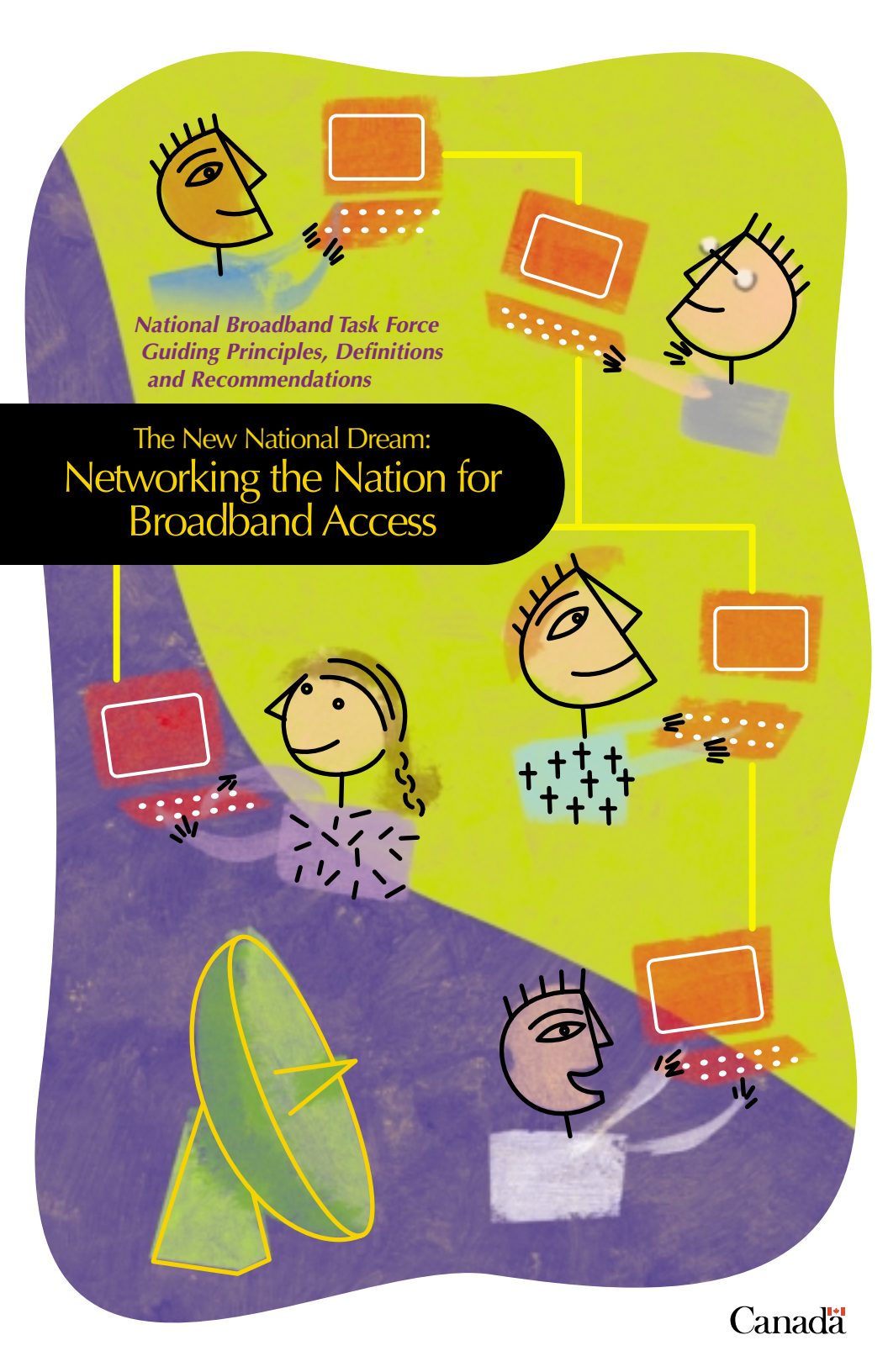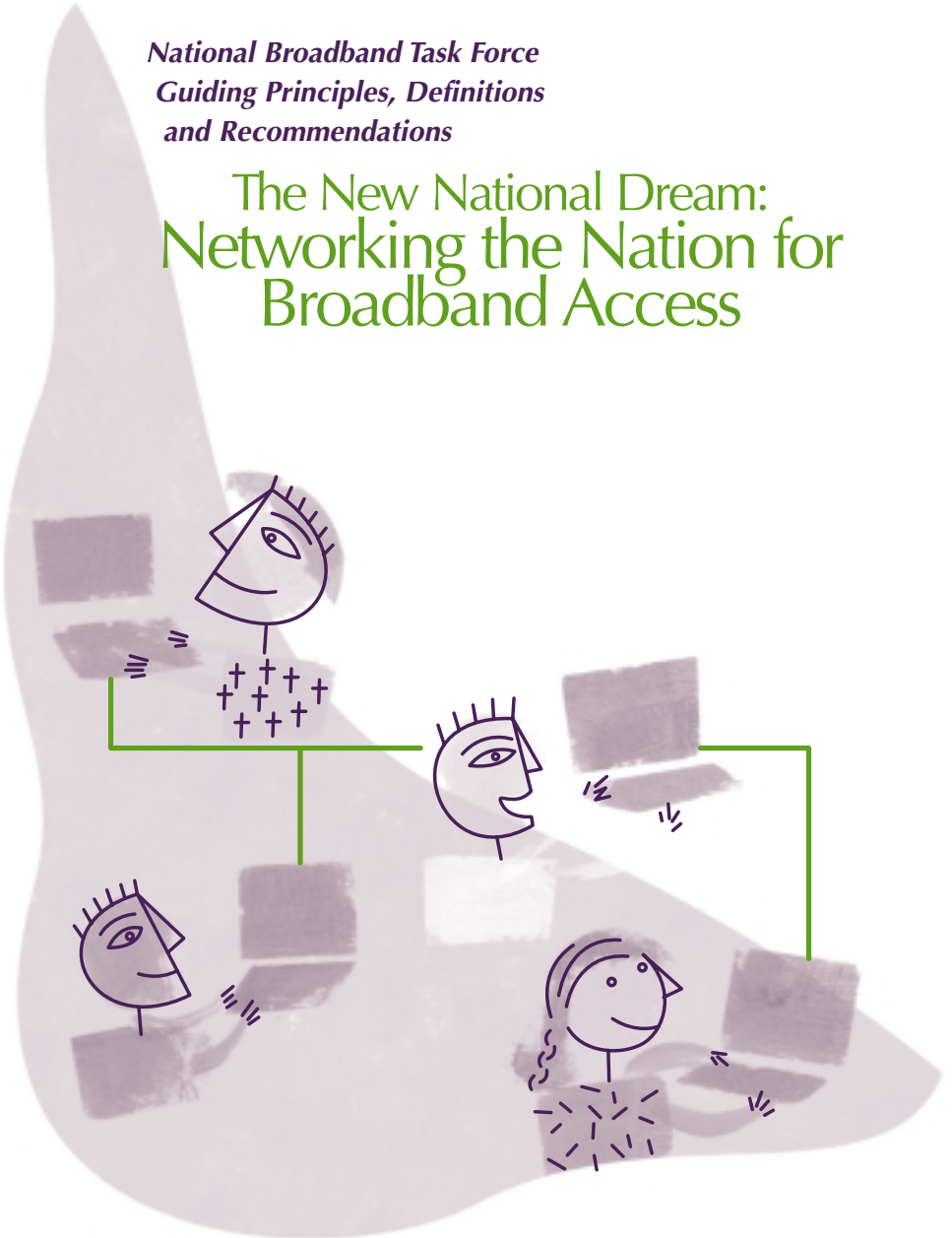*National Broadband Task Force*
Guiding Principles, Definitions
and Recommendations

