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PREPARING CANADA FOR A DIGITAL WORLD

Information Highway Advisory Council



PHASE II

CONCLUSIONS AND RECOMMENDATIONS

April 23, 1997

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1997

ECONOMIC GROWTH AND JOB CREATION STEERING COMMITTEE

Policy Issue

"As a stimulus to job creation and growth, what measures are needed to ensure Canadians can exploit the potential of the Information Highway in areas such as electronic commerce, lifelong learning and telemedicine, and translate them into opportunities for Canadian industry to develop new products and services?"

Background Studies, Reports

- *Jobs in the Knowledge-based Economy: Information Technology and the Impact on Employment*, Conference Board of Canada.
- *Towards a Canadian Health Iway: Vision, Opportunities and Future Steps*, CANARIE Inc.
- *Jobs and Growth in the Knowledge-Based Economy*, Information Highway Advisory Council (IHAC) Secretariat.
- *SMEs, the Internet and Electronic Commerce*, IHAC Secretariat and Canadian Federation of Independent Business.
- *Status and Evolution of Canada's Information Infrastructure: Report to the Information Highway Advisory Council*, Max E. Melnyk.

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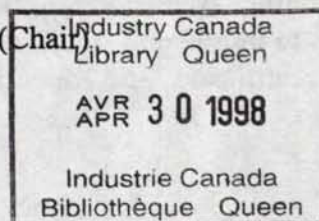
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INFORMATION INFRASTRUCTURE

CONCLUSIONS AND RECOMMENDATIONS

[At its meeting on April 3-4, 1997, the Information Highway Advisory Council approved the following conclusions and recommendations flowing from the work of the Steering Committee on Economic Growth and Job Creation.]

At an early stage in its deliberations, the Advisory Council agreed on the paramount importance of creating an environment which was favourable to private sector investment in infrastructure and innovation, and called on government to establish a consistent policy and regulatory regime based on competition and consumer choice. In response to this challenge, the government has recorded an impressive number of achievements over the past three years, employing its licensing and regulatory powers to permit the introduction of new technologies and services and to facilitate competition and convergence across the communications and information technology industry as a whole.

The Council strongly supports the many governmental initiatives, taken domestically and in the international arena, which have established in Canada one of the world's most progressive, forward-looking regulatory regimes governing the Information Highway.

Despite the progress to date, there is a continuing need for government to adapt its policy and regulatory regimes to the rapid pace of technological change. **To accommodate the increasing convergence of industries and technologies, the federal government must: (i) assume its responsibility to complete those elements of the regulatory framework necessary for fair, sustainable competition; (ii) continue to move towards "technology neutrality" in its policies and regulations affecting the Information Highway; and (iii) ensure that policies fully support the integration of technologies to implement solutions and applications at the sectoral level, such as in financial services, health care, and education (Rec. 2.1).**

Building the Infrastructure

Despite the rapid advances in policy and regulation governing the Information Highway, the sense of urgency registered by the Council in its 1995 report remains. As other countries around the world have begun to appreciate the central role of the Information Highway, there has been increasing international priority attached to investment in information infrastructure at all levels and in all sectors. Cross-national studies measuring network modernization, service development, demand growth and technology diffusion show Canada's historic leadership position in communications challenged by its major trading partners in North America, Europe and Asia. **Consequently, in the Council's view, it is now imperative that government and the private sector commit themselves fully to building the high quality, affordable information infrastructure necessary to maintain and strengthen Canada's position in the global information economy (Rec. 2.2).**

The Information Highway is the major enabling infrastructure for the knowledge economy. The availability of a high quality information infrastructure in all parts of Canada will be a determining factor in the competitiveness of Canadian industry at home and overseas. As outlined in *Connection, Community, Content*, the Advisory Council believes the private sector in Canada must take the lead in constructing the Information Highway, and must take advantage of the investment opportunities that are emerging in the movement toward a fully competitive market environment. **Commitments to Canada's future in the form of investments in network modernization, research and development and technology deployment throughout the economy are a key factor in enabling Canadian industry to compete in the global marketplace. In the Council's view, these investments must remain a priority for private and public sector alike (Rec. 2.3).**

The challenges and opportunities offered by today's global communications industry are magnified by the recent Agreement on Basic Telecommunications concluded by the World Trade Organization (WTO) in February of 1997 under the General Agreement on Trade in Services (GATS) framework. Under the telecommunications services Agreement, many countries will move to open their markets to allow greater competition and Canada has committed itself to complete the liberalization of its domestic and international markets. The Advisory Council believes that such an agreement brings many advantages to the building of a global information infrastructure of benefit to all countries, and fully supports the Canadian offer, and the manner in which the views of the private sector were sought and reflected in the position tabled in Geneva. In particular, the Council wishes to register its support for the settlement on the issue of ownership of facility-based telecommunications carriers. **In the opinion of the Advisory Council, the requirement of Canadian ownership and control of communications infrastructure, which has been the foundation for Canada's telecommunications and broadcasting policies for many years, should remain a central feature of our strategy for development of the Information Highway (Rec. 2.4).**

Research and Development

Over time, the quality of Canada's information infrastructure will depend on its capacity for innovation. In *Connection, Community, Content*, the Advisory Council made a series of 35 recommendations aimed at strengthening Canada's capacities in the area of research and development. **As argued in its previous report, the Council continues to believe that an environment for sustainable competition remains the fundamental requirement for aggressive private sector investment in R&D (Rec. 2.5).**

With the phenomenal growth in computer networking fuelled by the Internet and the World Wide Web, the necessity for concentration of research resources in advanced networking and broadband technologies has grown. Canadian industry already has enormous strengths in this area, and future efforts should build on these strengths. **In supporting science and technology, the federal government should attach priority to Information Highway research aimed at enhancing the capacity, interoperability and interworking of high speed networks, and related applications (Rec. 2.6).**

While creating the most favourable environment possible for private sector research and innovation is essential, there also exists the need for close collaboration between research efforts in the private and public sector. CANARIE remains one of the primary instruments for cooperation in Information Highway research and innovation. **Consistent with its *Proposals for an Information Infrastructure Program* released in December 1996, the Council recommends that the federal government join with the private sector to support innovation in advanced networking for the Internet through increased, longer term investment in CANARIE and other initiatives such as CA*net II (Rec. 2.7, Joint recommendation with the Internet Steering Committee, Rec. 3.2).**

