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National Summit on INNOVATION and LEARNING

DISCUSSION GUIDE

CANADA'S INNOVATION STRATEGY

Canada

National Summit on

INNOVATION and LEARNING

DISCUSSION GUIDE

Prepared for:
PARTICIPANTS AT THE NATIONAL SUMMIT
ON INNOVATION AND LEARNING

Prepared by:
THE GOVERNMENT OF CANADA

In conjunction with:
THE CONFERENCE BOARD OF CANADA

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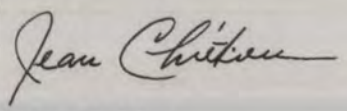
PRIME MINISTER'S MESSAGE

The 21st century is already proving to be one of the most exciting and challenging periods in human history. The forces of globalization are realigning power structures, transforming traditional industries and creating new opportunities at a rate never before experienced. The Internet has revolutionized how we communicate, how we learn and how we work, and continues to bring about profound changes in the Canadian economy and society.

Traditional ways are no longer the best ways. As a nation, we must do things better, smarter and faster: in short, we must be more innovative. The Government of Canada has been committed to improving Canada's innovative capacity and learning opportunities since 1993. Canada's Innovation and Learning Strategy serves to focus our nation's thinking and to position us to move into the ranks of the world's most innovative and skilled countries. In the September 2002 Speech from the Throne, the government reaffirmed its commitment to enhancing the quality of life of all Canadians through improvements in innovation and learning.

The work being done here at the National Summit on Innovation and Learning will influence the policy of the Government of Canada for a long time to come. During the summit, as during the engagement process, novel ideas and sound advice will come forward that will ultimately determine how well we are able to compete in the global marketplace and in the ever-evolving knowledge-based economy. The stakes are high but I know that Canadians are up to this challenge.

As you undertake your deliberations, I want to thank you for accepting the government's invitation to participate in this forum, and for the energy and commitment that you bring to this task. I believe that Canadians have never been better placed to ride the tide of change to new levels of success and prosperity.



Jean Chrétien

Prime Minister of Canada

MESSAGE FROM THE MINISTERS

On behalf of the Government of Canada, we are delighted to welcome you to the National Summit on Innovation and Learning.

As a summit delegate, your expertise and leadership experience will be key as we advance *Canada's Innovation Strategy* to its next phase — action. Delegates to the summit represent a wide spectrum of regional interests, academic concerns and economic activities. We believe that the knowledge and experience that have come together for this summit virtually guarantee that Canada's goal of moving to the top ranks of the world's most innovative and skilled countries will be realized.

We encourage you to express your views freely, offer your opinions and challenge your colleagues during the course of your deliberations. The bringing to life of our national vision depends upon the collegial and cooperative spirit shown at every stage of the engagement process.

It is our hope that you will leave this National Summit on Innovation and Learning feeling both assured and energized, knowing that your participation has been instrumental in charting Canada's course of action. For ourselves, we look forward to continuing and deepening our partnership with you as, together, we address these exciting challenges. We are confident that the results of this summit will greatly influence our country's future and the future prosperity of all Canadians, and we thank you for your hard work and dedication.

Allan Rock

Minister of Industry

Jane Stewart

Minister of Human Resources Development

CO-CHAIRS' BIOGRAPHIES

DR. ANNE GOLDEN

Anne Golden is President and Chief Executive Officer of The Conference Board of Canada. Dr. Golden has received national recognition for her role in the public policy arena, especially for her work on cities and homelessness.

In 2002, the *Financial Post* named Dr. Golden among Canada's top 20 elite businesswomen in their annual ranking of Canada's brightest and best women executives. In 2001, she received a special national Excellence Award, created by the United Way of Canada, in recognition of her leadership, skills, ideas, capacity for innovation, and ability to implement. Dr. Golden is the author of numerous publications on public policy issues.

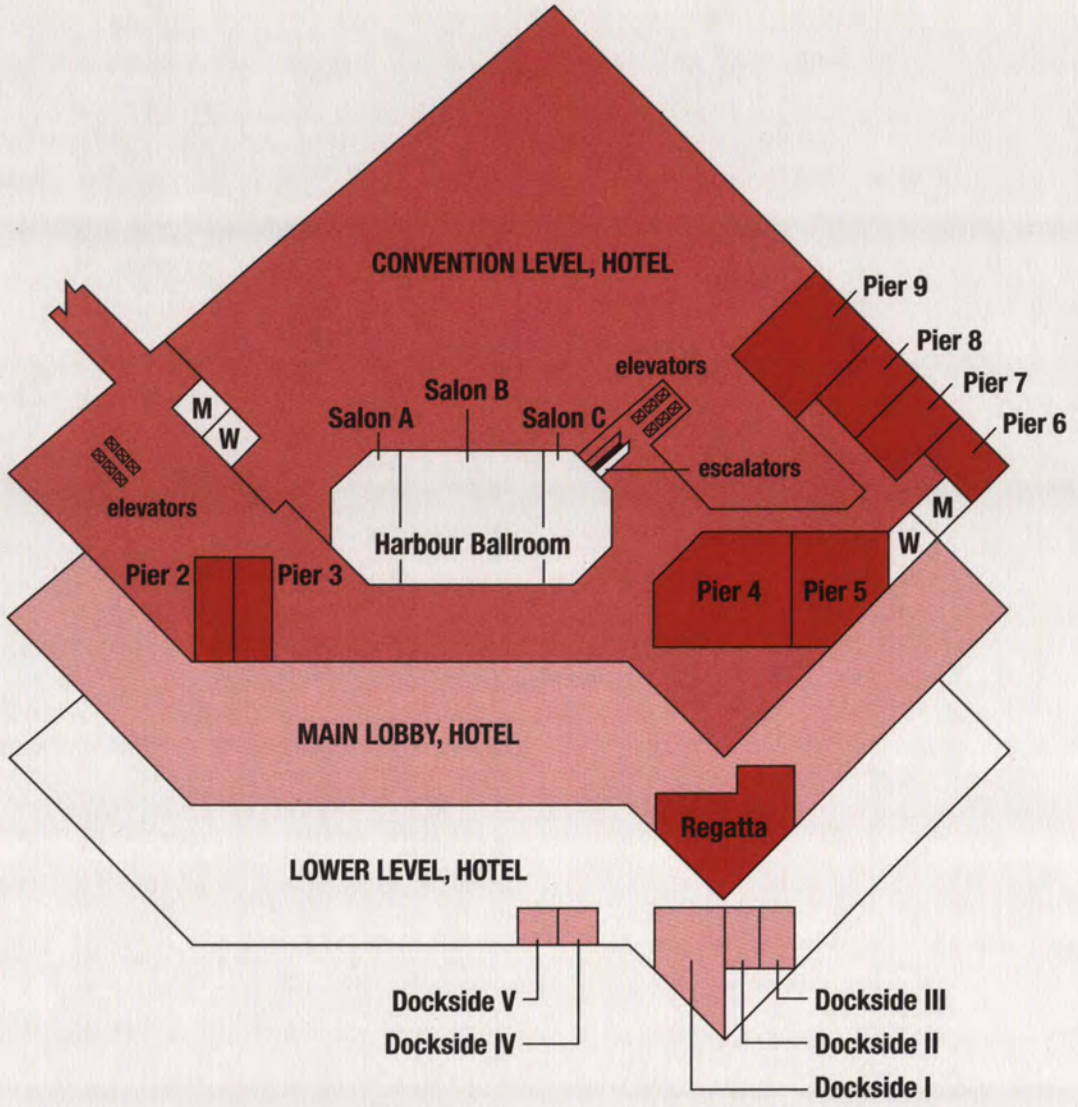
Dr. Golden holds a doctorate in history, and honorary doctorates from the University of Toronto, York University and Ryerson Polytechnic University.

DR. CLAUDE LAJEUNESSE

Dr. Claude Lajeunesse, PhD, P.Eng., is President of Ryerson University in Toronto and a past president and chief executive officer of the Association of Universities and Colleges of Canada. He sits on the Board of Directors of Capital Technologies CDPQ Inc. (the largest venture capital fund in Canada with over $2 billion invested), the Ontario Heritage Foundation and the Toronto East General Hospital. He is Director of the Canadian Educational Standards Institute and President of the Canadian Academy of Engineering.

Dr. Lajeunesse is a former director of Targeted Research for the Natural Sciences and Engineering Research Council of Canada and former general manager of the Canadian Council of Professional Engineers.

SITE MAP


CONVENTION LEVEL, HOTEL
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W
escalators
elevators
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Regatta
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Dockside IV
Dockside III
Dockside II
Dockside I

SUMMIT PROGRAM

SUMMIT OBJECTIVE:

To engage partners in the private sector, non-governmental organizations, academia and government in

- shaping the priorities for *Canada's Innovation Strategy*; and
- seeking commitment from all sectors for a Canadian Innovation and Learning Action Plan.

