often large and complex in scale, and require a high degree of trust and long-term commitment.

The successful development and operation of BC Online, the Province of British Columbia's land registry system, was done in partnership with the private sector. The private sector partner subsequently acquired the solution from government and was able to offer it to other jurisdictions.

Outsourcing

This model allows for the assignment of process(es) to a private contractor, providing the opportunity for cost savings, service improvement and/or enhancement depending upon how compensation is arranged. Often bonuses or incentives reward new value-added services initiated by the contractor. Both a strong business case and change management are required for outsourcing to be successful.

The United Kingdom's Department of Social Services outsourced its data center and technical support services. Outsourcing was used as an enabler that supported strategic change allowing the department to modernize its welfare system and focus on core government operations.

Other Models

Innovation - Pilots, Incubation, and Managed Skunk Works

Pilot and incubation projects provide government with the opportunity to experiment in a risk-averse environment and potentially support the growth of new ventures. Launched on a limited scale, these projects allow government and vendors to co-develop innovative solutions that can be evolved and evaluated for expanded adoption. Projects may range from new commodities and small services contracts to solutions development.

Solutions Leasing

In this model, the solution is leased from the private sector with the government having the option to purchase it outright at the end of the contract. Alternatively, government can sell a process to the private sector and lease it back. Such an arrangement allows for government to avoid large initial investment or divest itself of a non-core service or capability.

Competitive Sourcing

This procurement model facilitates a staged competition between the public and private sector in providing services and/or solutions. Staged competition allows government to encourage innovation internally and determine which sector would be optimal in delivering the service and/or solution.

Multi-jurisdictional Contracts

In this model, multiple agencies - potentially governments - can benefit from aggregated purchasing power by banding together to procure common goods and services.

Government-to-government

In this model, government procures solutions from another jurisdiction, thereby facilitating the adoption of best practices, and avoiding both the time and financial investments required.

This page has been left blank intentionally.

Appendix B: IT Procurement Symposium Detailed Information

I. Prior Consultations

Robert Lanz, Director, Strategic Sales
Dennis Keenan, Senior Business Manager,
Government & Large Enterprise
Group Telecom

Steve Kinsey, Account Vice President, Customer
Solutions - Sales
Wayne Spragg, Director, Corporate Accounts
Hal Jackson, Director, Sales – Western Canada
Nortel Networks

Chris Ewasiuk, Manager, Government &
Regulatory Affairs - BC
Chris Kucharski, Director of Sales, Vancouver
Region
Shaw Cablesystems G.P.
Garth Wambolt, Account Executive, Wholesale
Accounts
BIG PIPE Inc., a Shaw Company

Rick Thompson, Vice President, Business
Development
eOptimize Inc.

Ralph Chapman, General Manager, Public
Sector - BC
IBM Canada Ltd.

Chris Nelson, Assistant Deputy Minister, BC
Trade & Investment Office
Robert Grace, Sector Manager, Strategic
Industries Branch - Vancouver
Anton Kuipers, Sector Manager, Strategic
Industries Branch - Vancouver
Ministry of Competition, Science and Enterprise

Dave Nikolejsin, Executive Director, Planning
and Engineering, Common IT Services
Ministry of Management Services

Ross Rose, Director, E-Business Systems
Derek Gale, Manager, Business Development
MacDonald, Dettwiler and Associates

Tim Draper, Account VP, Government of BC
Mike Tomczak, Manager, Victoria Branch
Telus

Ruth Wittenberg, Assistant Deputy Minister,
Finance & Management Services Division
Karen Dellert, Chief Information Officer
Ministry of Human Resources

Larry Phillips, Director
Peter Lawrence, Client Executive
Fujitsu Consulting

Trevor Murphy, Sales & Business Development
Manager
Jack Murphy, President
Myra Systems Corp.

David Williams, Managing Partner, Victoria
Office
Allan Hart, Partner, Victoria Office
PricewaterhouseCoopers

Ross Johnson, Major Account Manager
Cisco Systems Canada Inc.
Sandra Stoddart-Hansen, Senior Consultant,
Public Affairs
Hill & Knowlton

Bill Cooke, Chief Executive Officer
Vancouver Island Advanced Technology Centre
Naomi Hamilton, Management Consultant
Robin Dunn, Manager of Business Development
HeavyLifters Inc.
John Rafuse, Human Resources Manager
Peter Sallaway, Director, Business Development
OA Solutions Inc.

Bob Allen, President
ABC Communications/Open Source Solutions
Wayne Wilson, Sales Manager
Open Source Solutions
David Godfrey, President
CSP Internet Ltd.
Marty Hill, Managing Partner
Kootenay Business Systems
Bill Therens, President/Chief Executive Officer
Rocky Mountain Networks Ltd.

John Fallows, Vice President, Government
Global Industry Group
Ross Breckon, Vice President, Public Sector -
BC
EDS Canada Inc.

Vern Byggdin, Account Manager
Oracle Corporation Canada

Bill Thomson, Partner
Terry Grogan, Partner
David Hughes, Partner
Sierra Systems

Wayne Feyer, BC Government Account Manager
Patrick McGillis, Government Solutions Specialist
Barbara Alexander, Regional Sales Manager - BC
Microsoft Canada

Sunny Mathieson, Assistant Deputy Minister,
Procurement and Supply Services

Richard Poutney, Project Director, Procurement Reform
Julian Isitt, Director, Purchasing Services Branch
Byron Barnard, Assistant Deputy Minister,
Common IT Services
Ministry of Management Services

II. Written Submissions

Judy Pryce
PwC Consulting

Stuart Culbertson
S.F. Culbertson and Associates Inc.

III. Questions Sent to Consultation Participants

1. What is the degree of concern industry has with the current system in the provincial government?
2. Do we need a new model or can the current one be reformed?
3. How do we stack up with other jurisdictions?

Tactical Questions

1. What are your concerns about the current BC Government IT procurement system?
2. Do you have any suggestions for how these concerns can be addressed?
3. Which of the concerns do you see as requiring the most urgent attention?

Strategic Questions

1. What areas of government do you feel are the most amenable to public-private partnerships?
2. Are there other procurement models you would suggest be investigated?
3. How would public-private partnerships in these areas provide mutual benefits to both government and industry?
4. What would have to change in the current BC government IT procurement system to make these partnerships possible?

IV. List of Procurement Symposium Participants

Sandy Santori, Minister
Ministry of Management Services

Rick Thorpe, Minister
Ministry of Competition, Science and Enterprise

Oliver Grüter-Andrew, Manager
Linda Brown, Manager
Accenture

Scott Wilkinson, Managing Partner Pacific
AGTI Consulting Services

Julia Seto, Senior Account Manager
Ajilon Consulting

Susanna Reardon, Senior Account Director
Glen Govier, Senior Sales Engineer
Alcatel Canada Inc.

John Veenema, Corporate Purchasing Assistant
Manager
BC Buildings Corporation

Diana Lucas, Contract Services Advisor
Finance & Administrative Services Branch
Ministry of Education

Michael Hrybyk, President & CEO
Lucy Cook, Communications Coordinator
BCNET

Leslie Michaels, Account Manager - BC
Government
Bell Intrigna

David Hoff, Director, Government Relations
Bell Mobility

Michael Brooks, Principal
Bell Brooks and Associates

Sang Nguyen, Assistant Media Producer
BordaMedia

John Slater, Managing Director
Burntsand

Tom Wong, Vice President
Cap Gemini Ernst & Young

Rick Moignard, President & CEO
Chancery Software Ltd.

Lee Denny, Chief Information Officer
Province of British Columbia

Angela Racette, Vice President, Business
Development
CIBC Purchasing Card eComm Strategies

Ross Johnson, Major Account Manager
Cisco Systems Canada Inc.

Jeff Roberts, Chief Executive Officer
Columbia Mountain Open Network Inc.

Tayo Runsewe, Branch Manager
Compugen Inc.

Romel Alibudbud, Corporate Account Manager
Crystal Decisions

Ross Breckon, Vice President, Public Sector -
BC

John Fallows, Vice President, Government
Global Industry Group
EDS Canada Inc.

Rick Thompson, Vice President, Business
Development
eOptimize Inc.

Larry Phillips, Director
Bob Donnelly, Director
Fujitsu Consulting

Bill Tozer, Director Business Development and
Alliances
GDS Associates Systems Ltd.

Robert Lanz, Director, Strategic Sales
Dennis Keenan, Senior Business Manager,
Government & Large Enterprise
Group Telecom

Robin Dunn, Manager of Business Development
HeavyLifters Inc.

Adam Johnson, Consultant, Public Affairs
Hill and Knowlton

Ralph Chapman, General Manager, Public
Sector - BC

Kurt Demmler, Business Manager, IBM Global
Services
IBM Canada Ltd.