Furthermore, the Council considers the wiring of universities, public laboratories and private research establishments to be a pre-condition for ensuring optimal utilization of the country's science and research resources. **For this reason, the Council welcomes the increased support for science and technology announced in the February 1997 Federal Budget, and recommends that the federal government, in its support for innovation in the Canadian economy, should attach priority to investments in advanced networking for research institutions (Rec. 2.8, Joint recommendation with the Internet Steering Committee, Rec. 3.3).**

In its previous report, the Council has strongly supported a continuing role for government laboratories in research, specifically the Communications Research Centre (CRC), and called for their efforts to be closely coordinated with and complementary to research taking place in the private sector. **The Council recommends that the CRC, in the context of its strategic planning, prioritize its research efforts and resources around those areas which are of critical importance to securing the competitive position of Canada's high technology sector (Rec. 2.9). The Council further recommends that the CRC's skills and expertise be made available to advise the government on information technology acquisition and implementation (Rec. 2.10).**

In addition, governments generally can play an important catalytic role in stimulating the development of Canada's information infrastructure through strategic investments which expand the capacity of public institutions to take full advantage of the Information Highway. In its December 1996 paper which proposed a program in support of information infrastructure, the Council outlined a number of specific areas in the fields of education, health, research, and community development where the building of Canada's network infrastructure could benefit from public sector resources. The Council was pleased to note in the February 1997 Federal Budget a number of initiatives, most notably the Canada Foundation for Innovation, the Canada Health Information System and the expanded Community Access Program (CAP) which parallel its December 1996 proposals. **The Council encourages governments to continue to consider selective, strategic investments in infrastructure as a necessary contribution to the overall development of Canada's Information Highway (Rec. 2.11).**

Setting the Standards

In *Connection, Community, Content*, the Council made a number of recommendations for government to work closely with industry in developing open international standards for the Information Highway. As pointed out in *Building the Information Society: Moving Canada into the 21st Century*, "only open standards, universally adopted within Canada and around the world, will allow Canada's Information Highway to develop into an interconnected and interoperable network of networks, where access to one network means access to all.

To strengthen Canada's voice and impact on issues of network and device interoperability, the federal government should seek a stronger, more cooperative set of arrangements with Canadian industry to put forward Canadian positions to international standards bodies (Rec. 2.12). At the same time, this will help in the consolidation of Canadian views to enable the implementation of open standards in Canada.

In response to the Council's recommendations, Industry Canada and the Telecommunications Standards Advisory Council of Canada (TSACC), a government/industry partnership, have undertaken a comprehensive study to develop a "standards roadmap" for Canada's Information Highway. The Council has noted that such a study is being conducted and agrees with its stated objective of using standards to promote open and fair competition, while ensuring they result in no undue distortion of the market or impede innovation.

To promote the construction of Canada's Information Highway based on the principles of openness and interoperability, the Telecommunications Standards Advisory Council of Canada should continue its work to develop and continuously enhance the standards roadmap. This work should be considered a basis for deciding the specification of the key points of interconnection and interoperability (Rec. 2.13).

The standards roadmap and its subsequent versions should be communicated to all parties involved in the development of Canada's Information Highway (Rec. 2.14).

Measuring the Knowledge Economy

As these actions proceed, it is the Council's view that the federal government, along with industry, must equip itself with the means to measure Canada's performance in moving toward the information society and its status as a competitor in the global knowledge economy. The Council believes that reliable performance indicators are not only necessary for the purpose of gauging Canada's progress in building the Information Highway but also an indispensable tool for effective economic policy. **The Council calls on Industry Canada and other federal departments to work closely with Statistics Canada, and within international organizations such as the OECD, to continue and complete their efforts to develop reliable measurement instruments which are appropriate to a knowledge-based economy. This could take the form of a system of "accounts" for the Information Highway, based on key economic and social indicators relating to infrastructure investment, employment and technology**

diffusion (Rec. 1.1; See also Rec. 7.8, Steering Committee on Workplace Issues and Lifelong Learning).

Steering Committee on Economic Growth and Job Creation, April 1997

INTERNET STEERING COMMITTEE

Policy Issue

"What is the role of the Internet in the Information Highway, and how should governments and the private sector respond to ensure that the commercial, social and cultural benefits are realized by all Canadians?"

Background Studies, Reports

- *The Internet in Canada - A Background Paper for the Information Highway Advisory Council, Industry Canada.*
- *The Internet: A Snapshot of Cyberspace, IHAC Secretariat.*

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INTERNET STEERING COMMITTEE

CONCLUSIONS AND RECOMMENDATIONS

[At its meeting on April 3-4, 1997, the Information Highway Advisory Council approved the following conclusions and recommendations flowing from the work of the Steering Committee on the Internet.]

The Internet has emerged as the central component in the evolution of the Information Highway, both in Canada and internationally. Indeed, the scope, accessibility, and openness of today's Internet is widely regarded as a model for the Information Highway of the future and represents at least a partial realization of the vision which IHAC articulated in *Connection, Community, Content*.

While the growth of the Internet has been rapid in Canada, in the business and academic worlds particularly, many issues surround its future development, especially in creating the conditions that will capture the full potential of this phenomenon in economic and social terms. **In the Council's view, the key areas requiring policy attention involve: (i) the means to ensure the growth, expansion and innovation of the network infrastructure on which the future of the Internet in Canada is based; (ii) the measures which can be taken by governments and the private sector to maximize the contribution that the Internet can make to economic development and job creation; and (iii) the ways in which governments can address the key social and cultural issues that surround the growth of the Internet.**

Internet Infrastructure

With the increasing deployment of the Internet for business and social purposes, especially use of the World Wide Web, the future capacity of the network as currently designed to handle efficiently the increasing traffic load has become a matter of concern. If the potential of the Internet as an economic and general purpose communications medium is to be realized, it is essential that the network architecture, especially the telecommunications network infrastructure supporting public access to the Internet, be adapted quickly to accommodate the needs of the user community. **In this light, the Council recommends that CANARIE and Industry Canada bring together government and private sector representatives, including telecommunications suppliers, major institutional and business users, and Internet service and software providers, to review the major network architecture issues relating to the Internet and to determine what steps might be needed in the immediate future to respond to problems of network capacity, congestion and bottlenecks (Rec. 3.1).**

While public investment in advanced networking infrastructure has been critical to the emergence of the Internet, the Council believes that the current trend toward greater private sector involvement and an increasingly commercial basis for its operation is a positive and

necessary step in its evolution. As more powerful and effective networking technologies appear on the horizon, however, it will be necessary to ensure that the underlying infrastructure for the Internet in Canada remains at the highest level of technological capability. The Council considers the successful partnering of public sector with private sector initiatives that characterized the earlier stages of Internet development remains a useful model for the future.