MONDAY, NOVEMBER 18, 2002

16:00 Registration
17:30 Reception
18:30 Summit Launch and Dinner

Address by the Right Honourable Jean Chrétien, Prime Minister of Canada

Welcome by the Honourable Allan Rock, Minister of Industry, and the Honourable Jane Stewart, Minister of Human Resources Development

Co-chaired by Dr. Anne Golden, President and Chief Executive Officer of The Conference Board of Canada, and Claude Lajeunesse, PhD, President of Ryerson University

TUESDAY, NOVEMBER 19, 2002

07:45 Registration and Coffee
08:15 Introduction
08:30 The Honourable Allan Rock and the Honourable Jane Stewart
09:10 Plenary Session

Presentation of Five Key Innovation and Learning Themes:

- Strengthening Learning Culture
- Improving Research, Development and Commercialization
- Building an Inclusive and Skilled Work Force
- Enhancing the Innovation Environment
- Strengthening Communities

10:00 **Break**

10:30 **Breakout Sessions**
Shaping Priorities for Canada's Innovation and Learning Action Plan

12:30 **Working Lunch**
Identifying Key Challenges to Innovation and Learning

Four Concurrent Panel Sessions:

- Mobilizing Communities
- Immigration
- Life Sciences, Biotechnology and Health Innovation
- Environment and Clean Energy

14:30 **Break**

15:00 **Afternoon Plenary Session**
Making Canada a World Leader: Reports from Morning Sessions

16:30 **Next Steps**
Implementing a Canadian Innovation and Learning Action Plan
The Honourable Jane Stewart and The Honourable Allan Rock

17:00 **Summit Adjourns**

PANEL PRESENTATIONS

MORNING PANEL

The panel presentations highlight the five key horizontal issues which are the basis of the morning breakout sessions.

Improving Research, Development and Commercialization
Dr. Martha Piper, President,
University of British Columbia,
Vancouver

Enhancing the Innovation Environment
Don Drummond, Senior Vice-President
and Chief Economist,
TD Financial Group,
Toronto Dominion Bank, Toronto

Strengthening Learning Culture
Geneviève Bich, Vice-President,
Bell Canada Enterprises,
Montréal

Building an Inclusive and Skilled Work Force
Robert Blakely, Director, Canadian Affairs,
Building and Construction Trades Department,
American Federation of Labour —
Congress of Industrial Organizations,
Ottawa

Strengthening Communities
Raymond Ivany, President,
Nova Scotia Community College,
Halifax

LUNCHEON PANELS

Mobilizing Communities: This working session describes the key building blocks for the development of community action plans and discusses approaches to mobilizing resources and networks to create innovative and learning communities in Canada.

Immigration: This working session addresses key issues in the attraction, selection and integration of immigrants and discusses priorities for action on key Canadian immigration initiatives.

Environment and Clean Energy: This working session focusses on long-term opportunities regarding the environment and energy (for example, clean energy, eco-efficiency and energy-efficiency); addresses how to ensure that Canada seizes these opportunities; and discusses ways to encourage leadership and excellence in corporate sustainability.

Life Sciences, Biotechnology and Health Innovation: This working session addresses barriers to research, investment and innovation in health and life sciences, with discussions on how to overcome these barriers in order to increase both health and economic benefits for Canadians.

MATERIAL FOR BREAKOUT SESSIONS

GENERAL OVERVIEW OF KEY HORIZONTAL ISSUES AND RECOMMENDATIONS FOR THE NATIONAL SUMMIT ON INNOVATION AND LEARNING

Over the past six months, individuals, communities, associations and organizations from across Canada have been engaged in dialogue about Canada's innovation and learning challenges. The Government of Canada's strategy papers, *Achieving Excellence: Investing in People, Knowledge and Opportunity* and *Knowledge Matters: Skills and Learning for Canadians*, released in February 2002, outlined a number of compelling reasons to set a longer-term vision for making Canada one of the most innovative countries in the world by 2010. These strategy papers outlined the major challenges facing Canada if we are to improve our international competitiveness, and thus the overall standard of living for all Canadians. In addition to identifying the major areas of emphasis for improving Canada's innovation and learning performance from now to 2010, the federal government proposed a number of targets and milestones and described proposed actions to contribute to the vision. Through the innovation and learning engagement process, Canadians across the country were invited to respond to the government's proposals.

However, innovation and learning are everybody's business. Governments cannot act alone to address the many challenges facing Canada. Therefore, business, academia, unions and the voluntary sector were further "called to action" to consider and propose what they, individually and collectively, could do to improve Canada's innovation and learning performance.

The engagement process, launched in May 2002, reached out to all regions of the country through regional events, best-practice workshops and expert round tables, on-line surveys, and meetings of almost 100 business and sector associations. Several federal government departments were involved in soliciting input from their stakeholder groups. These included young people, Aboriginal groups, industry groups, community-based and economic development organizations, other levels of government, post-secondary institutions, educators, librarians, research institutes, labour groups, and social policy organizations, to name only a few. More than 10,000 people participated directly in the engagement process. The views and positions put forward by the more than 250 groups, associations and organizations that submitted formal written responses to the Government of Canada's "call to action" represent hundreds of thousands of Canadians.

Canadians are Ready to Innovate and Learn

The Conference Board of Canada worked with the Government of Canada to analyse the content of the many written reports and on-line survey responses. More than 1,000 issues and almost 1,800 recommendations have been recorded in an analytical database. Many of these are specific to particular communities or interest groups, while others are more broadly applicable across sectors, regions and groups. Many of the issues and recommendations converged into "common sets," enabling a manageable categorization into the five key issue areas presented in this discussion guide. The approximately 100 recommendations associated with these five key issues were the most frequently occurring or strongly reinforced among those mentioned in the many submissions received.[1] For the purposes of this discussion guide, many of the recommendations have been paraphrased or modified to reflect consensus thinking. In some cases, they have been quoted verbatim, as they capture the essence of what was expressed in a number of different submissions.

The recommendations in this discussion guide have implications for both the private and public sectors. *Canada's Innovation Strategy* is a shared strategy. Partnerships and collaborations are crucial; all sectors and all regions have a role.

Just as the Government of Canada is moving forward with its *Innovation Strategy*, Canadians are ready and eager to partner in the shared vision of a more innovative Canada. Top research and development (R&D) performers, businesses, universities and colleges, provincial and territorial governments, municipalities, sector councils, the voluntary sector, sector "champions," and others demonstrated their commitment by preparing their own innovation and learning strategies, outlining detailed proposals for joint initiatives and endorsing the actions proposed by government. Business, the education community and community groups are all positioned to play a key role to implement *Canada's Innovation Strategy*.

1. Clearly, many of the issues and recommendations raised in the engagement process will not appear in this document, particularly those applicable to specific regions or interest groups. It is assumed that these will engender action at more "local" levels.

Companies and non-governmental organizations of various kinds indicated their willingness to champion innovation in their communities. Some are promoting careers in science and technology; others are identifying and promoting commercialization opportunities in their communities; and others are working with Parents' Councils in schools to raise awareness about the opportunities offered by entrepreneurship training and apprenticeships among youth. Economic development organizations and municipalities have offered to bring the message of innovation and learning to their communities, and to be delivery partners for innovation and learning projects. Some have set up committees to discuss R&D and innovation issues. Others will continue to support Canada's innovation and learning strategy through cluster support, technology networking, and liaison between industry and the educational sector.

Public libraries restated their role as centres of innovation and learning. They support literacy for children, language training for immigrants, and digitization of library collections. Libraries and school boards expressed interest in working with governments and the private sector to make broadband accessible to all communities, including public education institutions and libraries, by 2004.

A number of sector associations have developed action plans to improve innovation performance outcomes for their industries as a whole and are ready to advance those plans. Several sectors such as language industries, fuel cells, ocean technologies, and intelligent buildings are in the process of developing technology roadmaps. Companies are willing to partner with government and other firms to establish centres of excellence in areas ranging from wireless applications testing to biotechnology, health care research, hydrocarbons and tele-robotics. Universities, communities and sector organizations shared their plans to establish and expand clusters, in fields such as biotechnology, financial services, biopharmaceuticals, forest products, petroleum, aerospace and clean energy.

Through increased partnerships with government and industry, universities are prepared to double the amount of R&D they conduct, do more collaborative research, triple their commercialization results, and develop new degree programs. Several universities have plans to create technology parks, university technology transfer offices and incubators. New courses, advanced training programs, and the sharing of technology transfer practices will fill expertise gaps in commercialization and intellectual property management know-how. Some universities are educating their researchers about campus-based commercialization possibilities, and are encouraging spinoff firms. More universities are joining in consortia to achieve economies of scope in the commercialization of research results; a number of examples were highlighted in university action plans.

Canada's Innovation Strategy also involves small and medium-sized enterprises (SMEs). They are the engine of economic growth in Canada. SMEs are eager to partner with larger firms on joint projects and to participate in virtual clusters. Professional and business associations are willing to mentor small and medium-sized businesses and help them build cross-country networks in the manufacturing sector.

Canada's leading R&D performers committed to maintaining R&D investment levels in Canada and to supporting graduate and post-doctoral students through scholarships and study programs.

Companies, universities, sector councils and industry associations all commit to advancing co-operative education programs including apprenticeships, international co-op opportunities, and research co-op programs. Several industry associations have plans to address skills shortages, including through the creation of more sector councils. Canada's colleges, with their locations in more than 900 communities, are ready to be a major partner in *Canada's Innovation Strategy*.

A consortium of universities and colleges across Canada presented its plan to deliver more courses and programs on-line and to advance student mobility through prior learning assessment, as well as certification services for immigrants.

Industry and professional associations, as well as private sector firms, described initiatives to invest in state-of-the-art training and skill development of their employees. Investment in work-force training is seen as critical to their success in pursuing innovation and the major means of remaining at the leading edge of their sectors.