John Lorenz, Director, Information and
Communication Technologies Branch
Industry Canada

Bjorn Butow, Technology Development Officer
Innovation Resource Centre

Anil Kapil, Manager
Island Key Computer Ltd.

Gilles Marchand, IT Consultant
IT Critical Services Consulting

Linda Saunders, President
i-three communications inc.

Walter Palk, Senior Manager, Risk and Advisory
Services

Gordon Gunn, Senior Principal
KPMG LLP

Derek Gale, Manager, Business Development
MacDonald, Dettwiler and Associates

Ian Bailey, VP Sales & Marketing
Meridex Network Corporation

Patrick McGillis, Government Solutions
Specialist
Microsoft Canada Co.

John Schinbein, Chief Information Officer,
Information Management Group
Stuart Frampton, Senior Client Manager,
Regional Services
Ministries of Health Services and Health Planning

Alexandra (Gina) Henley, Solicitor
Lauren Knoblauch, Solicitor
Frank D'Argis, A/Executive Director, Information
Technology Services Branch
Ministry of Attorney General

Mike Chadwick, Executive Director, Information
Systems Branch
Ministry of Community, Aboriginal and Women's
Services

Calvin Shantz, Executive Director, Science,
Technology & Telecommunications Division
John Webb, Director, Telecommunications &
Access, Science, Technology &
Telecommunications Division
Glen Scobie, Sector Manager, Strategic
Industries Branch
Ministry of Competition, Science and Enterprise

Andrew Parfett, Director, Information Systems
Branch
Ministry of Finance
Nelson Lah, A/CIO and Director, Information
Management Group
Ministry of Forests

Karen Dellert, Chief Information Officer
Ministry of Human Resources

Catharine Read, Deputy Minister
Byron Barnard, Assistant Deputy Minister,
Common IT Services
Dave Nikolejsin, Executive Director, Planning
and Engineering, Common IT Services
Frank Hudson, Director, Intellectual Property
Program

Roman Mateyko, Director, Supplier
Management
Diane Brodie, Manager, Procurement &
Contracts
Dave Collisson, Executive Director, BC
Purchasing Commission
Richard Poutney, Project Director, Procurement
Reform
Julian Isitt, Director, Purchasing Services
Branch
Ministry of Management Services

Trevor Murphy, Sales & Business Development
Manager

Jack Murphy, President
Myra Systems Corp.

Larry Baumgart, Business Development
Chris Boulsbee, Vice President of Operations
Nigel Bailey, Government Account Manager
Navigata Communications Inc.

Hal Jackson, Director, Sales – Western Canada
David Mathieson, Director, Corporate Accounts -
BC
Nortel Networks

Terrance Curtis, President
Shirley Curtis, Secretary Treasurer
Ogma Consulting Corp.

Andrew Allin, President
ONE Information Technology

Raymond Kelly, Owner
O-netrix Solutions Inc.

Bob Allen, President
Barb Hoolaeff, Director
ABC Communications/Open Source Solutions

Douglas Mackay, Public Sector National Sales
Manager
Vern Byggdin, Account Manager
Oracle Corporation Canada

Brian Kenworthy, Executive Director, Internet
Business Solutions
Pangaea Systems Inc.

Tim Heintzman, Regional Sales Manager
Mark Derraugh, Regional Director Western
Canada
PeopleSoft

Stephane Rossignol, District Sales Manager
Ehab Samy, Sales Consultant
Pivotal Corporation

Jack Reimer, Vice President
PresiNET Systems Ltd.

Allan Hart, Partner, Victoria Office
David Williams, Managing Partner, Victoria Office
PricewaterhouseCoopers

Chris Kucharski, Director of Sales, Vancouver Region
Shaw Cablesystems G.P.

Garth Wambolt, Account Executive, Wholesale Accounts
BIG PIPE Inc., a Shaw Company

Bill Thomson, Partner
David Hughes, Partner
Sierra Systems

Robert Greaves, Western Business Development Manager
Sprint Canada Inc.

Tanner Elton, President
Tanner Elton Associates

Tim Draper, Account VP, Government of BC
Telus

Kal Ruberg, Vice President, Applications and Professional Services

Zig Hancyk, Associate Director

Mike Tomczak, Manager, Victoria Branch

Ryan Thibadeau, Account Manager

Telus Enterprise Solutions

David Robinson, Managing Director
The TechKnowledge Group

Scott Ross, Partner
TP Systems Ltd.

John McArthur, Managing Director, Marketing & Sales

Les Harris, President & CEO
Westech Information Systems

V. Comments and Feedback from the Procurement Symposium Participants

Symposium Format:

"Excellent cross section of vendors and government. I was impressed with the format."

"Interactive structure of the day was valuable. Well done."

"The information sessions were a good backgrounder for the breakout sessions, which were the best part."

"Finally, we have come together at an 'industry' level versus each vendor fighting the battle independently."

Symposium Content - Understanding issues from both perspectives: industry and government:

"Provided good background on the current government issues - gratifying to see some thought being given to addressing them."

"Very useful to see that the problems I have seen over the years from the government perspective are endemic."

"This forum provides an opportunity to present both perspectives, government and industry. Understanding should lead to creation of solutions."

The symposium presents an opportunity for dialogue between the industry and the government:

"Government openness was appreciated."

"Sharing ideas. Networking. Government willingness to change for better. Well done."

"Gathering of the supplier community together with government is a powerful opportunity to create synergy and an environment for change."

"Make this the beginning of a process, not the end of one."

Symposium follow-up recommendations:

"Need formal process to carry out recommendations."

"Need formal process from vendor focus groups and respective government agencies."

"Meet more often to get a progress report and continue the dialogue."

"Pick some key deliverables and get them tasked with timelines."

"We need to keep this initiative moving forward. It's critical to a successful government transformation."

Appendix C: e-Health Roundtable Detailed Information

I. List of Roundtable Participants

In person:

Anne Ardiel, Director, Rural Health

Valerie Ashworth, Telehealth Coordinator

Gordon Butterfield, Executive Director,
Technology Services Information Management
Group

Dr. Rick Hudson, Medical Consultant, Primary
Health Care

George Fettes, Senior Business Consultant,
Primary Health Care Transition Branch
Ministry of Health Planning

David Chay, Int. Communications Analyst,
Strategic Consulting
Ministry of Management Services

Dr. George Eisler, Dean, School of Health
Science
British Columbia Institute of Technology

Vivian Eliopoulos, Director of Clinical
Information Systems
Vancouver Coastal Health Authority

Sue Hanley, Corporate E-Business Services Unit
Indian and Northern Affairs

Dr. Stephen Herst, Director of Research
Development, BC Cancer Agency

Dr. Kendall Ho, Associate Dean and Director of
Continuing Medical Education and Assistant
Professor of Emergency Medicine

Sandra Jarvis-Selinger, Director, Division of
Continuing Medical Education

Dr. David Maberly, Assistant Professor of
Ophthalmology

Dr. Sally Thorne, Director of School of Nursing

Charlene Walsh, College of Health Disciplines

Dr. Julian Somers, Department of Psychiatry
University of British Columbia

Dr. Dan Horvat
Family Physician

Dr. Stuart Johnston
Family Physician

Dr. Francis Lau, Chair, Curriculum Committee
Head, Health Information Sciences
University of Victoria

Joseph Mendez, Chief Information Officer
Northern Health Authority

Dr. Deborah Poff, Vice President Academic
University of Northern British Columbia

John Schinbein, Chief Information Officer,
Information Management Group
Valerie Whittaker, Project Manager, BC
Telehealth Program
Ministries of Health Services and Health Planning

Dr. Hal Siden, Medical Director of Telehealth
Children's and Women's Health Centre of
British Columbia

Jan Tatlock, Nurse Director
Carrier Sekani First Nations Band

John Webb, Director of Telecommunications &
Access, Science, Technology and
Telecommunications Division
Ministry of Competition, Science and Enterprise

Via IP Videoconference

John Rowlandson, Project Manager
Keewaytinook Okimakanak Telehealth, NORTH
Network

Ernie Dal Grande, Telehealth Program Manager,
Health Programs Analysis

Bill Duncan, Project Officer, First Nations Health
Care
Health Canada

Via Teleconference

Dr. Richard Hooper, Cardiologist
Kelowna General Hospital

II. References Used in Research for the e-Health Roundtable

The effect of information technology on the physician workforce and health care in isolated communities: the Canadian picture. Watanabe M, et al. *J Telemed Telecare* 1999; 5(Suppl. 2): S2:11-19

Evaluation of the NORTH Network Demonstration Project 1998-1999. Barbara Roston (unpublished) July 2000