Therefore, consistent with its Proposals for an Information Infrastructure Program released in December 1996, the Council recommends that the government join with the private sector to support innovation in advanced networking for the Internet through increased, longer term investment in CANARIE and other initiatives such as CA*net II (Rec. 3.2, Joint recommendation with the Economic Growth and Job Creation Steering Committee, Rec. 2.7).

Furthermore, the Council considers the wiring of universities, public laboratories and private research establishments to be a pre-condition for extracting the full benefit of advanced networks such as the Internet. In this respect, the Council welcomes the increased support for science and technology announced in the February 1997 Federal Budget, specifically the establishment of the Canada Foundation for Innovation. **The Council recommends that, to further support innovation in the Canadian economy, the federal government should attach priority to investments in advanced networking for research institutions (Rec. 3.3, Joint recommendation with the Economic Growth and Job Creation Steering Committee, Rec. 2.8).**

The advancement of the Internet in Canada will also increasingly depend on the development of the technology skills essential to ensure its growth and operation. This reinforces the importance of the Council's conclusions in its first report, that a highly skilled information technology workforce is a critical component to Canada's competitiveness and its success in building a knowledge economy. In addressing the issue of Canada's human resource capabilities high priority should be given to the skills necessary for the evolution of advanced networking in Canada. **In this context, the Council recommends that Industry Canada and Human Resources Development Canada, with the involvement of key stakeholders such as technology associations and educational and training institutions, determine the magnitude of the problem of information technology skills in Canada. Building on the results of existing activities, they should undertake further research and analysis as required, and publish a report on their findings and suggesting policy measures, as appropriate (Rec. 3.4, Joint recommendation with the Economic Growth and Job Creation Steering Committee, Rec. 6.4).**

Economic Benefits

In the economic domain, despite the rapid take-up of Internet and Web-based services by business, the future contribution of the Internet to wealth and employment within the economy as a whole will depend on the generation of higher value-added transactional services and new information-based products. **Accordingly, the Council considers that the need to strengthen**

the emerging role of the Internet as a platform for electronic commerce should be the central economic strategy for promoting the knowledge-based economy. In the Council's view, this demands a reinforcement of government efforts, both nationally and internationally, in the following areas: (i) development and application of open networking standards for interoperability and interconnection; (ii) clarification of the marketplace rules in areas such as privacy, copyright and consumer protection; and (iii) removal of the legal, policy and regulatory impediments to the conduct of electronic commerce (Rec. 3.5).

An uncertain climate for investment in innovative, new products and services could be one of the most damaging factors affecting dynamic growth in Internet markets. The Council considers it vitally important to provide suppliers and consumers with the greatest degree of certainty with respect to the regulatory regime which will govern the products and services made available via the Internet. **The Council believes it necessary at this time for the government to clarify its intentions regarding formal regulation of Internet-based services. Currently, the Council questions the effectiveness of any form of licensing of Internet-based services or the imposition of formal content rules or quotas. At the same time, the Council believes that the rapid development of information technology has surpassed the present regulatory framework and the Council urges the government to explore other potential instruments for achieving policy objectives regarding the Internet (Rec. 3.6).** Not only would the imposition of traditional regulation be too technically complex and perhaps impossible to enforce, it could also adversely affect the rapid growth of Internet-based services and content. **The Council also cautions the government with respect to taxation of the Internet, as targeted fiscal measures may also hinder the development of the Internet and its contribution to economic growth (Rec. 3.7).**

Government can also play a vital role in promoting Internet diffusion throughout the Canadian economy by expanding the use of the Internet for the delivery of government services and information. **The Council recommends that the federal government expand its use of the Internet for the delivery of government services and information to the Canadian public, the small business community and to other governments, in a manner which accelerates the roll-out of the Internet, widens public access and digital literacy, and enhances consumer value related to Internet use (Rec. 3.8, Joint recommendation with the Economic Growth and Job Creation Steering Committee, Rec. 6.7).**

Social and Cultural Issues

From a social and cultural perspective, concerns have arisen in many quarters regarding some side-effects of the growth of the Internet that are perceived to be harmful to individual and community well-being. In this regard, the Council is aware of and shares the increasing concern expressed regarding offensive content, fraud and other illegal activities on the Internet. Both as a means for conducting business as well as social intercourse, it is imperative that application of the rule of law permits an orderly arrangement of cyberspace for private and public use. **The Council strongly supports efforts by governments to clarify the applicability of federal and provincial laws of general application, e.g. the *Criminal Code*, to activities undertaken via**

the Internet, and calls on governments to take the necessary steps to ensure their enforcement through appropriate criminal and/or civil remedies (Rec. 3.9).

The Council also supports the development and application of voluntary guidelines to check potential abuses of the Internet, such as the steps recently taken by the Canadian Association of Internet Providers (CAIP) to develop a code of conduct for its membership (Rec. 3.10).

The impact of the Internet as a global medium for the provision of information, education and entertainment has raised a wide range of public policy issues relating to content production and distribution and impacts on cultural values and diversity. The Council believes that the natural evolution of the Internet will lead toward even greater openness and access for content producers and consumers alike, and therefore can be expected to foster diversity in the expression of cultural values. **While the Internet currently provides Canadians with a wide range of opportunities to share their cultural values using the Information Highway, governments and the private sector should work together to take maximum advantage of these capabilities as a means of strengthening Canada's linguistic and cultural reality, by ensuring that: (i) the appropriate environment and incentives exist to encourage Canadian content providers to maximize their opportunities to employ the Internet for the delivery of content-intensive products and services; and, (ii) the Internet's protocols, search engines and navigational tools, as well as its governing standards, permit open access and use for all forms of cultural expression (Rec. 3.11; See also Canadian Content recommendations).**

Access

Widespread public access to the Internet at the individual, institutional and community level is a pre-condition for producing a healthy consumer market for commercial products and services and for sustaining the viability of a business environment on the Internet. **It is imperative therefore for government to focus its access policies on the Internet and take the necessary steps to accelerate access in all regions of the country, as a means of broadening the market potential for Internet-based services and realizing its social benefits (Rec. 3.12; See also Access recommendations).**

The current and future role of the Internet as an instrument for citizen participation has also been widely discussed. **The Council supports the efforts of government and advocacy groups to widen the opportunities for citizen involvement in society through the active use of the Internet (Rec. 3.13; See also Access recommendations).**

Internet Steering Committee, April 1997

ACCESS STEERING COMMITTEE

Policy Issue

"In an environment that will see local monopolies replaced by competition, and in the context of ongoing work to develop a national access strategy, what measures are needed by governments and the private sector to ensure affordability and equity in Canadians' access to essential services?"