It is clear that many parts of the Canadian economy are already acting consistent with the direction of *Canada's Innovation Strategy*. The task now is to consider the strategic issues and to determine how to collectively move forward.

Challenges for the Summit

The challenge is to present these strategic issues and substantive recommendations in such a way that participants at the National Summit can take the next step: converge on selected priorities for action, and provide specific and concrete advice on how the government and other public and private sector stakeholders and partners can move forward on these priorities, post-Summit. In doing so, participants may wish to modify, expand or combine priorities as they see fit. Your views will help shape an Innovation and Learning Action Plan for the next decade.

Issues

The objective of the material in this section of the guide is to stimulate discussion at the National Summit on Innovation and Learning. It has been laid out to enable participants to work through the large number of recommended actions associated with key priority issues. Each section represents one of the five key horizontal issues:

1. Improving Research, Development and Commercialization
2. Enhancing the Innovation Environment
3. Strengthening Learning Culture
4. Building an Inclusive and Skilled Work Force
5. Strengthening Communities.

Sub-Issues

Each section contains three or four sub-issues. For example, in Section 2, the Innovation Environment issue consists of three sub-issues: Support Innovation Through the Tax System, Accelerate Regulatory Reform, and Modernize the Intellectual Property Regime. Within each sub-issue, there is a corresponding set of priority recommendations. These recommendations are relevant across many stakeholder groups that make up the "innovation and learning" landscape.

Proposed Challenges

Each section also includes an overview of the issue, the sub-issues and the scope of recommended actions. The list of proposed challenges in the first column refers to the targets and milestones outlined in *Achieving Excellence* and *Knowledge Matters*. These are reflected at the beginning of each of the five sections to provide a point of reference for participants — a reminder of the starting point for the Government of Canada's strategic long-term objectives to improve Canada's innovation and learning performance. It should be noted, however, that recommendations stemming from the engagement process extended beyond these targets and milestones, and their inclusion here is not meant to limit the scope of discussions at the Summit.

Rationale

For each sub-issue, a few lines summarize the key rationale given for the recommendations that are listed in the middle column. The rationale for each sub-issue was gleaned from the reports and submissions as support for the proposed recommendations.

Specific and General Questions

A set of specific and general questions is posed in each section. These questions are intended to provoke thought prior to the Summit and to guide discussion at the Summit. Specific questions relate to the issue in each section; the seven general questions are common to all sections. General questions are intended to stimulate thinking about the top priorities for action, and about implementation strategies — who (individually or jointly) should do what, when and how. Participants may wish to use the space provided in the Questions column to record their thoughts or reactions prior to the Summit. Preparation such as this will be helpful in advancing table discussions on the day of the breakout sessions.

Preparation Worksheet

Each Summit participant will be involved in one breakout room discussion — dealing with one section of the discussion guide. However, participants are advised to review all sections as part of their preparation work prior to the Summit. At the end of each section is a Preparation Worksheet, which participants may find useful to make notes to capture their own assessment of the overall priorities for recommended actions (both within and across issues and sub-issues), as well as their ideas for implementation approaches.

Other worksheets to record the decisions of table discussion groups and breakout rooms will be provided on the day of the Summit.

Four Overarching Themes

In addition to the five horizontal issues, Canadians emphasized four overarching themes, which they felt were critical to the ultimate realization of *Canada's Innovation Strategy*.

Innovation Culture

Participants in the engagement process concurred that one of the most important actions is to strengthen the culture of innovation throughout every part of Canadian society: academia, government, private industry and communities.

Collaboration and Networking

A theme emerging from several streams of the engagement process was the need for collaboration and network-based linkages — more collaboration between post-secondary institutions and industry, between large firms and SMEs, between levels of government, between diverse industry sectors, between colleges and universities, and the list goes on. These collaborative networks need facilitation.

Partnerships

Canadians also stressed the importance of creating new forms of partnerships: R&D partnerships between the public and private sectors; international partnerships in areas of technology development, market development, and international investment; partnerships between industry sectors and post-secondary institutions; federal/provincial/territorial and municipal partnerships; and so on.

Harmonization and Governance

Regions, sectors, businesses, economic development organizations, and citizens all emphasized the importance of closer interdepartmental and intergovernmental cooperation in areas affecting innovation and learning outcomes. They repeatedly made recommendations regarding the harmonization of federal/provincial/territorial tax systems, securities regulations and sectoral regulatory regimes, for example.

IMPROVING RESEARCH, DEVELOPMENT AND COMMERCIALIZATION: ISSUES AND RECOMMENDATIONS

PROPOSED CHALLENGES

The Knowledge Performance Challenge

- Rank among the top five countries in R&D performance by 2010.
- At least double the Government of Canada's current investment in R&D.
- Rank among world leaders in the share of private sector sales from new innovations.
- Raise venture capital investments per capita to prevailing U.S. levels.

ISSUE

Canadians agree that innovation is the engine of a knowledge-based economy. In a world where advances in science are driving technological change and competitiveness, investing strategically in research and development (R&D) and building a robust science and engineering infrastructure are crucial to creating the environment for continuous innovation. Canadians support the government's goals of vastly improving Canada's knowledge performance, suggesting that support for R&D and commercialization are core ingredients of the innovation process.

In Canada, R&D is performed in three sectors: private sector (57 percent), universities (31 percent) and governments (11 percent).[1] The government has set a target of ranking among the top five countries in the world in terms of R&D spending by 2010, and has committed to doubling its own R&D spending. Overall, respondents agree with the government's proposals to double its R&D investments, including proposals to double funding to granting councils and to give permanent status to the program that pays for the indirect costs incurred by universities on federal government-funded research. However, respondents suggest that, instead of aiming to be among the top five R&D spenders in the world, Canada should establish its primary indicator of innovation performance in terms of outcomes, such as the level of commercialization and the creation of wealth from R&D investments.

In addition, some industry sectors pointed out that, in order to meet the government's R&D targets for the country, the private sector would have to triple its R&D investments. Thus, a key challenge will be to encourage more firms, particularly small and medium-sized enterprises (SMEs), to do more R&D. (Today, approximately four firms in Canada perform 30 percent of all the private sector R&D.) They also point out that our research and technology capacity is an issue. There is a need to train more research scientists, technicians and technologists; upgrade science and engineering infrastructure at universities, colleges and public research laboratories; and to further diversify the private sector's industrial R&D base.

1. OECD, *Main Science and Technology Indicators*, 2001:2.

Recommendations emerging from the engagement process acknowledge that innovation is a collaborative activity. Public–private sector partnerships and multi-stakeholder collaborations need to be fostered, including on an international basis, in order to leverage scarce R&D resources, share risks, fuel knowledge and technology transfer, and create an internationally competitive research environment.

On the commercialization front, Canadian firms lag in their ability to capture economic benefits from their research and innovations. For example, firms in Ireland and Germany enjoy substantially more sales from their innovations than Canadian firms do. Canada has also displayed prolonged weakness in its ability to grow global-scale innovative firms from its stock of small companies. Respondents agree that closing the innovation gap is a commercialization issue as much as it is an R&D issue. Their recurring recommendations stress actions to improve access to marketing, management, technology programs and capital. It is further recommended that colleges and universities become more involved in the technology transfer and commercialization process. In order to achieve this, they need more incubation facilities, people with stronger commercialization skills, and a more flexible intellectual property framework.

Please turn the page to continue working through Section 1.

SUB-ISSUE

1.1 Enhance Our Research Capacity

Rationale Given: Despite substantial R&D investments by the Government of Canada since 1997, universities have experienced operational funding cuts in recent years, and this has put pressure on infrastructure needs, particularly in terms of laboratories and equipment. Supporting robust university research infrastructures contributes to a strong knowledge base for innovation by enhancing the education of highly-skilled personnel.

Canada has limited financial and human resources for R&D in relation to the United States and the European Union. Investing in R&D strategically facilitates the allocation of limited resources to areas where Canada is developing or has an existing international reputation.

Private sector companies lag in R&D investments (for example, only four companies account for 30 percent of total R&D).

RECOMMENDATIONS

1. Continue to expand university-based research across Canadian universities, large and small, by strengthening university research infrastructure (for example, establish a permanent program for the reimbursement of indirect costs; expand research funding to the granting councils, Canada Foundation for Innovation and Canada Research Chairs; and ensure access across universities of all sizes and disciplines).
2. Increase the number of people with advanced research degrees by decreasing the completion time and cost (for example, through graduate fellowships and research grants) and the capacity of universities to produce them (for example, Canada Research Chairs).
3. Attract and retain young faculty members through targeted research funding.
4. Channel more funds toward large-scale domestic and international research collaborations to attract and retain talent; create strong linkages between companies, universities and government labs; and support internationally competitive research.
5. Strategically invest in R&D by focussing on platform technology development, encouraging government labs and academia to focus on longer-term, yet industrially relevant, research.[2]

2. Platform technologies are those "basic" technologies upon which other technologies and products are built (for example, software, advanced materials and proteomics).

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 1

Specific Questions

- What would it take to achieve a tripling of private sector investment in R&D and to create more commercial spinoffs?
- What are three opportunities where the concerted efforts of business, universities and government would have the greatest impact on Canada's R&D and commercialization performance?