Diagnostic accuracy and clinical management by realtime teledermatology. Results from the Northern Ireland arms of the UK Multicentre Teledermatology Trial. Loane MA, et al. *J Telemed Telecare* 1998; 4(2): 95-100

Teledermatology and in-person examinations: a comparison of patient and physicians perceptions and diagnostic agreement. Lowitt MH, et al. *Arch Dermatol* 1998 Apr; 134(4):471-6

Comparison of teleconsultations and face-to-face consultations: preliminary results of a UK multicentre teledermatology study. Gilmour E. et al. *Br J Dermatol* 1998 Jul;139(1):81-7

A randomized controlled trial of telemedicine in an emergency department. *J Telemed Telecare* 1998; 4 Suppl 1: 18-20

Telemedicine and the diagnosis of speech and language disorders. *Mayo Clin Proc* 1997 Dec; 72 (12):1116-22

Patient satisfaction with multispecialty interactive teleconsultations. *J Telemed Telecare* 1997; 3(4): 205-8

Patient satisfaction with telemedicine consultation in primary care: comparison of ratings of medical and mental health applications. Callahan EJ, et al. *Telemed J* 1998 Winter;4(4):363-9

Consumer satisfaction with telemedicine child psychiatry consultation in rural Kentucky. Blackmon LA, et al. *Psychiatr Serv* 1997 Nov;48(11):1464-6

Can telemedicine be used to improve communication between primary and secondary care? Harrison R, et al. *BMJ* 1996;313:1377-1380 (30 November)

Patient satisfaction with teleoncology: a pilot study. Allen A, Hayes J. *Telemed J* 1995 Spring; 1(1):41-6

Tele-endoscopic otorhinolaryngological examination: preliminary study of patient satisfaction. Pederson S, Holand U. *Telemed J* 1995 Spring; 1(1):47-52

Telemedicine in primary care in Israel. Itzhak B, et al. J Telemed Telecare 1998; 4 Suppl 1: 11-14

A pilot study of tele-oncology in Scotland. Kunkler IH, et al. J Telemed Telecare 1998; 4(2): 113-9

A randomized, controlled trial of child psychiatric assessments conducted using videoconferencing. Elford R, et al. J Telemed Telecare 2000; 6(2): 73-82

A prospective study of teleconferencing for orthopaedic consultations. Aarnio P, et al. J Telemed Telecare 1999; 5(1): 62-66

Virtual outreach: a telemedicine pilot study using a cluster-randomized controlled design. Harrison R et al. J Telemed Telecare 1999; 5(2): 126-30

User satisfaction with teleconsultations for surgery. Aarnio P et al. J Telemed Telecare 2000; 6(4): 237-41

Evaluation of a telemedicine link between Darwin and Adelaide to facilitate cancer management. Olver IN, Selva-Nayagam S. Telemed J 2000; 6(2): 213-8

Paediatric echocardiography by telemedicine – nine years experience. Finley JP et al. J Telemed Telecare 1997;3(4):200-4

The effect of a teledermatology program on rural referral patterns to dermatologists and the management of skin disease. Perednia DA et al. Medinfo 1998;9 Pt 1:290-3

Health systems evaluation of telemedicine: a staged approach. Dechant HK et al. Telemed J 1996; 2(4):303-312.

The relative cost of outpatient telemedicine services. Stensland J et al. Telemed J 1999; 5(3): 245-256.

Telemedicine: a new framework for evaluation. Yawn BP. Telemed J 2000; 1(6):55-61.

III. Comments and Feedback from the e-Health Roundtable Participants

e-Health Applications

"We are past deciding whether telehealth is effective. It is now a reality and it should be part of our standard health care delivery."

"Telehealth technology should not increase my workload or add to my costs."

"Telehealth can help ensure that patients receive timely access to the right specialist or care provider. Timely meaning that they don't need to take 3 days off to travel to an urban centre for a 10 minute consultation."

"The introduction of an electronic health record (EHR) will allow for integrated care across distances and between providers. The EHR may also be an important resource for individuals in their own selfcare."

Community Issues

"There is an urgent need for an e-health strategy given the changes to the current health care system."

"Different communities have varying health needs; one size does not fit all."

"Living in a rural or remote community is often determined by one's profession; living in an area with limited or no health services and facilities is not a lifestyle choice."

"e-health has the potential to empower patients and build a self-reliance within communities."

e-Health Funding

"e-Health grants are single-shot occurrences that are often used in the acquisition of the required technology. Sustainable funding for e-health has been absent in British Columbia."

"Due to separate budgets, and disjointed projects, benefits are reaped in different regions locally, but not carried across the province as a whole."

"Collaboration among e-health projects is tensioned by the competition for funding. As a result sustainability and potential synergies are lost."

e-Health Strategy

"The health ministries and authorities must set an e-health strategy and coordinate an integrated approach to e-health initiatives across British Columbia. Universities and other various health facilities should also be involved."

"Coordinated decision-making must address province-wide priorities for implementation of e-health, funding of activities, and technology standards supporting different applications."

"The establishment of system-wide standards will enable the province to obtain the greatest benefit from private sector involvement in e-health."

Enabling Change

"Structural changes by government are required with regards to health compensation policies, and medical and legal support for the use of telehealth."

"We need to recognize the cost savings of e-health, not just the costs."

"Government must take a leadership role in supporting the development and sustainability of e-health initiatives."

IV. Written Submissions

Anne Ardiel, Director, Rural Health
Ministry of Health Planning

Valerie Ashworth, Telehealth Coordinator
Ministry of Health Planning

David Chay, Int. Communications Analyst, Strategic Consulting
Ministry of Management Services

George Fettes, Senior Business Consultant, Primary Health Care Transition Branch
Ministry of Health Planning

Dr. Kendall Ho, Associate Dean and Director of Continuing Medical Education and Assistant Professor of
Emergency Medicine
University of British Columbia

Dr. Stuart Johnston
Family Physician

John Rowlandson, Project Manager
Keewaytinook Okimakanak Telehealth, NORTH Network

Dr. Julian Somers, Department of Psychiatry
University of British Columbia

Dr. Sally Thorne, Director of School of Nursing
University of British Columbia

Jan Tatlock, Nurse Director
Carrier Sekani First Nations Band

Sandra Jarvis-Selinger, Director, Division of Continuing Medical Education
University of British Columbia

This page has been left blank intentionally.

V. Summary of Examples of Health Care Needs and Possible e-Health Solutions Submitted to the PTC e-Health Roundtable

Health Care Need	Possible e-Health solution	Benefits	Known Barriers
Access to specialist care (sometimes primary care) in rural/remote communities.	Integrated, comprehensive e-Health service.	Improved patient care; Lower travel costs.	Not specified.
Specialist consultations (e.g. dermatology, pediatric cardiology, maternal fetal medicine, medical genetic, neonatology, nutrition services, pediatric oncology, child development and rehabilitation, emergency and trauma medicine, pediatric palliative care ...).	Videoconference on-call or scheduled consultations; Asynchronous image exchange and consultation.	Reduce delays; Reduce costs of travel and accommodation, lost work time for patients and accompanying persons; Reduce risks to patient health associated with travel; Less social disruption for families; Improved access to health care/clinical services; Improved diagnosis and treatment of patients; Relieve physicians in community from burden of always being on-call by spreading call rotation among all physicians in Service Delivery Area; Provide support for emergency departments and nursing outposts; Provide mentorship of clinicians in remote areas; Expansion of care team.	Insufficient bandwidth in many remote and rural areas; Immature vendor market; Lack of a model to interconnect strategic provincial level tech planning with the development of new service delivery models within and among Health Authorities; Policy issues, including physician compensation, licensure and credentialing; Infrastructure costs.
Need for health care information in rural/remote areas.	Not specified.	Healthier communities.	Not specified.