Background Study

Access to the Internet: A Community Based Approach, Nordicity Group Ltd. (Sandi McDonald).

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ACCESS STEERING COMMITTEE

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

[At its meeting on April 3-4, 1997, the Information Highway Advisory Council approved the following conclusions and recommendations flowing from the work of the Steering Committee on Access.]

Access to the Information Highway is critical to Canada's future as an information society and its success as a knowledge economy. In *Building the Information Society*, the federal government indicated its intention to develop a national access strategy, reflecting the four access principles enunciated in IHAC's first report, *Connection, Community, Content*. **The Council urges the government to meet its commitment to articulate such a strategy before the end of 1997 (Rec. 4.1).**

As the Information Highway has become more pervasive and significant in the economic, social and cultural life of Canadians, the scope and complexity of the access issue has increased. In consequence, an effective strategy dealing with access to the Information Highway must address at least three areas of public policy concern - (i) ensuring access to basic telecommunications and broadcasting, which represent Canadians' "on-ramps" to the Information Highway; (ii) promoting access to new networks and services that are appearing on the Information Highway, especially the Internet; and (iii) establishing a formal mechanism for defining access in a knowledge society. The Council believes the government must set forth clear directions and take appropriate action in all three of these areas. Consistent with its mandate to review progress, as well as to advise the government on access, the Council has concluded that much has been accomplished in this regard, but a great deal of work still needs to be done.

Access to Basic Network Services

In relation to basic network services in telecommunications and broadcasting, Canadians have achieved one of the highest levels of universality in the world. International data on penetration rates for telephones, broadcast services and cable television show Canada at or near the top in all three areas.

In the broadcasting area, the Council praises the Canadian Radio-television and Telecommunications Commission (CRTC) release in March 1997 of a policy framework for fair competition in broadcast distribution services and urges the Commission to meet its deadline of early 1998 for the promulgation of regulations.

In telecommunications, the Council expresses satisfaction with CRTC decisions and planned proceedings intended to sustain universal access at affordable rates. **The Council urges the CRTC to act quickly, and with appropriate attention to detail, on its expressed determination to monitor closely trends in telephone penetration rates and affordability**

indicators and to intervene when and if the principle of universality is threatened (Rec. 4.2.).

Access to the Information Highway

In the Council's view, the government should emphasize access to the Internet as a first step in ensuring equitable participation in a knowledge society. Any policies assessing access to the Information Highway must address access to the Internet (Rec. 4.3). Though unable to determine whether access to the Internet will be a problem, the Council calls on the federal government or the CRTC to monitor such access, focusing on people in remote areas and people with low incomes and disabilities. Statistics Canada should also develop ways to measure such access and collect and publish the statistics (Rec. 4.4). Because effective access to content largely depends on speed of access, the government, in cooperation with industry, CANARIE and public interest groups, should monitor deployment of high-speed Internet access and the arrival of more video-based services on the World Wide Web (Rec. 4.5).

A key concern of the Council is the promotion of public access to the Internet. In the case of rural and remote areas, the Council recommends: that the government and the CRTC work with industry to develop the means to make Internet access available without long-distance charges (Rec. 4.6); and that the government in cooperation with industry proceed with the Advanced Satcom Initiative, with a view to encouraging satellite provision of Internet access to schools, libraries, community centres and other local institutions (Rec. 4.7). The Council welcomes the decision in the February 1997 Budget to put an additional \$30 million into an expansion of the Community Access Program (CAP), and underscores the importance of the goal of establishing public access sites by the year 2000 in the 5,000 rural and remote communities with populations between 400 and 50,000 (Rec. 4.8). Given the key question of how to sustain these sites in the long term, the government should attach priority to providing the resources sufficient both to install and sustain community access points in locations to which the general public has easy access (Rec. 4.9). Since the majority of people with low incomes live in cities and can be reached without exorbitant cost, the Council recommends that CAP receive additional resources to extend community access sites on a sustainable basis to urban neighbourhoods lacking such sites (Rec. 4.10).

The Council believes the existence of inclusive electronic public spaces is vital to the democratic health of the emerging knowledge society. Thus, the Council calls on governments to work closely with industry and public interest and consumer groups to make community networks and public spaces sustainable on the Information Highway (Rec. 4.11), and recommends that the federal government develop policies and procedures to contribute financially to non-profit Internet access providers for the electronic provision of government services and information to the general public (Rec. 4.12). While urging government to move to electronic provision of services and information, the Council

emphasizes the continuing need for government to provide information and services in traditional forms to citizens without access to the Internet or public access sites (Rec. 4.13).

In the Council's view, digital literacy is a key precondition for access to the Information Highway and success in the emerging knowledge society. **To this end and in keeping with the present SchoolNet target of ensuring every school in Canada has full Internet access by the end of 1998, the Council calls on all governments, the educational community and the private sector to work together to meet this goal (Rec. 4.14). The Council also urges governments to encourage development of high-quality on-line tutorial and community-based instruction available via public access sites, community networks and the Internet (Rec. 4.15), and to provide resources to every publicly funded library to support sustainable public access sites and learning of basic computer and Internet skills by people who would not otherwise be served (Rec. 4.16).**

In September 1995, IHAC stated that Canadian content should have a prominent place and "eye-level... shelf-space" on the Information Highway. **While noting progress in this respect, the Council recommends that Canadian Internet access providers be encouraged to place Canadian reference points on their home pages (Rec. 4.17), and that the federal government resource existing programs, and develop partnership strategies with others, to develop more Canadian content, particularly in new media services (Rec. 4.18). The Council also notes the relative lack of French-language content on the Internet and calls on governments to work closely with industry, and in cooperation with Francophone communities, to develop a critical mass of French-language content and services for the Internet (Rec. 4.19).**

Without availability of various alternative methods of access, the Internet can be inaccessible to people with disabilities. Universal design allows for this variety in methods of access. **The Council recommends that the government carefully monitor Internet developments in this respect (Rec. 4.20); and fund an award program to honour achievements in design of assistive devices and in application of universal design principles in communications products, systems and services (Rec. 4.21).**

Defining Access in a Knowledge Society

The Council believes the fundamental social and economic transformations attendant upon Canada's transition from an industrial to a knowledge society constitute a strong argument for bringing to bear in a focussed way on the access issue viewpoints beyond those of the federal government and the usual participants in the CRTC regulatory process. Decisions on what Information Highway services should be considered essential will have far-reaching ramifications and should be informed by the viewpoints of industry and the community at large in all its diversity. **The Council, while reluctant to create another advisory body, believes on balance the issue is so important that the federal government should create a national access advisory committee, reporting to the Ministers of Industry and Canadian Heritage, to advise on emerging access requirements and what services will be essential in a**

knowledge society. The advisory committee should include balanced representation from industry and the non-profit sector (Rec. 4.22). Its operation should be fully consistent with the constitutional and statutory responsibilities of the federal government and the CRTC with respect to communications policy and regulation.