General Questions

1. What is the **priority** in terms of these recommendations? What should be done first, second, third and so on to advance the innovation performance of Canadian companies in terms of R&D and commercialization? Which actions would provide the best points of leverage in addressing the related issues?

SUB-ISSUE	RECOMMENDATIONS
1.2 Increase Commercialization Outcomes/Results **Rationale Given:** The transfer of technology from universities and government laboratories to the private sector is often slow and inefficient. Building technology transfer infrastructure will continue to facilitate this. A national intellectual property framework is needed to harmonize the current diversity in university and government intellectual property policies in order to make it easier to extract this intellectual property for commercial purposes. Existing technology support programs could stimulate higher levels of innovation performance (especially among SMEs) if their mandates were broadened and access simplified. A deficiency in commercialization expertise is impeding Canada's innovation performance.	1. Provide funding support to universities for the commercialization stage of R&D (for example, for prototyping and marketing) through the research granting councils. 2. Build university- and college-based technology transfer infrastructure by establishing a national office of technology transfer and by creating a national network of knowledge transfer, incubation and entrepreneurship. 3. Develop a national framework for managing the intellectual property that is generated by universities and government research laboratories; facilitate the licensing of intellectual property from government laboratories. 4. Expand the supply of people with business and management skills needed for innovation by promoting multidisciplinary training for management and engineering students; use business schools to teach innovation; and have business schools address the skills gap in finance, marketing and communications.

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 1

General Questions

2. What are the **roles** of government, businesses, educational institutions and communities in advancing the implementation of priority recommendations? Which key stakeholders should do what, and when? What can be done to foster greater cooperation/ collaboration to improve R&D outcomes?

- Role of government

- Role of business

- Role of educational institutions

SUB-ISSUE	RECOMMENDATIONS
1.2 Increase Commercialization Outcomes/Results	5. Rationalize and strengthen the role of appropriate Crown agencies that support commercialization, such as the Business Development Bank of Canada and Export Development Canada. Benchmark practices (to ensure their competitiveness) with similar organizations in other countries. 6. Use government procurement to generate a greater volume of innovative work for Canadian businesses. 7. Expand successful programs that support commercialization by broadening and deepening the mandates of these programs (for example, the Industrial Research Assistance Program and Technology Partnerships Canada). Place all government industrial commercialization funding programs under a single program delivery agency to streamline access. 8. Enhance the commercialization capacity of SMEs (for example, provide catalysts to form strategic alliances with larger firms, universities and government labs; assist in the development of executive mentoring programs for expert advice; and build incentives to accelerate the acquisition of SME innovations).

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 1

General Questions

- Role of communities

- Joint roles

3. What mechanism should be established to assist in the implementation of your priority recommendations?

4. What **barriers** would there be to implementing these recommendations? How might these be overcome?

SUB-ISSUE	RECOMMENDATIONS
1.3 Improve Access to Capital **Rationale Given:** SMEs often have difficulty in raising venture capital due to the long time lines between conceptualization and commercialization. Institutional investors are a potential source of stable, long-term venture capital. A lack of seed and venture capital hampers the development of innovations with excellent potential. This is particularly true in the case of new and emerging technology-oriented firms.	1. Encourage institutional investors (for example, pension funds) to invest up to 5 percent of their capital base in early-stage commercialization and high-growth firms. 2. Develop a critical mass of knowledgeable investors and managers in the banking and venture capital community. 3. Support the development of more seed capital, especially in small urban centres, by supporting venture capital firms, providing a broader choice of instruments for accessing capital, and deepening the capital base of firms.

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 1

General Questions

5. Are there aspects of the innovation and learning **culture** to be addressed in this area? If so, what are they and how can they be strengthened? What would motivate individual Canadians, organizations and/or communities to act? How can we move beyond vision and words?

6. What **measures or indicators** should be used to monitor the impact of your priority recommendations on learning or innovation performance? What are the benefits and impacts of the proposed action? In the year 2010, how will we know if we have been successful?

7. Are there other actions to be taken?

IMPROVING RESEARCH, DEVELOPMENT AND COMMERCIALIZATION: ISSUES AND RECOMMENDATIONS

PREPARATION WORKSHEET FOR SECTION 1:

After reviewing the list of recommendations, you can use this worksheet to capture your assessments and ideas.

SUB-ISSUE

1.1 Enhance Our Research Capacity

Priorities

How?

Who?

When?

SUB-ISSUE

1.2 Increase Commercialization Outcomes/Results

Priorities

How?

Who?

When?

PREPARATION WORKSHEET FOR SECTION 1

SUB-ISSUE	NOTES AND OTHER CONSIDERATIONS
1.3 Improve Access to Capital **Priorities** **How?** **Who?** **When?**	

ENHANCING THE INNOVATION ENVIRONMENT: ISSUES AND RECOMMENDATIONS

PROPOSED CHALLENGES

The Innovation Environment Challenge

- Complete systematic expert reviews of Canada's most important business and regulatory regimes by 2010.
- Ensure Canada's business taxation regime continues to be competitive with those of other G7 countries.
- Enhance Canada's profile with international investors by 2005.

ISSUE

Canadians agree on the need to improve the innovation environment. They see this as critical to achieving Canada's vision of becoming the best country in the world for research and development (R&D) and investment and to creating a new business culture — all of which will lead to improved productivity gains through innovation.

All stakeholders concur that Canada must strive to maintain a competitive tax regime. Several recommendations called for reductions in various types of direct and indirect taxation (personal and corporate tax rates, capital tax, capital gains tax, capital cost allowance, and user fees). Stakeholders would like to see tax credits for learners and employers to promote on-the-job training. Several stakeholders, across a range of sectors, regions and business associations, advocated for changes to the Scientific Research and Experimental Development (SR&ED) tax credit program, one of the most frequently recurring recommendations.

In addition to taxation issues, Canadians called for improvement to the regulatory regime. The most frequently mentioned recommendation was to undertake a sector-by-sector regulatory review with the goal of reducing or eliminating regulatory barriers in a broad cross section of industries. Furthermore, they suggested that a "will it help or hinder innovation" test be applied to existing and new regulations. They recommended beginning this review process immediately, and agreed that the 2010 deadline was too distant. An adjusted time frame of between 2003 and 2007 was put forward as being more appropriate.

The Government of Canada responded early to this feedback by announcing a number of measures on smart regulation in the 2002 Speech from the Throne. The creation of an External Advisory Committee on Smart Regulation is the beginning of this process. This committee will recommend areas where the government needs to redesign its regulatory approach.

Moreover, several stakeholders called for changes to the intellectual property system — simplification, better access to information about intellectual property protection processes, and reduced approval times on patent applications. Adopting new digital copyright laws was a recommendation from a large number of stakeholders, particularly businesses in the information and communications technology (ICT) sector, libraries, educational institutions, and cultural industries.

The business community emphasized the need to more aggressively stimulate the supply of risk capital, specifically with tax credits for angel investors targeted toward new spinoff firms, early-stage R&D, and technology-driven firms. They would also like to see a Canada-wide harmonization of securities regulations. In each of these areas, stakeholders made a number of recommendations.

To stimulate and encourage higher levels of innovation in Canada, regulatory, tax and other barriers to innovation and the commercialization of R&D must be reduced or eliminated, while protecting the public interest. At the same time, the business environment must provide incentives for increased private sector investment in innovation.

Please turn the page to continue working through Section 2.

SUB-ISSUE	RECOMMENDATIONS
2.1 Support Innovation Through the Tax System **Rationale Given:** Capital taxes, as profit-insensitive taxes, penalize the spread of innovation because they represent a disincentive for purchasing leading-edge and expensive technologies. Improvements to the Scientific Research and Experimental Development tax credit will encourage companies, especially small and medium-sized enterprises (SMEs), either to begin investing or to increase investments in R&D. A review of the current capital cost allowance rates is necessary to reflect current technological advances and stimulate investment in environmental and enabling technologies. Providing improved tax incentives for learners, employers and investors will stimulate investments in employer-based training, individual lifelong learning and seed capital investments, thereby fostering innovation.	1. Reduce or eliminate capital taxes at the federal and provincial levels. 2. Improve the functioning of the Scientific Research and Experimental Development program. • Broaden the program to include incentives for innovation beyond the current definition of R&D (for example, prototype development, commercialization, marketing research and international development). • Make these tax credits fully refundable for all companies. • Simplify the application process and documentation requirements to expand its accessibility and take-up (for example, among SMEs). • Remove the program from the *Income Tax Act* and have it administered by a separate authority. 3. Develop new tax-based instruments to stimulate seed and early stage investments (for example, tax credits for angel investors). 4. Revisit the capital cost allowance to reflect today's rapidly advancing environmental and enabling technology, obsolescence and the shorter economic life of capital assets. 5. Create a more competitive tax regime for learners and employers to promote on-the-job training (for example, tax incentives and tax treatment of scholarships).

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 2

Specific Questions

- Considering the pressures of competing priorities, how can the tax system be used to help support and accelerate innovation?

- On which sectors should the priority be placed for regulatory review, for what specific purpose, and which regulatory frameworks would need particular attention?

- How should Canada ensure a balance of intellectual property protection with public interest (i.e. users, inventors and producers)?

- To what extent are the lack of knowledge about, and access to, intellectual property management barriers to commercialization?