Health Care Need	Possible e-Health solution	Benefits	Known Barriers
<p>Better-integrated care for persons with mental disorders and substance use problems.</p>	<p>Video-consultations (V-C) for patients; multi-point videoconference to arrange case consultation and discharge planning between appropriate care givers and facilities;</p> <p>EHR to integrate care across distances and between providers;</p> <p>EHR as resource for patient selfcare;</p> <p>Selfcare: Web-based selfcare resources; guidelines and information via streaming video; secure V-C with care providers.</p>	<p>Improve accessibility and timeliness of care;</p> <p>Reduce acute episodes and travel (e.g. for hospitalization);</p> <p>Improve dissemination and implementation of evidence-based practices;</p> <p>Generate efficiencies in care for clients.</p>	<p>Absence of standards and protocols regarding e-health;</p> <p>Absence of province-wide priorities for implementation of e-health, funding of activities, and technology standards supporting different applications.</p>
<p>Continuing professional development and continuing medical education (CME) opportunities for mental health professionals.</p>	<p>Multi-point videoconferencing;</p> <p>Streaming video.</p>	<p>Improvement in patient outcomes;</p> <p>Engage different professionals in virtual teams while disseminating information of particular relevance to each group;</p> <p>Illustrate best practices;</p> <p>Provide expert supervision and consultation on interventions by professionals;</p> <p>Potential to export curricula to other jurisdictions;</p> <p>Potential for industry to develop specialized communications devices and services;</p> <p>Familiarizing practitioners with use of V-C for CME will initiate use of V-C for clinical consultations.</p>	<p>Not specified.</p>

Health Care Need	Possible e-Health solution	Benefits	Known Barriers
<p>Support for nurses in coordinating the support of community-based chronic illness care and support for patients involved in selfcare management of chronic illness.</p>		<p>Promote health;</p> <p>Prevent Acute exacerbations of chronic conditions;</p> <p>Reduce the need for costly and invasive procedures and services;</p> <p>Reduce the rate and severity of complications and untoward disease effects of a lifespan;</p> <p>Reduce proportion of primary and acute care dollars required by persons with chronic illness.</p>	<p>Not specified.</p>
<p>Diminish nurses' sense of professional isolation;</p> <p>Allow nurses to review client cases on a regular basis as well as to receive peer feedback on their practice;</p> <p>Allow patients to meet with their doctor for consultation without having to travel long distances (e.g. 400km);</p> <p>Provide patients with the opportunity to 'visit' with family members without traveling long distances or worry about accommodation;</p> <p>Reduce stress associated with travel and accommodation.</p>	<p>Telehealth (V-C implied, but not stated).</p>	<p>Facilitate recruitment and retention of nursing staff to meet the current health care needs of patients in remote and rural communities (specifically, First Nations);</p> <p>Save time and money associated with travel;</p> <p>Improve health care outcomes.</p>	<p>Initial start up costs.</p>

Health Care Need	Possible e-Health solution	Benefits	Known Barriers
Mental health issues in isolated First Nations communities are a significant and often overwhelming problem for both the client and the nurse.	Establish a mental health telehealth site.	<p>Allow nurses to obtain input or support of other more qualified professionals;</p> <p>Allow nurses the ability to manage clients in a more holistic manner.</p>	Start-up costs.
Treatment of serious trauma and emergency patients in rural communities.	On-demand, real-time videoconferencing.	<p>Allow rural health professionals to acquire new clinical insights based on the cases they manage;</p> <p>Allow rural health professionals to validate aspects of their existing practice patterns;</p> <p>Promote team approach for managing acutely ill patients;</p> <p>Urban consultants learn from urban professionals.</p>	Not specified.
<p>Meeting the needs of patients for care and medical support in their own homes, including:</p> <ul style="list-style-type: none"> • patients who have been recently discharged from hospital; • people with chronic illnesses; • elderly and geriatric patients; • patients who need advice and decision support around health care issues. 	<p>Tele-homecare applications for:</p> <ul style="list-style-type: none"> • remote monitoring of recently discharged patients; • remote monitoring of vital signs of people with chronic illnesses as they engage in normal daily routines at home; • providing elderly with daily connections with care providers. 	<p>Higher health outcomes for individuals whose mental and emotional health needs are met as they are allowed to maintain independence and comforts of home;</p> <p>Less money spent on housing and care costs when people are able to remain in their homes;</p> <p>Reduced number of visits to emergency rooms;</p> <p>Reduced number of visits to physician's office or on site visits by health care providers;</p> <p>Education of the patient in early symptom management;</p> <p>24-hour monitoring provides potential for early intervention and/or prevention or repeat hospitalization;</p> <p>Addresses current shortages of medical professionals, hospital beds, and other health human resource issues by giving individuals a more active role in looking after their health.</p>	Not specified.

**Appendix D: Government White Paper on the
Proposed Amendments to the Small Business
Venture Capital Act**

WHITE PAPER

*Proposed Amendments
Small Business Venture Capital Act*

JUNE 2002



Ministry of Competition,
Science & Enterprise

PROPOSED AMENDMENTS TO THE SMALL BUSINESS VENTURE CAPITAL ACT (SBVC ACT)

Introduction:

On January 25, 2002, the Ministry of Competition, Science & Enterprise released a paper discussing proposed amendments to the *Small Business Venture Capital Act*. The discussion paper was triggered in part by requests from the venture capital industry to update and improve the Act to address changing market conditions. The paper was also a response to government's red tape reduction initiative – the Ministry proposed several streamlining amendments to reduce regulatory burden associated with registration under the Act.

Since the release of the Ministry's discussion paper, the Premier's Technology Council ("PTC") has also issued its second quarterly report dated April 2, 2002. The PTC's report included recommendations for streamlining amendments to the SBVC Act. Many of the PTC's recommendations were included in the Ministry's original discussion paper. Several additional recommendations have been incorporated into the amendments the Ministry is now proposing.

In addition to feedback from the Premier's Technology Council, the Ministry also received nearly 30 responses to its discussion paper. Overall, commentators strongly endorsed the majority of the Ministry's proposals to streamline the Act. Many respondents also included detailed suggestions for further improvements to the SBVC Act. We appreciate the time and effort all commentators have taken to provide input on this process.

All suggestions for change have been carefully considered. Several commentators raised innovative new ideas, which are worthy of further review and research. Unfortunately, given time constraints and limited resources, we are not able to include all suggestions for change in this round of legislative amendments. Several issues have been deferred for future consideration. We also received suggestions for changes that fall outside the mandate of the SBVC Act (e.g. classifying VCCs as mutual funds under securities legislation). While such issues are of interest and merit further review, they are outside the scope of the proposed amendments at this time.

In addition, following feedback on the discussion paper, the Ministry is no longer proposing changes to the \$25,000 capital requirement for registration as a venture capital corporation under the Act. The earlier discussion paper raised the possibility of removing the minimum capital requirements to streamline and reduce red tape. However, the majority of commentators on this issue strongly advocated retaining the current \$25,000 minimum. The current limits were seen as reasonable and usefully serve to restrict the program to those who are really serious about it.

It is clear from reviewing the various submissions that there is tremendous diversity of opinion on many issues. We received several conflicting views on the same issue and there is no easy way to reconcile these differing opinions. In situations where there was no clear consensus, we have tried to adopt legislative amendments in keeping with our understanding of the underlying intent of the legislation (promote risk investment in businesses that diversify the economy). We have also been guided by recommendations from the Premier's Technology Council and its Industry Growth Task Group, which investigated ways to attract more venture capital into the province.

Notwithstanding the policy development and research to date, there remain a few outstanding issues relating to the identified amendments that require further analysis. For example, we received several differing views on where VCC² investment proceeds should be targeted. Several commentators suggested lowering the maximum employee limit per small business from the current 75 to 20 employees to stimulate investment in start up and seed stage companies. Other commentators suggested increasing the maximum employee figure to 150 to recognize labour intensive demands of today's high technology companies. This issue is still under review.

Several commentators suggested doubling the program tax credit budget from \$15 million to \$30 million. Since tax credits are paid at the rate of 30% of equity raised, this change would increase the total annual investment capital raised each year from \$50 million to \$100 million. Unfortunately, due to government's fiscal constraints at this time, the tax credit budget will not be increased this budget cycle. Once the proposed amendments have been introduced and pressures on the existing \$15 million budget have been identified, the tax credit amount may be reviewed. The annual budget is set out in the Small Business Venture Capital Regulation (the Act itself does not specify a maximum tax credit allocation). Thus, the budget could be increased in the future (with the approval of Treasury Board and Cabinet) without the need for further legislative amendments. However, we can provide no guarantees that the tax credit budget will be increased in the future.

After reviewing all submissions received to date (including the Premier's Technology Council's Report), the Ministry has revised its earlier list of proposed amendments. The revised amendments are set out below. Issues, which remain under review, are highlighted in italics. If anyone wishes to provide further comments on such issues, please forward them to the contact address as noted on the last page of this paper.

The revised list of amendments also includes several minor housekeeping items and anti-abuse amendments that were not identified in the original discussion paper but are included here for completeness. In addition to amendments to the SBVC Act, several changes to the British Columbia *Income Act* will be required to facilitate processing and claiming of tax credits. These amendments will be made in consultation with the Ministry of Provincial Revenue and Ministry of Finance.

² VCC = venture capital corporation registered under section 3 of the Small Business Venture Capital Act.

The Ministry anticipates bringing these legislative amendments forward in the Spring 2003 legislative session. However, it should be noted that no guarantee can be provided that these or any other amendments will be introduced or passed into law in 2003 or at any time in the future.