Access Steering Committee, April 1997

CANADIAN CONTENT AND CULTURAL IDENTITY STEERING COMMITTEE

Policy issue

“In a global competitive environment, what will be the best means of supporting the production, distribution and promotion of Canadian content products and services?”

Background Studies, Reports

- *Reinforcing Canadian Sovereignty and Cultural Identity on the Information Highway: A review of Policy Issues and Options, Paul Audley & Associates Ltd.*
- *The Economics of Culture and Canadian Content in the Information Society, KPMG.*
- *Strategy and Action Plan for Developing French-Language Content on the Information Highway, François-Pierre Le Scouarnec.*

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CANADIAN CONTENT AND CULTURAL IDENTITY STEERING COMMITTEE

CONCLUSIONS AND RECOMMENDATIONS

[At its meeting on April 3-4, 1997, the Information Highway Advisory Council approved the following conclusions and recommendations flowing from the work of the Steering Committee on Canadian Content and Cultural Identity.]

Ensuring that the Information Highway reinforces Canadian sovereignty and cultural identity remains one of the government's primary policy objectives. In this light, the Council reviewed existing policies and programs and identified a number of areas requiring further government action designed to support the creation, production and financing as well as the distribution and marketing of quality products and services that will foster the ongoing national dialogue between Canadians, and at the same time promote job creation and economic growth in Canadian content production.

An Overall Government Strategy

As a first step, the Council recommends that the Government of Canada, in consultation with the private sector, develop, before the end of 1997, a stronger, broader and more integrated strategy that will ensure that a wider range of high quality Canadian content is available that reflects the distinctive cultural realities and linguistic duality of Canada (Rec. 5.1).

Given the current fiscal environment, the government should, in its policies supporting cultural content, continue to emphasize content that reflects the distinctive character of Canadian society and its heritage, and content that represents the work of Canadian creators - reflecting Canadian attitudes, opinions, ideas, values and artistic creativity, displaying Canadian talent, and offering information and analysis concerning Canada and other countries from a Canadian point of view (Rec. 5.2).

The government should review existing policy measures to strengthen Canada's cultural identity to assess their on-going effectiveness in achieving their intended objectives. New measures should be based upon, and designed to achieve, well defined goals (Rec. 5.3).

In cooperation with Canada's content industries and Statistics Canada, the government should establish key industry indicators and definitions with regard to both established and new forms of Canadian content, in order to make available data that accurately reflect the size and financial condition of the companies that produce and distribute Canadian content in English and French, and the degree to which different types of Canadian content are able to recover their costs from domestic and export sales (Rec. 5.4).

The Role of Creators

The Council feels that the role of creators and their ability to take advantage of new and emerging Information Highway opportunities should be a key element of the government strategy.

To foster excellence and act as a catalyst to innovation and the development of highly-skilled personnel in the Canadian content development sector in all regions of Canada, the federal government, in collaboration with provincial/territorial governments and the private sector, should invest in research projects linking artists, information industries, universities and research centres (Rec. 5.5).

To foster the development of highly skilled personnel, the Cultural Human Resources Council should be encouraged to initiate research that would provide an inventory of multimedia educational and training programs throughout Canada and an assessment of existing skill requirements (Rec. 5.6).

Producing for Canadians

The Council feels that, because of the relatively small domestic market, the government strategy must recognize that financing and producing products designed to foster dialogue between Canadians will rarely generate large export revenues and will therefore continue to require public support. For this reason, the Council believes that the government should focus its support on producing Canadian cultural content that reflects Canadian identity and recommends the following actions.

The precedent established in creating the Canadian Film or Video Production Tax Credit should be extended to investments in Canadian-authored books, Canadian-content sound recordings, and Canadian-content multimedia productions (Rec. 5.7).

Given the need to generate and promote more Canadian content for the Information Highway and recognizing the success of CBC radio in exploiting this new medium, **the Council recommends that the federal government utilize Canadian national cultural institutions to generate new services and products for the Information Highway (Rec. 5.8).**

The Canada Television and Cable Production Fund (CTCPF) should be extended indefinitely as a federal cultural program and federal funding should be sustained at \$150 million annually (including \$50 million from Telefilm Canada). The CTCPF should also administer all funds that broadcasting distribution undertakings are required by the CRTC to contribute to independently-administered production funds (Rec. 5.9).

A Canadian multimedia fund should be established to support the development, production, distribution and marketing of Canadian cultural and educational multimedia products that foster a knowledge and understanding of Canada and create a greater

understanding of Canada's cultural identity. The program should provide assistance in the form of loans and equity financing, with annual funding from government of at least \$50 million (Rec. 5.10).

Reaching Canadians

While the government has always played a major role in the distribution of Canadian content in the broadcasting system, its role with regard to other cultural industries has focused primarily on production. The Council now believes the government must play a broader role in marketing all Canadian products and services to Canadians.

The government should take the necessary measures to ensure that in new media, as in established media, Canadian advertising supports Canadian media content (Rec. 5.11).

Through the government's existing programs of business development assistance, increased emphasis should be given to assisting Canadian companies producing multimedia content. This should include the allocation of sufficient resources of the Business Development Bank of Canada to assist in meeting the capital requirements of the expanding multimedia sector (Rec. 5.12).

Recognizing the degree to which the creation and distribution of content on the Information Highway will be affected by the level of copyright protection provided, **the Government of Canada should move quickly to respond to the World Intellectual Property Organization's 1996 Copyright and Performances and Phonograms Treaties (Rec. 5.13).**

Government policy should support the distribution and promotion of Canadian content as well as its creation and production. Marketing Canadian choices to Canadians should be a policy priority. These efforts should take a variety of forms and reflect participation by government, private industry and consumers (Rec. 5.14).

The Council further believes that the government should stimulate the development and use of Canadian navigational systems in both English and French that will ensure meaningful access to Canadian content, at "eye level", on the Information Highway (Rec. 5.15).

Finally, the Council is of the view that government should play an active role in directly promoting Canadian culture within Canada through its Web sites, heritage institutions, cultural agencies and publications (Rec. 5.16).