SUB-ISSUE	RECOMMENDATIONS
2.2 Accelerate Regulatory Reform **Rationale Given:** Streamlining the regulatory process and harmonizing with other governments will reduce the burden on companies and thereby decrease time to market and increase productivity. Harmonizing securities regulations will simplify the process of initial public offerings, thus increasing the capital available to enable the growth of small companies.	1. Undertake a sector-by-sector review of the regulatory system in cooperation with relevant stakeholders to streamline and improve performance; establish an independent regulatory review process to reduce response times and balance regulatory efficiency with control (similar to the External Advisory Committee on Smart Regulation announced in the 2002 Speech from the Throne). 2. Undertake a review of securities regulation to "weed out" possible barriers to the public trading of start-up companies; harmonize these regulations across provincial jurisdictions. 3. Shorten approval times and simplify the process for new innovative products, processes and services. 4. Undertake federal/provincial/territorial harmonization of the regulatory environment.

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 2

General Questions

1. What is the **priority** in terms of these recommendations? What should be done first, second, third and so on to improve the innovation environment? Which actions would provide the best points of leverage in addressing the related issues?

2. What are the **roles** of government, businesses, educational institutions and communities in advancing the implementation of priority recommendations? Which key stakeholders should do what, and when? What can be done to foster greater cooperation/collaboration in the area of improving the innovation and learning environment?

- Role of government

- Role of business

SUB-ISSUE

2.3 Modernize the Intellectual Property Regime

Rationale Given: Bringing intellectual property laws to international standards would increase patent protection, which in turn would stimulate innovation by Canadian companies and promote international competitiveness.

Canadians need to be aware of and use intellectual property protection in order to meet the proposed target of increased commercialization.

Reforming the copyright law to allow users (i.e. schools, libraries, SMEs and communities) to access digital media at a reasonable cost would substantially increase access to global knowledge.

RECOMMENDATIONS

1. Consider strategic reforms to the intellectual property regime by:

- amending the *Copyright Act* to respond to the needs of the "digital" economy and to conform to international standards; and
- harmonizing telecommunications, broadcasting and copyright laws; combining these under a single regulatory body.

2. Make intellectual property protection more accessible by:

- improving general awareness about intellectual property protection and management processes;
- easing the burden of the intellectual property cost to small firms;
- streamlining the patent examination process and speeding up approvals; and
- promoting measures to encourage companies to use patents, trademarks and intellectual property to protect their innovation investments (especially among SMEs).

3. Ensure that intellectual property laws balance the interests of SMEs, global leaders, innovators/creators and users.

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 2

General Questions

- Role of educational institutions
- Role of communities
- Joint roles

3. What **mechanism** should be established to assist in the implementation of your priority recommendations?

4. What **barriers** would there be to implementing these recommendations? How might these be overcome?

NOTES

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 2

General Questions

5. Are there aspects of the innovation and learning **culture** to be addressed in this area? If so, what are they and how can they be strengthened? What would motivate individual Canadians, organizations and/or communities to act? How can we move beyond vision and words?

6. What **measures or indicators** should be used to monitor the impact of your priority recommendations on learning or innovation performance? What are the benefits and impacts of the proposed action? In the year 2010, how will we know if we have been successful?

7. Are there other actions to be taken?

ENHANCING THE INNOVATION ENVIRONMENT: ISSUES AND RECOMMENDATIONS

PREPARATION WORKSHEET FOR SECTION 2:

After reviewing the list of recommendations, you can use this worksheet to capture your assessments and ideas.

SUB-ISSUE

2.1 Support Innovation Through the Tax System

Priorities

How?

Who?

When?

SUB-ISSUE

2.2 Accelerate Regulatory Reform

Priorities

How?

Who?

When?

PREPARATION WORKSHEET FOR SECTION 2

SUB-ISSUE	NOTES AND OTHER CONSIDERATIONS
2.3 Modernize the Intellectual Property Regime	
Priorities	
How?	
Who?	
When?	

STRENGTHENING LEARNING CULTURE: ISSUES AND RECOMMENDATIONS

PROPOSED CHALLENGES

The "Best Start in Life" Challenge

- Become one of the top three countries in mathematics, science and reading achievement.
- Create computer- and Internet-literate youth by grade-school graduation.
- Create a sufficient level of literacy among high-school graduates for participation in the knowledge-based economy.
- Double the number of high-school graduates who have a working knowledge of both official languages.

ISSUE

Quality of life and capacity for innovation hinge on the availability of people with an appropriate range of skills acquired in the classroom, in the workplace and in the laboratory. This in turn depends on our ability as a country to provide opportunities and access to quality lifelong learning, beginning with the foundations of early childhood and culminating in a wide range of disciplines and trades, skills and knowledge. To establish a solid foundation for lifelong learning and to ensure that children enter school ready to learn, children and families need adequate income, as well as services such as child care.

Young Canadians look to their own future and ask if they will be able to acquire the skills and knowledge they need to prosper in the knowledge-based economy. They emphasize the need for better access to information regarding a broader range of career and learning choices, and they insist that this process should begin at the K-12 level.

Submissions and discussions emphasized issues related to access to and participation in the post-secondary education system. The main concerns are financial barriers, need for institutional innovation and flexibility in delivery models, time pressures and challenges caused by the low literacy and essential skills of some students. Others point out that the quality of education has been compromised by a legacy of funding cuts, competing demands on institutions and difficulties staffing the classrooms.

Challenges also lie ahead for increasing participation rates at the graduate level in higher education in Canada. Removing institutional barriers could help improve mobility across provinces and professions. Innovative delivery mechanisms, such as on-line learning, distance education and joint study programs, were suggested as ways to increase access for adult and individual learners, apprentices, Aboriginal people, and those living in remote and rural communities.

PROPOSED CHALLENGES

The Post-Secondary Education Challenge

- Ensure that 100 percent of high-school graduates have the opportunity to participate in some form of post-secondary education.
- Raise the percentage of 25- to 64-year-olds with a post-secondary credential to 50 percent within the next decade — including "at-risk" groups.
- Double the number of apprentices completing a certification program to 37,000.
- Increase enrolment in Master's and PhD programs by an average of 5 percent per year through 2010.

ISSUE

As Canada confronts looming skills shortages in trades and in specialized scientific and technological disciplines, more people need to become interested and engaged in these fields. Despite the impressive employment opportunities they offer, not enough students are choosing these learning paths. In order to align the learning system to labour market needs, suggestions were made to actively market these career and trade opportunities. Community colleges, technical institutes, labour organizations and sector councils were often cited as key players that could promote careers in skilled trades. More accessible labour market information and linking of this information to curriculum are also necessary if Canada is to meet the needs of learners and the marketplace and encourage all segments of society to invest in skills and learning.

There is broad recognition that the world has changed and concerted efforts are required to instil a culture of lifelong learning by supporting both formal and informal learning activities. Individuals' need and desire for learning and skills upgrading continue well beyond their years in the formal education system, although finances and time remain barriers to continued learning. Also, low literacy skills not only erode workplace productivity and individual well-being, they undermine completion rates for educational and vocational training and apprenticeships. Assessment and recognition of prior learning is often cited as a way to increase individuals' incentive to learn and to enable society to make better use of people's skills.

Canadians agree that timely and accurate information must be accessible to all actors to underpin their decisions about learning. They see a need for an architecture that will ensure the measurement of learning-related inputs and outcomes, the sharing of information and best practices, and new research on learning. Within this context, Canadians repeatedly asserted the need for a broader understanding of the effects of learning, characterized not only by economic outcomes but also by social well-being.

Multi-sectoral commitment and collaboration between industry, government, communities, learning institutions, labour organizations and sector councils are key to maximum success in addressing the many challenges raised in this section.

Please turn the page to continue working through Section 3.

SUB-ISSUE

3.1 Ensure Access to Learning Opportunities

Rationale Given: Labour market trends suggest that demand is increasing for post-secondary graduates. Expansion of current education capacity, including infrastructure, will help to support such demand.

E-learning makes learning more accessible and facilitates student participation, especially for students with disabilities and those in remote areas.

Recognizing formal, informal and non-formal learning provides a more mobile workforce. It improves employment opportunities for many unemployed or under-employed individuals.

Increasing financial assistance to students (both in amount and flexibility) would expand and accelerate the participation of younger as well as older learners, including graduates and lifelong learners.

RECOMMENDATIONS

1. Expand capacity in the post-secondary system by increasing infrastructure (physical, human and financial) using cost-effective design principles.
2. Implement large-scale e-learning programs and approaches, putting more courses for full- and part-time students on-line.
3. Formally recognize formal and informal learning by implementing a pan-Canadian system for assessing and giving credit for prior learning (Prior Learning Assessment and Recognition [PLAR]) and foreign credentials; enhance the mobility of academic credit through the development of national academic record and transcript guidelines.
4. Adjust the system of student financial assistance to meet the changing needs of students, the post-secondary education sector and the knowledge-based economy (for example, assistance levels, debt and repayment issues, under-represented groups and e-learning).
5. Make financial resources widely available to part-time students, and adjust the Canada Student Loans Program to support part-time as well as full-time study. Address student debt issues and develop more flexible repayment options.