The New National Dream:
Networking the Nation for Broadband Access

Canada

National Broadband Task Force
Guiding Principles, Definitions
and Recommendations

The New National Dream:
Networking the Nation for Broadband Access

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The New National Dream: Networking the Nation for Broadband Access

The National Broadband Task Force was established in January 2001 by the Minister of Industry. The principal mandate of the Task Force was to map out a strategy for achieving the Government of Canada's goal of ensuring that broadband services are available to businesses and residents in every Canadian community by 2004. In addition, the Task Force was asked to advise the government on issues related to the development and deployment of broadband networks and services in Canada.

We began our work with a sense that we had an opportunity to say something important to Canadians, not only about the need to extend access to broadband networks and services to all Canadians, but also about the future of our country. The discussions, dialogue and debate that took place during and between our meetings confirmed that this was so.

Our main order of business was to identify communities that are unlikely to obtain broadband access as a result of market forces alone by 2004, and to recommend strategies involving collaborative action among all stakeholders to ensure that businesses and residents in these communities have an opportunity to participate in, and benefit from, the broadband revolution.

To carry out this task, we found that we had to cast our net more widely and begin our work by developing a shared vision and a common understanding of what broadband is and why it is important for all Canadians, particularly for those living in First Nation, Inuit, rural and remote communities.

These reflections led us to develop a set of guiding principles, which we used to shape our report and as a touchstone to develop and test our recommendations. Beyond serving these immediate purposes, we hope that the Task Force's principles provide a general framework that will assist the federal government in addressing the issues identified in our report in the coming years.

Our initial reflections also led us to wrestle at some length with the definition of broadband. Although communications engineers have developed precise definitions of broadband in terms of information transmission rates, we found considerable variations in common usage of the term, in Canada and the other countries we studied.

In the end, we thought it was most important to define broadband in terms of what it can do for Canadians – in particular, to improve innovation, economic productivity and competitiveness, the delivery of learning, health care and other public services, and cultural expression.

From this point of view it became clear that, to capitalize on the opportunities presented by the broadband revolution, we need to do more than develop and deploy technology. We also need to create applications and content that will enable Canadians to use the potential of broadband to enhance our performance in these and other areas of national life. In addition, we need to create an environment that will encourage private investment in the development of broadband networks, services and content, while protecting the rights and interests of consumers and content creators.

Although our recommendations are ambitious and comprehensive, we are convinced that they are practical and attainable by 2004. In our view, the implementation of these recommendations will benefit all Canadians and add to our long-established reputation as global leaders in the field of telecommunications technology and applications.

Principles

Overarching Principle

We believe, as a matter of urgency, that all Canadians should have access to broadband network services so that they can live and prosper in any part of the land and have access to high levels of education, health, cultural and economic opportunities.

First Principle: Definition of Broadband

The definitions of "broadband services," "broadband networks" and related concepts should be dynamic and should encompass and reflect changes in technology, applications and the needs of individuals and the potential of broadband to yield great economic and social benefits for Canadians.

Second Principle: Social, Cultural and Economic Benefits

All Canadians should have access to the social, cultural and economic benefits delivered through broadband networks in such application areas as e-learning, e-health, e-government and e-business.

Third Principle: Capacity to Realize Benefits

Recognizing that the primary mandate of the Task Force lies with infrastructure development, accessibility also involves the parallel development of content and services, and individual and community capacity.

Fourth Principle: Equitable and Affordable Access to Broadband

All communities, institutions, businesses and individuals in Canada should have equitable and affordable access to broadband services and to the widest possible range of content and service providers.

Fifth Principle: Role of Communities

Working with other stakeholders, communities should be engaged in identifying local needs and network options, in developing capacity at the local level to use and gain value from broadband networks, and in ensuring that economic development plans and initiatives incorporate broadband services and content.

Sixth Principle: Role of the Private Sector

Working with other stakeholders, and operating under competitive market forces and within the evolving regulatory environment, the private sector should play a leadership role in the development and operation of broadband networks and services for Canadians.

Seventh Principle: Role of Governments

Working with other stakeholders, governments should, in their respective jurisdictions:

- *foster effective competition in facilities, services and content provision, as well as a climate conducive to private innovation and investment;*
- *develop an enabling and effective regulatory environment within which elements of the private sector operate;*
- *assist communities in exploiting opportunities for broadband deployment;*
- *ensure the effective utilization of broadband networks in such public sector activities as e-government, e-health, e-learning and e-research;*
- *stimulate the development, availability and use of Canadian content, including through Canada's public institutions; and*

- *promote awareness of Canadian achievements in the development of broadband infrastructure and use of broadband services.*

Eighth Principle: Broadband Infrastructure Development Programs

Government broadband infrastructure development programs in service of the specific ends described above as well as the general public interest, should focus on those communities where, without government involvement, the private sector is unlikely to deliver such services and should be guided by such considerations as sustainability, technological neutrality, timeliness and affordability, and the value of an open and competitive market.