Seizing Export Opportunities

The Council believes that a vibrant Canadian cultural environment at home will improve Canada's global competitiveness and foster the success of Canadian content abroad. **The Council recommends that producers of all types of Canadian content in existing and new media**

receive increased assistance through existing federal export marketing programs, including improved access to market information, inclusion on Team Canada missions, and assistance through Canada's trade development offices and programs. Particular attention should be given to the promotion of content that reflects the highest level of Canadian creative talent and projects the image of Canada abroad (Rec. 5.17).

Reflecting Linguistic Duality

The Council is aware that English has become the dominant language on communications networks such as the Internet and recognizes the need for measures to strengthen the presence of the French-language on the Information Highway. The federal, provincial and territorial Ministers responsible for the Information Highway have also agreed that achieving a critical mass of products and services in French-language on Canada's Information Highway should be a common policy objective. The Council believes this objective should be reflected in government programs that support Canadian content production. **The Council thus recommends that at least one third of the financial resources of the proposed Canadian multimedia fund be allocated to French-language projects. Members of minority Francophone communities should have fair and reasonable access to assistance (Rec. 5.18).**

To fulfill its obligations under the *Official Languages Act* and to reinforce its role as a model user of new technologies that reflect Canadian linguistic duality, the federal government should instruct department and agency heads to report separately on an annual basis on implementation of the *Official Languages Act* with regard to the acquisition and use of informatics equipment, software and related tools. These include measures taken to promote the availability and use of bilingual tools, as well as steps taken to ensure that purchases comply with Treasury Board policies and guidelines (Rec. 5.19).

Further, to ensure that Canadians have access to government services in French as well as English, corrective measures are needed with respect to government Web sites. **The Council therefore recommends that this proposed annual audit of each federal government department and agency also include a separate component dealing with their Internet activities and with communication provided to the public by electronic means (Rec. 5.20).**

If this content is to serve Canada's cultural needs, it must reflect the rich diversity of French-speaking Canadians from all regions. For this reason, the federal government should bring to bear all its programs to help minority French-language communities gain access to new networks and to develop content that meets their social, cultural and economic requirements. **The Council calls on the Minister of Industry to review the guidelines for the Community Access Program and the SchoolNet Program to ensure that they are effective in connecting French-language communities across Canada (Rec. 5.21).**

The Council also recommends that Canadian Heritage, assisted by Industry Canada, as part of the review and renewal of the Official Languages Programs, develop a new communications strategy for the use of media tools (television, community radio,

newspapers) to increase the participation of Francophones on the Information Highway (Rec. 5.22).

Finally, the Council recommends that the Minister of Canadian Heritage work with Ministers of Education to explore ways and means of increasing the quantity and quality of original and adapted French-language educational materials for use on the Information Highway (Rec. 5.23).

Canadian Content and Cultural Identity Steering Committee, April 1997

ECONOMIC GROWTH AND JOB CREATION STEERING COMMITTEE

Policy Issue

“As a stimulus to job creation and growth, what measures are needed to ensure Canadians can exploit the potential of the Information Highway in areas such as electronic commerce, lifelong learning and telemedicine, and translate them into opportunities for Canadian industry to develop new products and services?”

Background Studies, Reports

- *Jobs in the Knowledge-based Economy: Information Technology and the Impact on Employment*, Conference Board of Canada.
- *Towards a Canadian Health Iway: Vision, Opportunities and Future Steps*, CANARIE Inc.
- *Jobs and Growth in the Knowledge-Based Economy*, IHAC Secretariat.
- *SMEs, the Internet and Electronic Commerce*, IHAC Secretariat and Canadian Federation of Independent Business.
- *Status and Evolution of Canada's Information Infrastructure: Report to the Information Highway Advisory Council*, Max E. Melnyk.

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ECONOMIC GROWTH AND JOB CREATION STEERING COMMITTEE

CONCLUSIONS AND RECOMMENDATIONS

[At its meeting on April 3-4, 1997, the Information Highway Advisory Council approved the following conclusions and recommendations flowing from the work of the Steering Committee on Economic Growth and Job Creation.]

Dynamics of the Knowledge-Based Economy

In assessing the contribution of the Information Highway to economic development and employment, the Council has examined closely the issues related to the dynamics of modern, knowledge-based economies, especially the critical questions surrounding the relationship between technology, employment, productivity and growth, assembling the empirical evidence in this area and assessing its implications for public policy. In broad terms, its research confirms the vital importance of information infrastructure to Canada's economic success now and in the future. It also reinforces the view, however, that Canada's capacity to excel in the arena of content, applications and services is critical to ensuring the full realization of the economic benefits of the Information Highway, particularly in terms of jobs. This leads to two major conclusions relevant to public policies for the Information Highway.

First, the emphasis on creating an environment to promote investment in infrastructure remains vital for economic growth and Canada must continue to pursue these policies in order to guarantee that it maintains its competitive position in the world and that Canadians can enjoy the full benefits of the Information Highway (Rec. 6.1).

Secondly, more needs to be done to foster the development of content, applications and services that will create the markets on which wealth and employment growth in the knowledge economy are based (Rec. 6.2).

Employment and Information Technology

The Council is convinced that the Information Highway promises the best opportunities for economic growth and job creation over the long term, and that the broader development of the knowledge economy in the area of services and content creation will hasten this process. Nevertheless, the Council accepts that, as with all new technologies, there may be unintended negative consequences in the labour market in the near term, and recognizes the need to determine what mitigating measures might be required. It is recommended that the federal government conduct further policy research on the impact of new technologies, and join in the ongoing public discussion and debate aimed at exploring alternative mechanisms to deal with the possibility that the number and quality of jobs generated by the Information Highway may not meet expectations (Rec. 6.3, Joint recommendation with the Steering Committee on Workplace Issues and Lifelong Learning, Rec. 7.7). In the long run it may be

necessary to adjust policies and development mechanisms to distribute work more fairly. More immediately, current policies, such as profit-insensitive taxes (e.g. payroll taxes) and corporate and individual incentives for retraining, could be revisited to assess how they affect employment in Canada.