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 3

Specific Questions

- How do we integrate innovation skills (such as effective communications, teamwork and creativity) more effectively into formal and informal learning, while recognizing expanding demands on curriculum, especially in the specialized disciplines?
- What is the appropriate balance between technology-assisted (such as on-line) teaching and learning and the more traditional approaches?
- What can be done to expand the infrastructure for post-secondary education without substantially increasing costs to students?
- How do we significantly expand the number of meaningful co-op and internship opportunities available?
- How can we leverage community resources more effectively to address lifelong learning and skill development?

SUB-ISSUE	RECOMMENDATIONS
3.2 Encourage Innovation and Flexibility in the Formal Learning System **Rationale Given:** Canada is in dire need of an "entrepreneurial class." Including business and management skills in post-secondary research curriculums would help students to recognize the relevance of their research, and to participate in commercialization activities once they have launched their careers. A learner-centric approach to the learning system makes study relevant to participants' needs and circumstances, and therefore improves learning outcomes. A multi-disciplinary approach to learning systems makes learners more aware of others' needs and circumstances and more able to work in teams. As a result, the individuals are more employable and more likely to be innovative.	1. Integrate innovation-related skills in curriculums (including interdisciplinary, cross-curricular, risk-taking, problem-solving approaches to learning). 2. Establish a Student Research Training Cooperative Program with local industry partners to link formal academic training with applied research training in work settings. 3. Recognize and accommodate diverse learner needs (for example, create special degree and diploma completion programs tailored to adult learning, and develop culturally relevant curriculum for Aboriginal people). 4. Encourage collaboration in course design between post-secondary institutions and industry by providing matching funding for courses. 5. Use the expertise of sector councils to guide the development of occupationally relevant curriculums. 6. Strengthen programs to build the competence of math and science teachers, and provide ongoing professional development (for example, Undergraduate Student Research Awards for Student Teachers). 7. Establish a centre to collect and make accessible knowledge and information (including best practices) around key themes, such as adult learning, K-12, early childhood education, post-secondary education and apprenticeship.

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 3

Specific Questions

- How can we provide more information to learners that will encourage them to participate in education?

- Does the education system really need more money or is the real issue a need to change the current programs?

General Questions

1. What is the **priority** in terms of these recommendations? What should be done first, second, third and so on to strengthen the learning environment for Canadians, including access to relevant learning opportunities. Which actions would provide the best points of leverage in addressing the related issues?

SUB-ISSUE	RECOMMENDATIONS
3.2 Encourage Innovation and Flexibility in the Formal Learning System	8. Encourage learning institutions to accept and integrate PLAR tools into their academic environment. 9. Launch a comprehensive, sustained national campaign to promote the study of science and mathematics. Target parents, youth, educators and the media (for example, a national Science and Technology Awareness Program in collaboration with science centres). 10. Recognize the importance of essential skills development and integrate it throughout the learning system. 11. Foster collaborative relationships between universities and colleges to offer combined degree/diploma programs.
3.3 Promote Careers in Skilled Trades **Rationale Given:** There is a growing need for skilled workers in Canada. The workforce suffers from a serious lack of tradespeople, and this trend is getting worse. Too few students pursue careers in skilled trades. A better understanding of skilled trades and a broader acceptance of the value of trades would likely increase the number of graduates from trade programs and, in turn, benefit the economy.	1. Actively market career opportunities in order to improve the image of skilled trades. Target parents, youth, adult learners, educators and the media (for example, interactive programs and projects for schools, community organizations and others). Broaden teachers' awareness of the role of trade-related and technical occupations in the economy. Support K-12 programs that inform student choice, including those that encourage women in trades. 2. Set performance indicators for school districts regarding career awareness/training in trades and technology.

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 3

General Questions

2. What are the **roles** of government, businesses, educational institutions and communities in advancing the implementation of priority recommendations? Which of the key stakeholders should do what, and when? What can be done to foster greater cooperation/collaboration in the area of improving the innovation and learning environment?

- Role of government
- Role of business
- Role of educational institutions
- Role of communities
- Joint roles

SUB-ISSUE	RECOMMENDATIONS
3.3 Promote Careers in Skilled Trades	3. Supply young people, parents, teachers and guidance counsellors with consolidated (rather than piecemeal) labour market information that is timely and accurate (for example, a Web portal) to improve counselling on learning and career planning. 4. Expand co-op and internship opportunities in the secondary and post-secondary systems. 5. Provide incentives for students to pursue skilled trades (for example, scholarships, apprenticeship certification and Skills Canada Competition). 6. Work with sector councils, the Canadian Apprenticeship Forum and other partners to strengthen and promote the apprenticeship system.

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 3

General Questions

3. What **mechanism** should be established to assist in the implementation of your priority recommendations?

4. What **barriers** would there be to implementing these recommendations? How might these be overcome?

5. Are there aspects of the innovation and learning **culture** to be addressed in this area? If so, what are they and how can they be strengthened? What would motivate individual Canadians, organizations, and/or communities to act? How can we move beyond vision and words?

SUB-ISSUE	RECOMMENDATIONS
3.4 Support Lifelong Learning **Rationale Given:** Researchers have shown the importance of early childhood education. Beyond the formal learning system, there is a tremendous need for continuous learning. Upgraded literacy, grammar and vocabulary skills enable people to meet the basic challenges of life, to pursue higher learning and/or expand their employment choices. To establish a solid foundation for lifelong learning and ensure that children enter school ready to learn, children and families need services such as child care, as well as adequate income. All learning, regardless of where or how it is acquired, is relevant in developing a culture of lifelong learning.	1. Develop a national child-care program to provide early learning opportunities for children, and support parents' participation in training and the labour force. 2. Make loans and financial assistance available to part-time students engaging in lifelong learning. 3. Establish a pan-Canadian literacy development system, supported by federal, provincial and territorial governments. Establish programs to improve literacy levels and adults' knowledge of basic grammar and vocabulary. 4. Support organizations that focus on lifelong learning and adult skills (especially in rural and Aboriginal communities). Provide incentives to encourage employer-sponsored training. 5. Work with partners to improve learning outcomes for Aboriginal people at all levels, which will increase their access to opportunities, including successful participation in the labour market. 6. Develop nationally recognized standards, tools and processes for PLAR as a means of recognizing lifelong learning. 7. Support research into the social benefits of lifelong learning and into making learning more effective at all stages in life. Ensure that knowledge and information are accessible to all actors in the extended learning system.

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 3

General Questions

6. What **measures or indicators** should be used to monitor the impact on learning or innovation performance of your priority recommendations? What are the benefits and impacts of the proposed action? In the year 2010, how will we know if we have been successful?

7. Are there other actions to be taken?

NOTES

STRENGTHENING LEARNING CULTURE: ISSUES AND RECOMMENDATIONS

PREPARATION WORKSHEET FOR SECTION 3:

After reviewing the list of recommendations, you can use this worksheet to capture your assessments and ideas.

SUB-ISSUE

3.1 Ensure Access to Learning Opportunities

Priorities

How?

Who?

When?

SUB-ISSUE

3.2 Encourage Innovation and Flexibility in the Formal Learning System

Priorities

How?

Who?

When?

PREPARATION WORKSHEET FOR SECTION 3

SUB-ISSUE

3.3 Promote Careers in Skilled Trades

Priorities

How?

Who?

When?

SUB-ISSUE

3.4 Support Lifelong Learning

Priorities

How?

Who?

When?

BUILDING AN INCLUSIVE AND SKILLED WORK FORCE: ISSUES AND RECOMMENDATIONS

PROPOSED CHALLENGES

The Adaptable Skills Challenge

- Increase the number of adult learners throughout society by one million women and men within five years.
- Within five years, increase businesses' investment in training per employee by one-third.
- Decrease the number of adults with low literacy skills by 25 percent over the next decade.

ISSUE

Canadians agree that the country is facing a skills deficit, due to issues surrounding both the quantity and quality of the labour force. They suggest that the labour force is shrinking, with actual and projected shortages of skilled workers in certain sectors due in part to an ageing population. The continually changing and increasing skill requirements of the knowledge-based economy make skills development and upgrading critical, not just for highly qualified individuals, but for the entire work force. With increasing demands for educated and skilled individuals, Canada needs both to recognize and to build on the talents it has, as well as to attract and integrate skilled immigrants.

Providing individuals with equal opportunities for labour market participation was seen by many as a partial solution to skills shortages. They felt this applied to under-employed groups, such as women, youth, immigrants, Aboriginal people, persons with disabilities, social assistance recipients and those with family-care responsibilities, who face barriers to labour market participation and need opportunities to develop their skills. As well as developing new skills, we must recognize the skills that individuals already possess (for example, through Prior Learning Assessment and Recognition [PLAR]). The learning recognition gap affects more than half a million Canadians.[1] Inconsistent credit requirements make it difficult for employers and skilled individuals to connect across sectors and provinces.

Businesses in many sectors projected a strong demand for new graduates with practical research skills and technical experience. To them, this meant expanded apprenticeship programs. To deal with the equally important challenge of upgrading the knowledge and skills of those already in the labour market, they recommended working through sector councils to channel workplace training, and the creation of new sectoral training bodies and industry-led training corporations. Through sector councils, apprenticeship programs, training bodies, company-specific in-house training, and executive mentoring specifically for small firms, Canadian companies will begin to address their work force challenges and maintain their international competitiveness.

1. The Conference Board of Canada, *Performance and Potential 2002-03: Canada 2010 — Challenges and Choices at Home and Abroad*, October 2002.