Ninth Principle: Statement of Priority

In defining broadband infrastructure development initiatives, governments should achieve sustainable broadband access to every public learning institution, public library, health care centre and other designated public access point in the country.

Associated Recommendation

The federal government should accept the principles articulated above as a general framework for addressing the issues identified in the mandate of the Task Force.

Definitions

Definition of Broadband

Based on today's technology and applications, high-speed broadband is defined as a high-capacity, two-way link between end user and access network suppliers capable of supporting full-motion interactive video applications delivered to all Canadians on terms comparable to those available in urban markets by 2004. A minimum symmetrical speed of 1.5 megabits per second per individual user is currently required to support these applications. Leading up to 2004 and beyond, new applications such as peer-to-peer file interactions and video conferencing will increase individual user demand for symmetric bandwidth in the 4-to-6 Mbps range. Public and commercial facilities will require much higher bandwidth, ranging from this minimum to several hundred times more, depending on their size and user needs.

Definition of Community

For the purpose of the Task Force's mandate, a community can be defined as a locality which, among other things, has the following attributes: a name, a distinct physical location and territory, and a population. This definition should be used in conjunction with Statistics Canada's census data to identify communities where broadband services are unlikely to be available without government intervention.

For purposes of program implementation, it is recognized that not all communities meet these definitions and that flexibility will be required in applying these definitions, particularly considering the views of other stakeholders (i.e. levels of government).

The definition of community is geographic for purposes of defining infrastructure gaps. However, it is fully acknowledged that the application and benefits of broadband will encompass communities of interest.

An Action Plan for Achieving Basic Broadband Access by 2004

Overall Priorities

Recommendation 1: By 2004, broadband facilities and services should be deployed to and within all Canadian communities and thus be made available to all businesses and households as well as public institutions.

1.1 Transport link: All communities should be linked to national broadband networks via a high-speed, high-capacity and scalable transport link. This link should be capable of supporting an aggregate of 1.5 megabits per second symmetrical to each end user, as well as support a full range of higher bandwidth requirements to all users and institutions, regardless of location.

1.2 First Nation, Inuit, rural and remote communities: The priority of the broadband deployment strategy should be to link all First Nation, Inuit, rural and remote communities to national broadband networks using appropriate technology. Further, access to broadband connectivity in First Nation, Inuit, rural and remote communities should be available at a price reasonably comparable to that for more densely populated areas.

1.3 Public institutions: The local broadband access infrastructure should be extended to the community's public facilities, including every public learning institution, public health care facility, public library and other designated public access point.

1.4 Connecting businesses and residences: The local broadband access infrastructure should also be extended to local business and residential users, for example, by leveraging broadband infrastructure serving public facilities.

Deployment Models

Recommendation 2.1: Governments should accelerate broadband deployment in those communities where without government involvement the private sector is unlikely to deliver such service, through the use of the supply-oriented infrastructure support model and the demand-oriented community aggregator model, as described in this report, or variations thereof, either independently or as complements of each other.

Recommendation 2.2: Governments should examine their procurement policies to ensure that these policies encourage the participation by their local offices and agencies in local demand aggregation initiatives, and take any appropriate steps to encourage and enable such participation.

Associated Recommendation

The Task Force submits the following estimates to the federal government to indicate the order of magnitude or range of total investments that would be required to meet broadband deployment objectives by 2004 in partnership with other stakeholders. These estimates are based on a number of assumptions, and it is important to note that the proportions to be funded by governments on the one hand, and the private sector on the other, will vary considerably depending on the density and remoteness of the community, and on whether the investment in question is targeted to transport, connecting public institutions or connecting businesses and residences.

- *Transport to unserved communities:* Estimates of total required investment range from $1.3 billion at the lower end to $1.9 billion at the upper end. The latter would involve a higher proportion of fibre as compared to wireless and satellite technologies.

- *Connecting public institutions:* Estimates are in the $500 to $600 million range, again depending on the mix of technologies.

- *Connecting businesses and residences:* Estimates of total required investment vary considerably, not only by reason of the nature and mix of wireline, wireless and satellite technologies assumed, but also as a function of take-up rates on

the part of customers. As a result, numbers developed for the Task Force, based on DSL/cable modem wireline technologies, as well as wireless and satellite, range from $900 million at the lower end to approximately $2 billion at the upper end.