Human Resource Issues in the Information Technology Sector

As the Council has already argued in its first report, a highly skilled information technology workforce is a critical component of Canada's competitiveness and our success in building a knowledge economy. Concerns are being raised by the Information Technology Association of Canada (ITAC), the Canadian Advanced Technology Association (CATA) and others, regarding Canada's human resource capabilities in information technology. The issue is being addressed in several contexts, including the Prime Minister's Advisory Council on Science and Technology. The recent government decision to relax immigration rules allowing companies to recruit experienced information technology specialists from abroad further responds to concerns in this area. **In this context, the Council recommends that Industry Canada and Human Resources Development Canada, with the involvement of key stakeholders such as technology associations and educational and training institutions, determine the magnitude of the problem of information technology skills in Canada. Building on the results of existing activities, they should undertake further research and analysis as required, and publish a report outlining their findings and suggesting policy measures, as appropriate (Rec. 6.4, Joint recommendation with the Internet Steering Committee, Rec. 3.4).**

The Council is also very concerned about the disturbing trends with respect to youth unemployment in Canada. **The Council recommends that the government monitor current programs and the overall picture of youth employment in Canada, focusing in particular on the need for appropriate education and skill levels in a rapidly changing knowledge society and on the need for lifelong learning to be a key design element of the Information Highway. Government should be prepared to take further action to ensure that Canada's young people can make a full, meaningful contribution to working life in Canada, since their involvement and skills will be critical to meeting our human resource needs in the knowledge economy (Rec. 6.5).**

The Information Highway, Electronic Commerce and Small and Medium Enterprises (SMEs)

The increasing use of communications and information technologies by business, including the possibility that a full range of business functions from production to retail sale can be completed in electronic form, has magnified the importance of creating an hospitable environment for electronic commerce. **To provide the necessary measure of certainty in the marketplace, the government must move quickly to ensure that the legal, policy and regulatory framework for electronic commerce is in place, and, in particular, identify and remove the impediments and barriers and clarify the ground rules pertaining to commercial activities conducted electronically (Rec. 6.6).**

A favourable environment for electronic commerce is vitally important for all sectors of the economy, but is especially crucial in relation to small business and the impact on employment generated by this sector. **The Council recommends governmental measures to:**

- (i) **expand its use of the Internet for the delivery of government services and information to the Canadian public, the small business community and to other governments in a manner which accelerates the roll-out of the Internet, widens public access and digital literacy, and enhances consumer value related to Internet use (Rec. 6.7, Joint recommendation with the Internet Steering Committee, Rec. 3.8);**
- (ii) **in cooperation with the private sector, supply SMEs with more information on the costs of training, hardware and software and on the appropriate information technology products, best practices and applications for specific business purposes (Rec. 6.8);**
- (iii) **in cooperation with the private sector, ensure that further training opportunities, especially for senior personnel, are made available to help businesses get online, learn to navigate the Internet and to identify the information technology products that will be most beneficial to them (Rec. 6.9); and**
- (iv) **increase the working partnerships between government and SMEs to ensure ongoing dialogue on factors affecting the use of the Information Highway by small business (Rec. 6.10).**

Health and the Information Highway

The Advisory Council reiterates its strong support for the recommendations of the CANARIE report, *Towards a Canadian Health Iway: Vision, Opportunities and Future Steps* and urges the Ministers of Health and Industry to act on them (Rec. 6.11). In this respect, the Council welcomes the initiatives associated with the establishment of a Canada Health Information System and considers these commitments a major step toward making Canada a world leader in building the Health Iway. Furthermore, as pointed out in the report, the future development of the Canadian Health Iway is crucially dependent on the existence of a secure environment where the privacy and confidentiality of health information is protected. A secure environment should be a guiding principle in implementing the Council's recommendations.

The Council is also concerned that the Health Iway translate into tangible benefits for Canadians, not only in terms of improved health care but also in the form of industrial opportunities and employment. **To meet these expectations and to fulfill the promise of the Health Iway, it therefore recommends that the federal Ministers of Industry and Health, together with provincial governments: (i) develop a framework to encourage growth in Canada's health industries, with particular reference to software, information systems and "intelligent" equipment; and (ii) proceed rapidly with plans to complete the wiring of health institutions,**

such as hospitals, medical laboratories, research establishments and community clinics, to take immediate advantage of advanced networking opportunities (Rec. 6.12).

The Council further recommends that CANARIE continue and expand its research programme aimed at developing innovative applications of the Information Highway to health and telemedicine, and asks the federal government to consider this aspect of the CANARIE program and other applications-oriented research, in fields such as learning and the needs of persons with disabilities, to be an important focus of its future workplan (Rec. 6.13).

Technology Assisted Learning

The economic value of new services and applications based on the continued development of the Information Highway is also clearly evident in the area of learning. In its earlier work, the Advisory Council stressed the vital importance of lifelong learning in the knowledge economy and its status as a "key design element in Canada's Information Highway". As in the health sector, Canada has the capacity to draw on technological capabilities in networks and software, institutional strengths from the public and private sector, as well as systems expertise from decades of pioneering efforts in distance education. The challenge, however, has been how to find the most effective means of combining both the content and the hardware in a manner that translates into business opportunities and jobs.

Cooperation in the development and marketing of technology-assisted learning is an essential step toward strengthening Canada's capacity to compete in its domestic and in international markets. **It is recommended therefore that the federal government, through instruments such as the Networks of Centres of Excellence, CANARIE and procurement for its own internal training and professional development programmes, encourage the formation of consortia which link knowledge and technology providers for the development and marketing of technology-assisted learning products and services, particularly for international sales (Rec. 6.14).**

The ultimate success of these commercial operations will rely heavily on policy-makers creating the proper environment and incentives to take advantage of the industrial opportunities, and to address institutional barriers and other impediments to the use of technology-assisted learning. **The Council, therefore, recommends establishing a mechanism that provides a forum for the discussion of policy issues affecting the use of the Information Highway in support of lifelong learning, and that this initiative tap into a broad cross-section of constituencies with interest and expertise in this field (Rec. 6.15; Joint recommendation with the Steering Committee on Workplace Issues and Lifelong Learning (Rec. 7.5).**

With the rapid integration of computer applications with network delivery accelerated by the Internet, multimedia technologies are becoming the primary platform for technology assisted learning. Given the growing centrality of this technology in lifelong learning and across a wide range of industries and sectors, it is essential to strengthen Canada's capabilities in this arena.

The Council strongly recommends that the federal government, through the departments of Canadian Heritage and Industry, move quickly to develop a strategy to respond to the diversity of issues facing Canada's multimedia industry. This strategy should address core issues relating to cultural policy, trade promotion, sector skills, and business development, as well as promoting greater use of multimedia training (Rec. 6.16).

Steering Committee on Economic Growth and Job Creation, April 1997

WORKPLACE ISSUES AND LIFELONG LEARNING STEERING COMMITTEE

Policy Issue

"During the transition to a knowledge-based economy, how can Canada respond to the changes in the workplace and the situation of labour, and develop a lifelong learning culture? How should Canada use the Information Highway, including the new learning technologies, in the course of this transition?"