Revised List of Proposed Legislative Amendments:

- (1) Allow individual investors resident in British Columbia to acquire VCC shares with monies already held in a registered retirement savings plan (RRSP). The tax credit will be issued directly to the investor. This change mirrors current treatment available for investors in labour sponsored venture capital funds registered under the *Employee Investment Act* (e.g. the Working Opportunity Fund).
- (2) ***Allow VCCs to issue multiple classes of common voting shares to facilitate shareholder redemptions.***
- (3) ***Introduce additional flexibility as to the types of eligible investments that VCCs can acquire in qualifying small businesses. At present, VCCs must invest in voting equity shares. This will be expanded to include non-voting equity shares and warrants, options or rights that are convertible into equity shares.***

We have received several requests to expand the categories of eligible investments to include debt instruments (e.g. convertible debentures). We are considering the ramifications of allowing some debt instruments to qualify under the Act. Such instruments may be limited as to the percentage of the VCC's overall portfolio (e.g. no more than 25% of the VCC's investments in debt instruments) and/or may be limited as to the type of security taken (e.g. subordinated debt only). This issue is still under review. We are open to receiving input if persons have any additional comments on this issue.

We have also received requests to allow VCCs to invest in private venture capital funds (commonly structured as limited partnerships). In this model, a VCC would co-invest in a limited partnership along side institutional investors (e.g. Pension Funds). In turn, the limited partnership would make investments into operating companies. The general partner would provide management services to the limited partnership and, in exchange for an annual fee, conduct due diligence and monitor investments. This proposal is under review. While the model may present benefits in reducing risk and leveraging capital, it would also require additional regulation to monitor the flow of tax incented investment capital into qualifying small businesses. As noted above with debt instruments, we are interested in receiving feedback if any persons have comments on this proposal.

- (4) Remove arbitrary maximum limits on the amount of equity capital that can be raised by VCCs, whether a reporting issuer or not. The Act currently restricts non-reporting VCCs to raising no more than \$5 million in equity capital; a VCC that is a reporting issuer under the *Securities Act* may raise up to \$20 million. The proposed change will give VCCs flexibility to choose whether to raise funds privately or in the public markets.

[Note: This change does not restrict or limit in any way the ability of the Administrator to regulate approvals to raise additional capital. Allocations of annual tax credit budget will continue to be made under section 9 of the Act.]

- (5) Allow VCCs at least 24 months to complete eligible investment requirements under section 8(2) of the Act. Currently, the Act requires VCCs to invest 80% of equity raised in one fiscal year by the end of the following fiscal year. This will be amended to require investment by the end of the following succeeding fiscal year end.
- (6) Allow VCC investments in eligible small businesses to be made indirectly through a parent holding company provided VCC funds are used for permitted purposes by the operating business. VCC funds must flow immediately to an identified operating company carrying on qualifying activities within the province.
- (7) Remove current restrictions on ability of VCCs to dispose of equity shares in small businesses (existing provisions require VCCs to first offer shares to small business shareholders before selling to a third party). This requirement will be deleted in its entirety and parties will be able to negotiate their own contractual divestment provisions.
- (8) ***Allow VCC investors to claim tax credit for investments made in the calendar year or 60 days immediately following that calendar year (i.e. 60 day carry forward similar to RRSP treatment). This change mirrors similar treatment available for investors in labour funds registered under the Employee Investment Act.***
- (9) ***Allow VCCs to invest in follow-on financings of portfolio companies that have grown beyond the original employee maximums. This change protects the ability of VCCs to continue to support successful growing businesses. Also, consider increasing the employee maximum to recognize that businesses with more than 75 employees may still have difficulty accessing capital (particularly, in the labour intensive high tech sector).***

Note: The issue of increasing employee limits is still under review.

- (10) Clarify the types of businesses that are eligible to receive VCC financing. Replace listed business activities under section 10(1)(c) of the Act with a

more general description to provide flexibility to qualify new types of business activities. Also, ensure that companies developing and commercializing new technology developed within the province will qualify as “eligible small businesses” under the Act.

Note: This change will entail a corresponding change to section 11 of the Small Business Venture Capital Regulation.

- (11) ***Currently, small businesses may receive up to \$3 million in VCC financing. This limit is inadequate to meet on-going financing needs of some businesses, particularly in the high technology sector. The maximum investment limit will be increased to a rolling \$5 million maximum over a two year period. This change facilitates additional investment while at the same time protects against undue pressure on program’s tax credit budget. The amendment also mirrors the investment limits currently in place for labour funds registered under the Employee Investment Act.***
- (12) Grant the Administrator of the Act limited discretion to waive the divestment requirements under section 17 of the Act. Currently, VCCs are required to divest shares of small businesses that no longer meet eligibility requirements – this may be difficult to achieve if the VCC is holding shares in a private illiquid company. Discretion to waive divestment will apply if:
- (i) the circumstances that caused the investment to no longer comply were outside the control of the VCC;
 - (ii) the circumstances that caused the investment to no longer comply were not contemplated at the time of the investment; and
 - (iii) the small business has fully utilized investment proceeds received from the VCC in compliance with section 12(1).
- (13) Allow pro-rated tax credit recovery in a situation where a VCC divests an eligible investment due to circumstances outside the VCC’s control provided the investment has been held for at least three years. At present, VCCs are required to hold eligible investments for five years - if a take over bid occurs in year 4 ½ and if a VCC divested its shares in a small business, the VCC is currently required to repay all tax credits or find a new investment to satisfy the balance of the five year period. Under the proposed amendment, the VCC would have an option of repaying a prorated tax credit amount and immediately returning capital to its investors.
- (14) Introduce a direct investment model under the Act. This new model would allow the province to provide tax credits for investments made directly in qualifying small businesses. This change will remove the requirement that investors establish and maintain a holding company to flow investment capital to small businesses. This amendment will reduce costs and paperwork for investors and provide more leverage for the province (tax credits will be paid on the full 100% of investment capital received by small businesses – at present, 20% of capital raised by VCCs may be used for expenses to maintain the holding company).

The VCC model will be retained for investors seeking a diversified investment product – the VCC structure will continue to be of benefit for investors seeking the expertise of fund managers to select and conduct due diligence on a variety of different small business opportunities. The VCC model may also assist small businesses raising capital from many small investors (rather than dealing with 200 new shareholders, a small business could receive investment capital from one new shareholder, the VCC, which in turn would manage the dissemination of information to its own shareholders).

The introduction of a direct investment model is a major legislative amendment. The existing SBVC Act establishes a regulatory framework to monitor investments made by holding companies or VCCs registered under the Act. Currently, the VCC is contingently liable to repay tax credits in the event of non-compliance. The new model will remove the holding company requirement entirely. There will no longer be a VCC to regulate. As a result, some of the existing tax credit repayment provisions will be transferred to either the investor or the small business. It is likely that this will be accomplished by creating a new part of the Act dedicated to the provision of tax credits for direct investments in small businesses.

The Ministry has prepared some preliminary guidelines establishing a framework for a direct investment model. Please note that these are still at an early stage and further input may be sought as drafting of this model progresses.

[Note: The implementation of a direct investment model may require additional resources to respond to program inquiries and upgrade the Branch's computer data base. Such resources cannot be guaranteed at this time.]

Characteristics of a Direct Investment Model

- Amend the Act to authorize the registration of an eligible operating business under the Act and grant the eligible business approval to raise equity capital on which the province will provide tax credits. The approval to raise equity capital will be for a specified amount and for a specified time period.
- Eligible business must be a private company and must have shareholders' equity of at least \$25,000 to be eligible for registration under the Act.
- Tax credit will be 30% of investment up to maximum of \$60,000 per year (same as for VCC investment).
- Eligible business must meet requirements of section 10(1)(a)(b) & (c) of the Act (same as for VCC investment) [e.g. meet employee limits, pay 75% of payroll to BC employees, and be substantially engaged in a qualifying business activity.]