- *Funding for community champions:* On the basis of previous experience with public access programs, we estimated that approximately $50 to $70 million would be required.

In presenting these estimates, the Task Force wishes to emphasize that actual investment requirements can only be determined on the basis of competitive bids for specific deployment projects, and that the private sector share of these investments will be determined through competitive processes designed to capitalize on that sector's willingness to invest.

Fostering Innovation and Use

Addressing the Digital Divide

Equitable and affordable access

Recommendation 3: Government should take leadership to ensure that affordable access to broadband services is available to all Canadians by 2004, through support for:

- public access sites;
- individuals with low income;
- individuals with disabilities and who have other kind of special needs; and
- First Nation and Inuit communities, as a matter of priority.

Public access sites

Recommendation 4: To ensure that public access sites have the capacity to provide access to a wide clientele, governments should:

- ensure the availability, accessibility, affordability and sustainability of access to the Internet and required equipment;
- ensure technical and user support to enable public access sites to maximize their capacity to use and provide broadband services; and
- ensure training and continuous professional development for public access providers.

Raising Awareness and Encouraging Use

Recommendation 5: Governments should work with stakeholders and the private sector to raise the level of awareness of the benefits of high-speed connectivity, and increase usage by individuals, communities, businesses and all levels of government through:

5.1 Research and pilots: Support for research and pilot projects that further the knowledge of the social and economic benefits of broadband, particularly in the areas of learning and skills development, health and health care, government and governance, culture and entertainment, community access and nation building, and e-commerce.

5.2 Individuals: Support for information campaigns and promotion of best practices targeted toward individual citizens.

5.3 Empowering communities: Support to communities, including local and voluntary organizations, local government operations, businesses and citizens working together to:

- help them define strategies to take advantage of broadband services in achieving their economic development objectives and to assist with the implementation of critical community applications;
- develop tools to help decision makers in both the community and businesses to make more informed decisions about the application of technology;
- prepare guidelines, best practices and case studies that will help all communities become "smart"; and
- develop applications.

5.4 Encouraging business use, particularly SMEs: Support and training for businesses to:

- help accelerate adoption of e-business solutions, particularly among SMEs; and
- make them more aware of the critical importance and urgency of implementing broadband technology in their organizations.

5.5 Governments as model users: Governments, including public learning, health and cultural institutions, should act as model users and establish and monitor specific goals for model use of broadband content and services and should provide:

- leadership in providing government services on-line, the popularization of e-governance (e.g. on-line town halls, consultations, participation in the electoral process) and the aggregation of demand through collaboration between government departments at all levels; and
- extra support to public institutions in the areas of equipment, technical support and training, where necessary in order that the benefits associated with access to broadband content and services be effectively realized.

Support for development of necessary skills

Recommendation 6: Governments should work collaboratively to:

- create the conditions necessary for the development, retention and attraction of a Canadian work force with the necessary education and skills to ensure Canada's competitiveness in the networked economy, now and in the future; and

- help users develop skills required to participate in the networked economy. This includes both learning and health service providers, as well as end users.

Innovation in Content and Applications

Innovation in content development

Recommendation 7: Governments should encourage the development of innovative content and services, particularly for learning, health, government, culture, entertainment, community building and e-business. Development of this content should be supported through incentives and direct funding as appropriate, through expanding the mandate of existing programs to incorporate funding for broadband content or by creating new programs.

On-line content and services should:

- reflect the social, economic and cultural perspectives of Canadians;
- respond to significant special needs of users;
- be user-centred and user-friendly; and
- be available in both official languages and in a format relevant to Aboriginal peoples.

Innovation in applications and technology development

Recommendation 8: Innovation in applications, and the underlying technologies, are key to maintaining a strong ICT sector, required to make Canada a leader in the supply and export of broadband technologies. This can be accomplished both through support for private sector innovation and through national research and education networks.

8.1 Applications: The federal government should establish a broadband applications development program aimed at encouraging Canadian ICT firms to develop innovative applications for broadband networks, focusing particularly in the areas of e-learning, e-health and e-business. Care should be taken to ensure that such programs encourage SME participation.