PROPOSED CHALLENGES	ISSUE
The Immigration Challenge • Increase the percentage of adult immigrants with post-secondary education from 58 to 65 percent. • Reduce the income gap by 50 percent between immigrants in the work force and Canadian-born workers with comparable skills and education. • Implement the new *Immigration and Refugee Protection Act* and regulations by 2002. • Improve Canada's performance in the recruitment of foreign talent, including foreign students, by means of both the permanent immigrant and the temporary foreign workers programs, by 2004.	High technology and knowledge-based industries were concerned about future shortages of world-class scientists and researchers. Canadians see immigration as another part of the solution to the skills shortage. Submissions from Canadians call for adjustments to immigration practices and policies, the fast-tracking of immigrants with employment offers, and the recognition of foreign credentials. They noted the importance of working together, as Canada's continued success in attracting and retaining skilled immigrants depends on the rapid and effective integration of these immigrants in the labour market and society. Cooperation efforts on the part of employers, immigrant settlement organizations, regulatory bodies, all levels of government and other partners are required. Immigration policy must recognize the global nature of this competition for talent. Please turn the page to continue working through Section 4.

SUB-ISSUE

4.1 Increase the Size of the Labour Force

Rationale Given: Over the next 15 to 20 years, it is projected that Canada will suffer a severe shortage of skilled workers.

With basic incentives, we could better retain our home-grown talent and keep skilled Canadians in Canada.

Removing barriers to the mobility of skills within Canada (including standards for curriculums and training) would help to balance "supply and demand" across regions and sectors.

Aboriginal people represent the fastest-growing segment of the population. We need to capitalize on the talents of this growing population and ensure that they have the skills required to access employment opportunities.

RECOMMENDATIONS

1. Bring experienced leaders and retirees back to the labour market on a part-time basis.
2. Provide incentives to Canadian graduate students to reduce out-migration and increase the labour market pool.
3. Standardize curriculum and harmonize training to allow mobility of apprentices while on training.
4. Increase the participation levels of under-employed groups (including women, youth, people with disabilities, visible minorities and Aboriginal people):
   - Encourage the use of PLAR through occupation-based collaborative projects to include non-formal and informal learning and skills;
   - Improve access to training, apprenticeship and post-secondary internship programs to target Aboriginal people, persons with disabilities, new Canadians and other under-employed groups.
5. Make quality child care a priority to allow parents to participate in the labour force.

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 4

Specific Questions

- How do we promote a culture of learning, teaching and mentoring for all Canadians, organizations and communities?
- Where will Canada's new researchers, entrepreneurs and skilled workers come from?
- How do we integrate the skills of immigrants without losing sight of the domestic skills that we have not yet fully tapped in Canada, such as those of Aboriginal people? How do we achieve a balance?
- What are the appropriate levels of training investment for an organization? How does an organization challenge its people to be the best globally? What will it take to substantially increase business investment in training?

SUB-ISSUE	RECOMMENDATIONS
4.2 Integrate Immigrants into the Work Force **Rationale Given:** Academic institutions have specific needs and criteria for graduate students. They could be quite effective (working with the government) in directly attracting foreign students. Canada has been successful in attracting skilled immigrants. In 2001, 60 percent of immigrants had post-secondary education at arrival. Despite possessing valuable skills and talents, however, these immigrants have comparatively poor labour market outcomes, as evidenced by a growing gap in employment rates and learning.	1. Organize missions to top academic institutions outside of Canada to recruit foreign students. 2. Undertake a comprehensive plan to improve the process for recognizing foreign credentials (for example, allow for the process to begin overseas; coordinate credential evaluation processes; and set up a single source of information on licensing requirements; establish norms for work experience; develop resources for employers; and use programs such as the Canadian Council for Human Resources in the Environment Industry). 3. Equip immigrants to engage in the integration process before and after moving to Canada (for example, initiate credential assessment; begin second-language and essential skills training; fulfil certain occupational requirements; create "one-window access," and work with employers). 4. Adjust the selection criteria for skilled immigrants needed in Canadian workplaces by ensuring that the criteria allow for a diversity of skills.

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 4

General Questions

1. What is the **priority** in terms of these recommendations? What should be done first, second, third and so on to address key labour force and skills shortages? Which actions would provide the best points of leverage in addressing the related issues?

2. What are the **roles** of government, businesses, educational institutions and communities in advancing the implementation of priority recommendations? Which key stakeholders should do what, and when? What can be done to foster greater cooperation/ collaboration?

- Role of government

- Role of business

SUB-ISSUE	RECOMMENDATIONS
4.2 Integrate Immigrants into the Work Force	5. Diversify mechanisms to disseminate to immigrants in the top source countries as much information as possible on the Canadian labour market (for example, assessment and counselling services; credential recognition processes; and employment possibilities in different regions). 6. Fast-track the processing of immigration approvals for skilled immigrants with employment offers.

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 4

General Questions

- Role of educational institutions
- Role of communities
- Joint roles

3. What **mechanism** should be established to assist in the implementation of your priority recommendations?

4. What **barriers** would there be to implementing these recommendations? How might these be overcome?

SUB-ISSUE	RECOMMENDATIONS
4.3 Invest in Workplace Training **Rationale Given:** Compared with private sector firms in other countries, Canada needs to invest more in workplace training. Collaborative arrangements between industry, government and academia contribute more resources and a better focus in the provision of both basic and advanced skills training. Many individuals require essential skills (basic literacy, numeracy and language skills) to function more effectively in their jobs, and as a foundation for future learning. This will lead to higher productivity levels.	1. Create support arrangements that allow retirees to draw on their skills and knowledge to mentor younger counterparts. 2. Develop executive mentoring programs to make experts available for SMEs. 3. Provide incentives and programs (for individuals and organizations) to increase in-house training and apprenticeship training carried out by industry. • Use sector councils to channel workplace training programs. • Create a new industry-led industry training corporation or a number of sectoral training bodies to champion and oversee training for trades and technical skills that are in high demand. Make use of college and university programs as well. • Expand apprenticeship programs and create more relevant industry training programs through partnerships and collaboration between industry, government and academic institutions. 4. Provide opportunities for second-language, literacy and essential skills training in the workplace. 5. Implement a system that recognizes and credits workplace learning in order to support the acquisition of credentials in the work force. 6. Support research into ways to effectively develop skills in the workplace, and make this knowledge readily available to all players.

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 4

General Questions

5. Are there aspects of the innovation and learning **culture** to be addressed in this area? If so, what are they and how can they be strengthened? What would motivate individual Canadians, organizations, and/or communities to act? How can we move beyond vision and words?

6. What **measures or indicators** should be used to monitor the impact of your priority recommendations on learning or innovation performance? What are the benefits and impacts of the proposed action? In the year 2010, how will we know if we have been successful?

7. Are there other actions to be taken?

BUILDING AN INCLUSIVE AND SKILLED WORK FORCE: ISSUES AND RECOMMENDATIONS

PREPARATION WORKSHEET FOR SECTION 4:

After reviewing the list of recommendations, you can use this worksheet to capture your assessments and ideas.

SUB-ISSUE

4.1 Increase the Size of the Labour Force

Priorities

How?

Who?

When?

SUB-ISSUE

4.2 Integrate Immigrants into the Work Force

Priorities

How?

Who?

When?

PREPARATION WORKSHEET FOR SECTION 4

SUB-ISSUE	NOTES AND OTHER CONSIDERATIONS
4.3 Invest in Workplace Training	
Priorities	
How?	
Who?	
When?	

STRENGTHENING COMMUNITIES: ISSUES AND RECOMMENDATIONS

PROPOSED CHALLENGES

The Community-Based Innovation Challenge

- Develop at least 10 internationally recognized technology clusters by 2010.
- Improve the innovation performance of communities across Canada by 2010.
- Ensure that high-speed broadband access is widely available to Canadian communities by 2005.
- Within five years, increase the number of adult learners by one million men and women (throughout all segments of society).
- Ensure that the number of adult Canadians with low literacy skills is reduced by 25 percent over the next decade.
- Ensure that all young Canadians are computer- and Internet-literate by grade-school graduation.

ISSUE

We all live, work and raise our families in communities. Canadians agree that our social and economic well-being is linked to the degree to which these communities can become magnets for talent and investment. Stakeholders in all sectors and at all levels emphasize that building innovative and inclusive communities requires collaborative work and a pooling of resources. They also agree with the Government of Canada's position, stated in its *Innovation Strategy* papers, that local challenges require local solutions, which must be encouraged and assisted, not imposed. The key to success is having the resources and capacity to build and sustain local partnerships with governments, Aboriginal and other community organizations, business, academia, labour, and active citizens. Mapping their human, social, learning, economic and natural resources will provide effective tools to assess and monitor progress in achieving social and economic well-being.

Communities — small and large, rural and urban — have the potential to improve their capacity for innovation and learning. However, smaller communities cite lack of access to infrastructure, technology, expertise and capital as barriers to realizing their full potential. There was strong support for the idea of providing seed funding to smaller communities to enable them to develop innovation strategies and plans, tailored to their circumstances. New economic development strategies and programs are especially needed to assist rural, Northern and Aboriginal communities to catch up in terms of technical and human resources. Modern infrastructure is also key to competitive communities.