- Investment limits per small business will be the same as for VCC investment (i.e. total tax incented investment, either directly from eligible investors or indirectly or from one or more VCCs, will be restricted to \$5 million over a rolling two year period).
- Eligible business must use investment proceeds for eligible purposes as set out under section 12(1) of the Act (i.e. same use of funds restrictions as for VCCs).
- Investors may acquire voting or non-voting shares of the eligible business for cash consideration (voting interest restricted to no more than 49%). Shares must be treasury shares issued to raise new equity capital. If shares carry retraction or redemption rights, any such rights must be restricted to exercise only five years from date of issue.
- Eligible investors must be at arm's length from the small business and cannot have disposed of any "eligible business" shares over the last two years (ensures investors won't sell and then reacquire shares to obtain benefit of tax credits).
- Investors must hold shares for at least five years. If investor disposes of shares prior to five years, investor will be liable to repay tax credit.
- Eligible business must not redeem or register a transfer of shares on which tax credits were paid for at least five years. If a business redeems or transfers shares before five years, then the business may be liable to repay tax credits. [Some limited exemptions may apply, e.g. transfers due to the death of an investor or the transfer of shares to an investor's RRSP].
- If eligible business ceases to carry on a qualifying activity or if the business uses investment proceeds for prohibited purposes before expiry of five years from date of last investment, the business will be liable to repay tax credits.
- Eligible business will be required to report annually for five years after date of receiving last investment. Reporting to include financial statements prepared by external accountant and copy of current register of allotments, members and transfers (to confirm no dispositions of eligible shares before expiry of five year period).

Minor Housekeeping/Anti-Abuse Amendments

In addition to the substantive amendments set out above, the Ministry is also proposing several housekeeping and anti-abuse amendments. These amendments seek to address loopholes or drafting oversights in the existing legislation.

Section 12(1)(e)	Extend fair market value requirement under section 12(1)(e) to include the purchase of goods or services by the small business from a venture capital corporation.
Section 12(1)(g)(ii)	Extend prohibition on retirement of shareholders liability to include liability of an “associate” of a shareholder.
Section 12(1)(b) & (c)	Clarify language dealing with prohibitions on use of VCC funds to invest outside the province or invest in land.
Section 14(2)(c)	Extend prohibition on provision of financial assistance from a small business to include all VCC shareholders . Currently, provision only restricts assistance to “major shareholders” of a VCC.
Section 20	Add new subsection providing the Administrator with the authority to revoke a tax credit once issued if the Administrator is satisfied that the VCC contravened the Act or regulations or the Administrator considers that the VCC or its directors, officers or shareholders are conducting the business or affairs of the venture capital corporation in a manner that is contrary to the spirit and intent of the Act.
Section 26	Clarify sections dealing with tax credit repayment provisions.

Regulatory Amendments – Small Business Venture Capital Regulation

In addition to the proposed amendments to the Act, the Ministry is also considering amending the Small Business Venture Capital Regulation. Some amendments will be required as a result of changes to the Act (e.g. a change to section 10 of the Act will require corresponding amendments to Regulation section 11 to clarify the types of eligible activities that may be carried on by a qualifying small business).

The Ministry is also considering expanding the types of permitted investments prescribed under section 17 of the Regulation to the extent that a VCC has additional funds not otherwise required for eligible investments (e.g. capital gains on investments or 20% of equity raised not required for expenses). This change is in response to requests by commentators for additional flexibility on the types of investment instruments that may be acquired by VCCs.

The Ministry is also considering amendments to the annual expense limits under section 12 of the Regulations. The regulation currently provides that a VCC may incur expenses to the extent the Administrator considers reasonable. This reasonableness test is problematic and creates ongoing regulatory review

requirements. An amendment to clarify which types of expenses are permitted may be beneficial for both program users and the Administrator.

Finally, the Ministry is considering a new regulation to be prescribed under section 8(3) of the Act to address the indirect return of capital by a small business to a VCC through dividend payments that are not supported by retained earnings at the small business level. Such a regulation would adopt similar requirements currently set out in the program's policy statement on "Equity Shares". [This policy statement is available on the program web site at www.bcinbusiness.gov.bc.ca].

Comments/Feedback:

Any input or comments on any of the issues raised in this White Paper may be directed to the Ministry at :

Ministry of Competition, Science & Enterprise
Business Investment Branch
PO Box Stn 9800
Victoria, British Columbia
V8W 9W1

Attn: Hilary Vance

Or by email at hilary.vance@gems5.gov.bc.ca or by fax at (250) 387-1080.

Appendix E: Glossary

Procurement Terms

The following definitions are taken from the provincial government manual entitled “General Management Operating Policy” (GMOP), from the Purchasing Commission website and the Public Works and Government Services Canada website.

BCBid

The Purchasing Commission’s site on the World Wide Web (www.pc.gov.bc.ca) used to advertise opportunities to provide goods and services to ministries and some public sector bodies.

Benefits Driven Procurement (BDP)

An approach designed to help project and procurement managers avoid the pitfalls that have plagued more traditionally managed complex and high-risk federal procurement projects. The BDP approach stresses results, and uses business case methodology and comprehensive risk management as the framework within which these results are achieved.

General Management Operating Policy (GMOP)

A British Columbia manual of government-wide management policy for managing information, communications, materiel, transportation, contracts, and expenses.

Invitation To Quote (ITQ)

A bid document with a clear-cut requirement. The intent is to award to the lowest bidder who meets the specifications, delivery and quality requirements.

Joint Solutions Procurement (JSP)

A new acquisition methodology designed for systems integration projects. The method is designed for rapid selection of a vendor based on demonstrated capability and expertise to solve a problem. It allows both vendor and ministry to work together in developing a joint solution that meets government's business needs. JSP may only be used through the Purchasing Commission.

Master Standing Offer (MSO)

A type of standing offer that is initiated and negotiated by the Purchasing Commission for access by all ministries and certain public sector agencies when and where appropriate. MSO may allow ministries to choose between multiple vendors of similar products in many cases and may be used province-wide.

Notice of Intent (NOI)

The method by which a ministry declares that it intends to negotiate a contract directly with a specified contractor, and without a competitive process.

Procurement

The process of obtaining material (purchase or lease) and services that includes the determination of requirements and acquisition.

Proponent

An individual or company that submits, or intends to submit a proposal.

Purchase Card

A purchase and payment instrument that allows ministry employees whose positions have been delegated appropriate purchasing authority, to acquire goods and one-time services under \$5,000 (including freight and taxes) directly from a supplier as an alternative to traditional paper based purchasing methods.

Request For Information (RFI)

A request used for obtaining information about contractors, services and prices. The request is typically used during the project-planning phase for determining budget feasibility and identifying supply options.

Request For Proposal (RFP)

A request to suppliers to submit proposals on how (and at what price) they would provide a good or service. The RFP describes the required results rather than the approach to be used, thus allowing bidders to be creative. An RFP usually leads to a contract award.

Request For Qualification (RFQ)

A formal pre-qualification process to identify potential contractors that are perceived capable of performing a particular type of assignment. The result from this process, for example, is a bidders' list.

Standing Offer

An agreement between the Purchasing Commission and a supplier, which enables ministries to purchase specified goods directly from the supplier on an "as and when" required basis at a predetermined price. Ministry-Specific Standing Offers are negotiated for a specific ministry. Master Standing Offers are negotiated for access by all ministries and/or public sector agencies.

e-Health Terms**Asynchronous**

Refers to communications exchanges that are not synchronized, or coordinated, in time.

e-Health

e-Health is often used interchangeably with the term 'telemedicine' and "telehealth." **e-Health** broadly references all applications of electronics in health care, including telemedicine, telehealth, telecare, electronic health records (EHR), computer-based learning and so on. **e-Health** also encompasses **health** or **medical informatics** -- data management tools and techniques to collect, store, retrieve and parse health and

medical information – and **selfcare**, consumer-driven points-of-access to health knowledge and information.

Homecare

Homecare encompasses a wide range of health services delivered to the patient at their residence. Services include medical, nursing, therapeutic, and/or assisted-living care to disabled, recovering, or terminally ill patients. Homecare allows individuals to receive ongoing care in the comfort of their own homes.

Selfcare

Selfcare is the personal management of one's own health with access to and the support of certified health knowledge and information.

Synchronous

Refers to communications exchanges that are synchronized, or coordinated, in time.

Telehealth

The word **telehealth** refers to the use of telecommunications technology to deliver health and health care services (not just medical care). Broadly defined, telehealth is the “use of communications and information technology to deliver health and health care services and information over large and small distances.” Applications of telehealth include telemedicine, telepsychiatry, teleophthalmology, etc.

Telemedicine

Telemedicine³ most commonly refers to the use of telecommunications technology such as videoconferencing for medical diagnosis and patient care.

Electronic Health Record (EHR)

An electronic health record (EHR) is an active and distributed data source that:

- can be accessed by multi-disciplinary health care professionals;
- includes an individual's longitudinal personal health information and all health-related encounters and events; and
- includes clinical decision support push (e.g. allergy alerts) and pull (e.g. query lab results) functionality to support evidence-based patient care.

A pan-Canadian EHR would be available to those who are authorized and require access to administer health-related services and from those who have consented to its use no matter where they are within Canada. This vision requires the interoperability of local as well as federal/provincial/territorial systems. - *A working definition in progress* by M. Catz and K. Forbes, *Office of Health and the Information Highway, Health Canada, 2002*

³ The term 'telemedicine' is copyrighted in Canada.