8.2 Research: The federal government should identify ways in which current technology development programs, as well as the work of federal labs and federally supported research activities can be enhanced and focused so as to contribute more effectively to developing the innovative potential and competitiveness of Canada's ICT sector. Priority should be placed on the areas of broadband technologies and applications, as well as on the basic sciences underlying both, such as micro-electronics, photonics and wireless.

Government Leadership

Creating an enabling policy and regulatory environment

Recommendation 9: Government should ensure that framework policies, which safeguard a fair and efficient marketplace for both producers and consumers, adequately reflect changes in the economy and the broadband environment. Further, the policy and regulatory environment governing the telecommunications sector should recognize the pace of technological change and create conditions which promote competition, innovation and the deployment of high-speed networks.

9.1 Information policy: Governments should continually review regulations and practices in the areas of privacy, security, consumer protection, protection against illegal and offensive content, copyright and the legal framework for electronic transactions in cases where it is clear that market forces are not providing adequate direction.

9.2 Foreign investment: To ensure that a maximum amount of capital is made available to finance the expansion of broadband access and to ensure that all industry participants are in a position to partner with government in facilitating broadband deployment, the federal government should conduct an urgent review of foreign investment restrictions for telecommunication common carriers and distribution undertakings with a view to determining whether they are currently restricting or are likely to restrict increased industry participation in the competitive deployment of broadband infrastructure in Canada. This review is only intended to include restrictions on foreign investment in telecommunication common carriers and distribution undertakings.

9.3 Capital recovery: The Canadian Radio-television and Telecommunications Commission (CRTC) should ensure that its decisions, in matters which affect revenues, reflect the particularly heavy demands and challenges facing facilities providers in terms of capital generation and capital recovery.

9.4 Rights of way: All levels of government should examine rights-of-way issues to ensure that they do not serve as a barrier to broadband deployment.

9.5 Access to content and service providers: Government policy and regulation should foster the widest possible access to content and service providers, with a view to enabling consumer choice.

Branding Canada

Recommendation 10: The federal government should leverage Canada's broadband technologies and applications strengths and success stories to build Canada's reputation as a global leader.

Associated Recommendation

The Task Force recognized that investment in innovation and use of broadband networks, including innovative services, applications, technologies and content, as well as public access and individual and community capability development, is absolutely essential to capturing the economic and social benefits associated with broadband.

We did not develop specific investment models relating to our substantive recommendations in these areas, in part because the programs and initiatives through which they would be implemented are distributed across all levels of government and the private sector. Significant total investments in these areas must be made by all of these stakeholders if the goals that we have defined are to be met.

The Task Force recommends that the federal government provide leadership in the collective effort to respond to opportunities and needs arising from the deployment of broadband networks and services, including those also addressed by other task forces, advisory committees and roundtables, by making substantial and increasing budgetary investments through new and existing programs.

Overall Associated Recommendation

As the federal government prepares to respond to the Task Force report, it should seek views from partners at all levels on how recommendations should be implemented.

NATIONAL BROADBAND TASK FORCE RECOMMENDATIONS

ACTION PLAN FOR BASIC BROADBAND ACCESS

1. **Overall Priorities**
   1.1 Transport link
   1.2 First Nation, Inuit, rural and remote
   1.3 Connecting public institutions
   1.4 Connecting businesses and residences

2. **Deployment Models**
   2.1 Models
   2.2 Role of government procurement

ADDRESSING THE DIGITAL DIVIDE

3. **Equitable and affordable access**
4. **Public access sites**

RAISING AWARENESS AND ENCOURAGING USE

5. **Awareness and use**
   5.1 Research and pilots
   5.2 Individuals
   5.3 Empowering communities
   5.4 Encouraging business use
   5.5 Governments as model users
6. **Support for development of necessary skills**

INNOVATION IN CONTENT AND APPLICATIONS

7. **Innovation in content development**
8. **Innovation in applications and technology development**
   8.1 Applications
   8.2 Research

GOVERNMENT LEADERSHIP

9. **Creating an enabling policy and regulatory environment**
   9.1 Information policy
   9.2 Foreign investment
   9.3 Capital recovery
   9.4 Rights of way
   9.5 Access to content and service providers
10. **Branding Canada**

ASSOCIATED RECOMMENDATIONS

1. **Accept principles as framework**

2. **Consider investment estimates**
   - broadband deployment
   - innovation and use

3. **Seek views from partners on implementation**