The "glue" that would link rural areas, urban centres, and the global innovation system is the application of broadband communications. There was very strong support for extending broadband infrastructure to all regions of Canada before the target of 2005. Governments, industry, communities and the public need to collaborate quickly to advance a private sector solution to further the deployment of accessible and affordable broadband, as well as access to services such as e-learning, e-health, e-business and public libraries, particularly in rural and remote areas. On issues related to the "digital divide," stakeholders recommended that better information and communications technology (ICT) skills and access to learning opportunities anytime and anywhere would

narrow the gap between urban centres and remote, non-urban communities. Rural and remote communities will have to build their capacity to develop, implement and evaluate skills and learning policies and programs. Aboriginal communities in particular were identified as targets for tailored programs. A recurring message is that it is impossible for individuals to pursue learning opportunities if they are struggling to have their basic needs met. Promoting social inclusion so that all citizens, including people with disabilities, single parents, recent immigrants, the working poor, and employment insurance and social assistance recipients can contribute to their communities was seen as an important aspect of building learning communities.

In a large number of submissions, views were offered on the Government of Canada's proposal to "develop at least 10 internationally recognized technology clusters by 2010." While agreeing that technology clusters are an important component of a vibrant, innovative nation, they noted that infrastructure must be in place to support networks in other areas of the country, not just in large urban centres.

The concept of "virtual clusters" was supported by a number of regional, community and industry groups. Moreover, the prevailing position was that clusters develop organically with entrepreneurial, industrial leadership and strong interactions among business leaders, various levels of government, academia and leading research institutions. The recommended approach was one where collaborative interactions between the key stakeholders in the community facilitate the creation of technology-based business start-ups, strengthen the capacity of locally based research and development organizations, and enable commercialization that leads to economic growth. Canadians point out that governments at all levels need to work more closely with the community to foster the development of local research and learning institutions focussed on collaboration with industry and on technology transfer. Canadians indicated that a key role for governments is to facilitate cross-community and cross-industry partnerships, collect and disseminate the data the community needs to build on its strengths, identify gaps and measure progress, and help attract venture capital.

Please turn the page to continue working through Section 5.

SUB-ISSUE	RECOMMENDATIONS
5.1 Support the Development and Growth of Clusters **Rationale Given:** Clusters are a critical mass of existing community assets and resources, both social and economic, that combine to generate self-sustaining growth.	1. Collaborate with local economic development authorities to prepare long-term community innovation plans and strategies (for example, for joint marketing, infrastructure support, international linkages, network development and the identification of emerging clusters). 2. Support the growth of clusters by fostering the development of local "kernel" research institutions, facilitating cross-community partnerships, providing information on best practices for building clusters and creating entrepreneurial networks; and capitalize on the benefits and synergies of geography to encourage spinoffs, innovation and the dissemination of ideas. 3. Invest in core municipal infrastructure, (for example, transportation, health, education and culture), to attract and retain investment as well as research talent, entrepreneurs, skilled workers and immigrants. 4. Support "virtual cluster" approaches to enable businesses in small communities to collaborate in clusters in other parts of Canada and internationally. 5. Support research on best practices to respond to local circumstances, thereby helping communities learn more about knowledge-based, economic and social activities (for example, academics, corporations, community organizations and government researchers should focus their research on community needs).

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 5

Specific Questions

- What are the key actions that communities need to take to generate sustainable economic growth through technology, innovation and learning?

- How do we address the economic and social development needs of different communities (for example, small, medium-sized and large; rural and urban)? What different key actions need to be taken with respect to different communities?

- What practices/approaches contribute to the development of skills and learning in your community?

- What practices/approaches contribute to increased R&D, commercialization and the growth of small business?

SUB-ISSUE	RECOMMENDATIONS
5.2 Extend Broadband Access **Rationale Given:** Broadband enables economic spinoffs, attracts investment, creates opportunities in the development of content and applications, and provides access to services such as health care and learning, thus generating greater social and economic opportunities for communities.	1. Extend broadband across the country and into rural and remote areas, using flexible deployment models that accommodate the diverse needs of different communities. 2. Strengthen community capacity by • providing access to e-learning, e-health, e-government and e-business and • making public libraries the first choice for public Internet access, and committing ongoing funds specifically to libraries.

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 5

General Questions

1. What is the **priority** in terms of these recommendations? What should be done first, second, third and so on to improve the innovation and learning capacity of Canadian communities? Which actions would provide the best points of leverage in addressing the related issues?

2. What are the **roles** of government, businesses, educational institutions and communities in advancing the implementation of priority recommendations? Which key stakeholders should do what and when? What can be done to foster greater cooperation/ collaboration?

- Role of government

- Role of business

SUB-ISSUE	RECOMMENDATIONS
5.3 Build Learning and Innovative Communities **Rationale Given:** Successful learning communities enhance the skills of community residents so they can make long-term, sustainable, social contributions to their communities. Positioning "learning" as the sole responsibility of schools will be an inadequate approach to meeting Canada's innovation and learning challenges.	1. Build partnerships between colleges and community stakeholders to develop education tools, prior learning assessment and delivery mechanisms to ensure that learning is relevant and accessible and that the training needs of local businesses are met. 2. Encourage among youth and young adults a mindset that favours creativity and learning; identify dynamic young entrepreneurs, and ensure their participation in local and regional economic and social development. 3. Provide enhanced literacy and numeracy skills training in order that people may participate fully in the economic and social development of their communities. 4. Provide communities with more on-line learning opportunities (in terms of both content and instruction). 5. Build capacity in communities to allow for the creation of local solutions. 6. Establish local-level initiatives that welcome new immigrants and meet the cultural and resource needs of immigrant families (for example, develop comprehensive plans to guide their professional, cultural and social integration).

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 5

General Questions

- Role of educational institutions

- Role of communities

- Joint roles

3. What **mechanism** should be established to assist in the implementation of your priority recommendations?

4. What **barriers** would there be to implementing these recommendations? How might these be overcome?

SUB-ISSUE	RECOMMENDATIONS
5.4 Strengthen Rural/Aboriginal Communities **Rationale Given:** Many rural communities and regions face serious erosion of their economies in addition to challenges such as remoteness, inadequate funding and lack of access to risk capital. These communities must focus on dealing with the problems associated with the loss of economic activities by identifying and taking advantage of new, potentially innovative economic opportunities.	1. Improve access to training and apprenticeship programs for Aboriginal people and others in rural communities. 2. Enhance the learning capacity of rural and Aboriginal communities by providing support programs tailored to the needs of the community (for example, local centres of excellence, community access centres and distance education). 3. Establish comprehensive support services for Aboriginal people moving off-reserve to facilitate their integration into urban centres. 4. Develop the capacity within Aboriginal and rural communities to provide a range of learning programming throughout the life cycle. 5. Provide skills development to ensure that Aboriginal people can take advantage of opportunities afforded by projects and operations in their regions (for example, the northern pipeline, mining, hydro-electric projects and so on). 6. Encourage venture capital funds to invest in Aboriginal and rural communities.

SPECIFIC AND GENERAL QUESTIONS FOR SECTION 5

General Questions

5. Are there aspects of the innovation and learning **culture** to be addressed in this area? If so, what are they and how can they be strengthened? What would motivate individual Canadians, organizations, and/or communities to act? How can we move beyond vision and words?

6. What **measures or indicators** should be used to monitor the impact of your priority recommendations on learning or innovation performance? What are the benefits and impacts of the proposed action? In the year 2010, how will we know if we have been successful?

7. Are there other actions to be taken?

STRENGTHENING COMMUNITIES: ISSUES AND RECOMMENDATIONS

PREPARATION WORKSHEET FOR SECTION 5:

After reviewing the list of recommendations, you can use this worksheet to capture your assessments and ideas.

SUB-ISSUE

5.1 Support the Development and Growth of Clusters

Priorities

How?

Who?

When?

SUB-ISSUE

5.2 Extend Broadband Access

Priorities

How?

Who?

When?

PREPARATION WORKSHEET FOR SECTION 5

SUB-ISSUE

5.3 Build Learning and Innovative Communities

Priorities

How?

Who?

When?

SUB-ISSUE

5.4 Strengthen Rural/Aboriginal Communities

Priorities

How?

Who?

When?

INTEGRATED WORKSHEET

SECTION 1

Sub-issues:

1.1 Enhance Our Research Capacity

1.2 Increase Commercialization Outcomes/Results

1.3 Improve Access to Capital

Priority Recommendations:

How?

Who?

When?

SECTION 2

Sub-issues:

2.1 Support Innovation Through the Tax System

2.2 Accelerate Regulatory Reform

2.3 Modernize the Intellectual Property Regime

Priority Recommendations:

How?

Who?

When?

SECTION 3

Sub-issues:

3.1 Ensure Access to Learning Opportunities

3.2 Encourage Innovation and Flexibility in the Formal Learning System

3.3 Promote Careers in Skilled Trades

3.4 Support Lifelong Learning

Priority Recommendations:

How?

Who?

When?

SECTION 4

Sub-issues:

4.1 Increase the Size of the Labour Force

4.2 Integrate Immigrants into the Work Force

4.3 Invest in Workplace Training

Priority Recommendations:

How?

Who?

When?

SECTION 5

Sub-issues:

5.1 Support the Development and Growth of Clusters

5.2 Extend Broadband Access

5.3 Build Learning and Innovative Communities

5.4 Strengthen Rural/Aboriginal Communities

Priority Recommendations:

How?

Who?

When?

NOTES