This page has been left blank intentionally

Appendix F: Summary of Recommendations

3rd Report

IT- PROCUREMENT

The PTC recommends that the government:

- Examine the scope of its current procurement reform initiative to ensure it adequately addresses the unique nature of IT procurement and permits adoption of a benefits-driven procurement model based, above all, on the business objectives rather than the technology requirements of government.
- Identify a senior government official to drive both a strategy and implementation process around IT procurement reform. This official will also be responsible for fostering development and adoption of new IT procurement tools and models; facilitating government-wide and industry education; and championing support throughout government.
- Create a joint government and industry task group to address the wide range of issues associated with IT procurement reform, with particular attention to the prioritized list of issues and proposed solutions emanating from the Procurement Symposium as well as the larger list of tactical and strategic issues identified by the PTC during its consultative process.
- Continue the momentum. Hold a follow-up IT procurement symposium within 120 days. The joint industry/government event should include a progress report from government outlining its response to the set of recommendations contained within this report, as well as future plans, deliverables, and timelines.

e-HEALTH

The PTC recommends that the government:

- establish an e-Health Task Force composed of both government representatives and health care professionals to address the recommendations arising from the e-Health Roundtable. In addition, the mandate of the e-Health Task Force would include:
 - coordinating and leveraging current e-health initiatives, including clinical and educational telehealth projects;
 - the implementation of an Electronic Health Record (EHR), in conjunction with other levels of government and across

ministries. This standard EHR would be adopted by all Health Authorities, institutions and businesses providing health care services in the province;

- address the licensure, liability and billing issues and the resulting changes required to existing policy or legislation to enable health care givers to participate in telehealth; and
- conduct a community consultation process to identify specific telehealth applications that will address critical needs in each community.

VENTURE CAPITAL

To meet the acute need for seed and early stage venture capital within the province, the PTC strongly recommends that the proposed amendments to the SBVC Act be passed by the legislature prior to the beginning of 2003. Failure to do so will discourage and inhibit the facilitation of more early stage capital within British Columbia, and will put us further behind other jurisdictions.

Second Quarter Report

Access and Opportunity

Network Infrastructure

The PTC recommends that the provincial government:

- Upgrade and extend SPAN/BC so it is capable of delivering advanced broadband network infrastructure to the communities of British Columbia.
- Aggregate total public sector demand (including core government, health authorities, schools, etc) where feasible to upgrade and expand SPAN/BC so that it will be capable of providing next-generation broadband infrastructure to the communities of British Columbia.
- Investigate fully the economics as well as the potential benefits or obstacles inherent in aggregating public sector demand.
- Investigate all potential levers including – but not limited to – aggregating public demand, so that it can prompt service providers to extend and update their current telecommunications network infrastructure.
- Find ways to open up SPAN/BC to allow communities to take advantage of the government's broadband infrastructure in those communities where the private sector is unlikely to provide high speed Internet access to citizens and businesses.

- Reform procurement policy to allow for flexible, creative and competitive procurement models that will stimulate the private sector to upgrade and expand their broadband network infrastructure, as well as encourage the entry of local service providers, such as community-based networks, into the marketplace. To this end, two or three communities should be identified as pilot sites for further detailed planning, and implementation.
- Conduct a Request for Information that solicits vendor and community stakeholder reaction to these recommendations, and taps into the innovative and creative potential for public-private partnerships that exists in the marketplace.

Public Access and Digital Literacy

The PTC recommends that the provincial government:

- Make sure that there is public access to the Internet in every community in British Columbia.
- Work closely with the federal government to coordinate the allocation of scarce public dollars for public access.
- Find ways to sustain existing public access sites in the province and meet the growing public demand by increasing, where necessary (based on demographics and usage patterns), the number of sites, the number of public access terminals, the available bandwidth, and the hours of operation.
- Develop a complete map-based inventory of all public access sites by community to determine if the levels of public access and location of sites are appropriate for the size and demographics of the population.
- Improve awareness and visibility of public access.
- Increase staffing levels at public access sites through programs like Youth@BC, through partnering with Industry Canada's CAP Youth program, or through use of the Labour Force Development Agreement with the federal government to train unemployed individuals to work at access sites.
- Work with the First Nations of British Columbia and the federal government to bring information technology, including public Internet access, to remote First Nations communities in British Columbia.

- Determine if the province's 58 sCAT locations and if existing PLNet facilities could be used by the public to access the Internet.

Government Operations & Services

The PTC recommends that the provincial government:

- Continue meetings between the executive of the new Health Authorities and the Ministry of Health Services and Ministry of Health Planning to discuss province-wide health information and information technology standards that will apply to all six Health Authorities as they move to restructure and consolidate.
- Ensure each of the Health Authorities appoints a person to be responsible for information management and technology with the task of implementing the appropriate standards in collaboration with the Ministry of Health Services and the other health authorities.
- Ensure that the designated chief information and technology officers of each authority work with the Ministry of Health Services and Ministry of Health Planning and other appropriate ministries to establish integrated technology standards province-wide. At a minimum these information and technology officers should:
 - Establish a consolidated provincial strategy for Health Information Management and Information Technology (IM/IT).
 - Adopt and implement common health information technology infrastructure and standards.
 - Develop a provincial strategy to facilitate Telehealth and electronic health record initiatives in consultation with medical and continuing education units of the colleges and universities.
 - Evaluate and seize opportunities for moving towards shared services where practical and cost-effective.
 - Identify policy changes needed to support the electronic delivery and management of health services.
 - Recognize information technology development as a strategic investment.
 - Facilitate the advancement of key e-health and Electronic Health Record initiatives.

- Establish a British Columbia e-Health Think Tank composed of e-health visionaries, not senior IT staff, who will examine the applications side of e-health, since it will be compelling applications that drive down costs and improve the delivery of health services to the remote and rural regions of the province.
- Extend its standards beyond just ministries to its agencies and other government service providers.

Industry Growth & Development

Accelerating 'Early Stage' Technology Investment:

The provincial government should proceed promptly with the following streamlining amendments to the *SBVC Act* to address the need for early stage capital investment in technology companies:

- Expand the tax credit budget legislated under the *SBVC Act* from \$50 million to \$100 million annually.
- Introduce an investment model under the *SBVC Act* that does not require the registration of a separate VCC to facilitate investment and tax credits under the programs in order to allow direct investment, cut red tape and reduce program registration costs.
- Increase the total amount of capital one business may receive under the program (beyond the current \$3 million) to better reflect the capital needs of many early stage technology companies.
- Increase the employee threshold limit for a small business from 75 to at least 150.
- Allow approval for common investment regimen, such as multi-tranche investments over multiple years based on attainment of established milestones.

Levelling the Playing Field for Tax Credit Investment in British Columbia:

The provincial government should enable small businesses and venture capital managers participating under the *SBVC Act* to raise and invest venture capital, with the assistance of tax credits, under the same conditions that are presently offered to the one Labour Sponsored Venture Capital Corporation (LSVCC) operating in British Columbia and other LSVCCs operating throughout Canada.

To achieve parity with labour sponsored funds, the task group recommends the following amendments be made to the *SBVC Act*:

- Allow program investors the option to invest directly from their self-directed Retirement Savings Plans.
- Make the tax credit incentives available for program investment within 60 days after the calendar year.
- Increase program flexibility in program capital investment beyond simple common or preferred shares.
- Provide VCC investors up to 24 months to complete investments.
- Open up the tax credits provided to the sole LSVCC to competition by allowing other venture capital firms to enter the market to create a more dynamic venture capital community.

Additional Recommendations:

The provincial government should take steps to create an e-learning chair.

The provincial government should work with the federal government to change immigration rules so that spouses of employees moving to British Columbia can work here automatically.

The provincial government should expedite its efforts to rewrite its Policy and Legislative Framework around Procurement Reform so as to result in more streamlined, flexible, and cost-effective processes for both government and the British Columbia supplier community, ensuring fair and open procurement throughout the province. The government should also develop procurement policies and educational programs for both ministries and the supplier community which will provide British Columbia -based technology companies with the tools and skills required to compete more effectively for government contracts.

Marketing & Public Awareness

Note: The work of this Task Group was completed during the Second Quarter and it was dissolved.

The PTC recommends that the provincial government:

- Develop a provincial branding and marketing strategy that feature technology and innovation as key drivers supporting British Columbia's image as a place with a sustainable and vibrant economy, including

resource and knowledge-based industries, and an unparalleled quality of life.

- Develop a strong macro-image positioning British Columbia as a desirable technology destination for investors, employees and site selectors.
- Develop and execute its provincial branding strategy in consultation with the technology community.
- Target its technology industry marketing effort at key audiences that include decision makers in technology investment, site selection and highly skilled workers.
- Focus its technology industry marketing strategy initially on four sectors known as areas of strength within the province: biotechnology, wireless, alternative energy and new media.
- Focus its marketing strategy to attract highly skilled workers or those individuals that may be predisposed to move to Canada such as expatriate Canadian and British Columbian technology workers and members of communities that are already represented in British Columbia.

First Quarter Report

Access and Opportunity

Network Infrastructure

No recommendations. Focused on establishing definitions, determining models to examine, collecting information and creating a public consultation process.

Public Access and Digital Literacy

No recommendations. Focused on establishing definitions, determining models to examine, collecting information and creating a public consultation process.

Government Operations & Services

No recommendations. Focused on identifying e-health, e-learning, and e-procurement as three areas that can drive British Columbia's e-government initiative.

Industry Growth & Development

Recommended that government:

- Double the number of computer science and electrical engineering graduates from B.C. post-secondary institutions.

- Establish 20 B.C. Research Chairs in the fields of medical, social, environmental, and technological research.
- Attract senior professionals to accelerate industry growth and learning including:
 - Making changes to immigration policy.
 - Establishing an Info-Office to aid in the recruitment of out of province technology workers and relocation of technology companies to B.C.
 - Implementation of a competitive provincial stock option program for B.C. workers.
 - Resolution of cross-boarder security issues with the U.S.

Marketing & Public Awareness

Recommended that government:

- Establish a domestic and international campaign to promote British Columbia's quality of life, superior infrastructure, education system, technology community and business-friendly environment.
- Educate British Columbians about the benefits of being fully connected, including access to relevant Internet-based applications and information, and increasing e-government services.

Appendix G: Consultations and Written Submissions

General Meetings and Discussions

Robert Lanz, Director, Strategic Sales
Bill Massey, Director of Operations, Island & Interior BC
Dennis Keenan, Senior Business Manager, Government & Large Enterprise Group Telecom

Grand Chief Edward John Theresa Kerin, IT Consultant
First Nations Representatives

Dr. Michael Armitage, former cabinet minister, State of South Australia
Bruce Linn, Executive Director
EDS Australia, State of South Australia

Hal Ryckman, Executive Vice President, Western Region
Ross Breckon, Vice President, Public Sector, British Columbia
EDS Canada

Tom Hope, Chief Technology Officer
Bell Canada
Bob Cirillo, Vice President Sales
John Stoddart, General Manager BC
Leslie Michaels, Account Manager, Government Markets – BC
Jonathan Wismark, Network Planner
Brian Murata, Manager, Complex Bid Development
Paul McHenry, Account Executive
Bell Intrigna
Brian Olafson, Vice President Western Canada
Bell Nexxia
Paul Healey, President Western Canada
David Hoff, Director Government Relations
Bell Mobility

Bruce Young, Vice President
Hill and Knowlton

Cecil Freeman, Assistant Deputy Minister
eNB.ca (e-New Brunswick)

John Rayson M.D., President
Tom Cooney M.D., Vice President
Nick Szirth, Director I.T.
Lindsay Allan, General Manager
PathNet

Don Avison, President
Martin Taylor, Vice President Research, University of Victoria
Michael Hrybyk, President & CEO, BCNet
The University President's Council of British Columbia

Helen Davies, Manager, External Relations, BC/Yukon Region
Gordon Chow, External Relations Consultant, BC/Yukon Region
Christine M. DuBois, Director, Office of Learning Technologies
Rob Mastin, Manager, CLN and LTW, Office of Learning Technologies
Human Resources Development Canada

Written Submissions

Sean Smith
iTECH Solutions

Al-Nashir Jamal
Advanced Interactive, Inc.

Dale P. Leier, President
DPL Consulting Ltd.

Richard Longworth
iGEN Knowledge Solutions

Appendix H: PTC Members, Staff, Acknowledgements

Members

Chair

Honourable Gordon Campbell
Premier
Office of the Premier

Co-Chair

Paul Lee
Sr. Vice President
Electronic Arts, Inc.

Members:

Greg Aasen
Chief Operating Officer
PMC-Sierra Inc.

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

Barbara Alexander
Regional Sales Manager, BC
Microsoft Canada Co.

Douglas Manning
President
Bridges.com

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

Ian McBeath
President & CEO
Inflazyme Pharmaceuticals Inc.

Michael Calyniuk
Senior Audit Partner
PricewaterhouseCoopers

Amos Michelson
CEO
Creo Products Inc.

Norm Francis
Chair
Pivotal Corporation

Firoz Rasul
CEO
Ballard Power Systems

George Hunter
Executive Director
BC Technology Industries Association

Dr. Donald Rix, MD
Chair
Cantest Ltd.

Greg Kerfoot
Chief Executive Officer & President
Crystal Decisions

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

William Koty
Director, Division of Applied Technology
Continuing Studies, UBC

Jim Yeates
Chair
Burntsand Inc.

President

Dr. Gerri Sinclair

Technology Council Task Groups

Access and Opportunity

Paul Lee (Chair)
Greg Aasen
Victor Ling
David Sutcliffe
Douglas Manning
Barbara Alexander (Sub-committee Chair)

Government Operations & Services

Michael Calyniuk (Chair)
Barbara Alexander
Jim Yeates
Shannon Byrne
William Koty

Industry Growth & Development

Norm Francis (Chair)
Greg Kerfoot
Donald Rix
Paul Lee

Marketing & Public Awareness

(dissolved after the 2nd Quarter)
George Hunter (Chair)
Ian McBeath
Firoz Rasul
Amos Michelson

IT Procurement Symposium Team

Gerri Sinclair (Host and Moderator)
George Hunter (Facilitator)
William Koty (Facilitator & Presenter)
Barbara Alexander (Facilitator)
Michael Calyniuk (Facilitator & Presenter)
Julie Zilber (Assisting George Hunter)
Jennifer Mielguy (Assisting William Koty)
Susan Julnes
Catherine Crucil

Government Advisors

D. Scott Campbell, President, D. Scott Campbell & Associates Inc.
Lee Denny, Chief Information Officer
Catharine Read, Deputy Minister, Ministry of Management Services
Donald Leitch, Deputy Minister, Ministry of Competition, Science and Enterprise

e-Health Roundtable Team

Gerri Sinclair
Donald Rix
Michael Calyniuk
William Koty
Julie Zilber (7th Floor Media, SFU)
Dennis Smith (Facilitator, 7th Floor Media, SFU)

e-Health Advisors

John Rowlandson, Project Manager, Keewaytinook **Okimakanak Telehealth**, NORTH Network
Dr. Kendall Ho, Associate Dean and Director of Continuing Medical Education and Assistant Professor of Emergency Medicine, University of British Columbia

Technology Council Staff Members

Len Juteau, Director of Operations
Derrick Chee, Researcher
Artyayu (Tia) Tjandisaka, Researcher
Gregory Mah, Executive Coordinator
Donna Tarras, Executive Administrative Assistant
Pratibha Sharma, Executive Research Assistant

Acknowledgements

The Premier's Technology Council again thanks the many people whose assistance enabled it to accomplish its tasks over the past few months. Their contributions also contributed significantly to the production of this report.

Federal Government

Michael Binder, Assistant Deputy Minister,
Spectrum, Information Technologies and
Telecommunications
Industry Canada

Provincial Government

Calvin Shantz, Executive Director, Science,
Technology and Telecommunications Division
John Webb, Director, Telecommunications &
Access

Galen Greer, Senior Analyst

Maria Fuccenecco, Analyst

Sarah Lawrence, Coordinator, Financial
Operations

Todd Tessier, Investment Program Analyst,
Business Investment Branch, BC Trade and
Investment Office

Brenda Vachon, Advisor, Human Resources
Branch, Management Services Division
Ministry of Competition, Science, and Enterprise

Byron Barnard, Assistant Deputy Minister,
Common IT Services

Dave Nikolejsin, Executive Director, Planning
and Engineering, Common IT Services

Graham Hicks, Technical Specialist, Common IT
Services

Sunny Mathieson, Assistant Deputy Minister,
Procurement and Supply Services

Richard Poutney, Project Director, Procurement
Reform

Julian Isitt, Director, Purchasing Services
Branch

Ministry of Management Services

Paige MacFarlane, Acting Manager, Issues
Management/Media Relations, Communications
Ministry of Education

Associations

Dawn Miller, Executive Director, Innovation
Resource Centre Council (IRCC)

Marilyn Hutchinson, Mid-Island Science,
Technology and Innovation Council (MISTIC)

Lucy Cook, Communications Coordinator,
BCNET