Background Study

The Impact of the Information Highway on the Workplace, Steering Committee on Workplace Issues and Lifelong Learning.

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WORKPLACE ISSUES AND LIFELONG LEARNING STEERING COMMITTEE

CONCLUSIONS AND RECOMMENDATIONS

[At its meeting on April 3-4, 1997, the Information Highway Advisory Council approved the following conclusions and recommendations flowing from the work of the Steering Committee on Workplace Issues and Lifelong Learning.]

In its report *Connection, Community, Content: The Challenge of the Information Highway*, the Advisory Council underscored the importance of lifelong learning as a "key design element of the Information Highway" and the growing concerns surrounding the changing nature of the workplace. Since then, the significance of lifelong learning and workplace issues has been further underlined and supported by two reports issued by international bodies. The Organisation for Economic Cooperation and Development (OECD) has closely examined the inter relationship of lifelong learning, information technologies and the changing nature of work, noting that the worlds of learning and work have become increasingly inter-related and require a rethinking of traditional roles and institutional responsibilities. UNESCO's International Commission on Education for the Twenty-first Century (the Delors Commission) also argued the need for lifelong learning to adapt to changes in the nature of work and to enable people generally to play an active role in the community at large. From this work, it has become evident that the issues surrounding the changing workplace and lifelong learning are intertwined in many respects, and that both need to be addressed as part of an overall strategy to develop human resources for the knowledge society.

The Role of Government

The Council notes that in a knowledge society environment, there is a continuing need for governments to provide leadership that will facilitate the successful introduction of information technology not only with respect to the infrastructure but also to the workplace. While the role of governments is changing, the need for leadership remains. **Therefore, the Council recommends that, as part of their leadership role, governments identify those sectors of the economy where the successful introduction and application of information technology is essential, and enable the establishment of mechanisms involving the representative interests of business, labour and others to address and resolve the key issues related to employment and the workplace (Rec. 7.1).** Sectoral councils are an example.

The Council recognizes that the mobility and flexibility that Canadians need to be eligible for appropriate employment are linked to other policy areas that are the responsibility of governments. In this context, a key role for governments is to eliminate barriers that currently impede access to employment. Such barriers include the absence of coherent policies in areas such as education and skills training accreditation, pension portability and taxation. **The Council therefore, recommends, that the federal government assume a leadership role in ensuring the necessary intergovernmental coordination and policy development with respect to labour standards and job creation (Rec. 7.2).**

Workplace Issues

At the international conference in Ottawa in December 1996 organized by the OECD Directorate on Technology and Organizational Change/Flexible Enterprise, and by Human Resources Development Canada, there were numerous examples of successful workplace adjustment following the introduction of new information technologies. Some of the successful examples included the use of collective agreements to establish the transition.

In discussions at the National Forum on the Information Highway and Workplace Change, there was recognition by both business and labour representatives that where collective agreements do not exist, it is important that labour standards continue to play a significant role as a means for guiding change in the workplace.

The Council notes that for labour standards to be effective in offering workplace protection, they would have to be current and up-to-date, reflecting a greater need for flexibility in the workplace. It also recognizes the importance of both collective bargaining and labour standards as a useful means for assisting Canadians in the introduction of new information technology. **The Council, therefore, recommends that governments place a greater priority on modernizing labour standards legislation, e.g., the current initiative to amend Part III of the *Canada Labour Code* and that, to the extent possible, the amendments reflect the interest of both business and labour, and encompass the new forms of employment and related workplace conditions (Rec. 7.3).**

One of the challenges arising from changes in labour markets, and the nature of work itself, is the need to be able to more readily identify and match the skills that are required to the anticipated supply of work. This can be addressed in part, through the development of additional and improved economic measurement tools as noted above. However, the more effective sharing of new and better information by governments and the availability of a larger number and variety of improved learning materials, aimed at skills development, will also help to answer the challenge.

The Council recommends that Human Resources Development Canada and the provincial/territorial governments accelerate their efforts to match more effectively skills requirements and anticipated labour market demand (Rec. 7.4).

Lifelong Learning

The use of communication and information technologies is essential to support the creation of an environment that will foster lifelong learning. **The Council, therefore, recommends establishing a mechanism that provides a forum for the discussion of policy issues affecting the use of the Information Highway in support of lifelong learning, and that this initiative tap into a broad cross-section of constituencies with interest and expertise in this field (Rec. 7.5; Joint recommendation with the Steering Committee on Economic Growth and Job Creation, Rec. 6.15).**

Consultations on the concept of such a mechanism have been undertaken with many stakeholder organizations, including the Council of Ministers of Education, Canada (CMEC), the Canadian Education Association (CEA), the Association of Canadian Community Colleges (ACCC), the Association of Universities and Colleges of Canada (AUCC), the Canadian Publishers' Council, Open Learning Agency (OLA), IBM Canada, Knowledge Connection Corporation and the Information Technology Association of Canada (ITAC).

Discussions took place with officials of the CMEC to determine its interest in playing a leading role in the recommended mechanism. CMEC has indicated its intention to explore how such an initiative could fit with its strategy for information technologies and learning. **The Council recommends that the Council of Ministers of Education, Canada, with the participation of federal departments such as Human Resources Development Canada and Industry Canada, and other key stakeholders, explore further the creation of an ongoing mechanism to facilitate the resolution of policy issues pertaining to technology and learning (Rec. 7.6).** Stakeholders would be addressing such questions as the specific objectives, feasibility, financial support and reporting arrangements of the proposed mechanism.

The Need for More Policy Research

The Council recognizes that, as with all new technologies, there may be negative consequences, and we may need to determine if mitigating measures are required, and if so, what they are.

Governments, therefore, should conduct further policy research about the impact of new technologies and join in the ongoing public discussion and debate exploring alternative mechanisms to deal with the possibility that the number and quality of jobs generated may not meet expectations (Rec. 7.7, Joint recommendation with the Steering Committee on Economic Growth and Job Creation, Rec. 6.3).

The Council notes that the development of new measurement tools allowing cross-national comparisons will enable Canada to benchmark more readily and accurately its transition to a knowledge society. **Accordingly, the Council recommends that the federal government continue with its national and international activities leading to the creation of useful economic and social indicators and that this work proceed as rapidly as possible (Rec. 7.8; See also Rec. 1.1, Steering Committee on Economic Growth and Job Creation).**

An inventory of existing policies and initiatives on lifelong learning should be available to the advisory body to enhance its work and to enable it to build on existing accomplishments. The federal government and other organizations have collected considerable information on this subject at the domestic level. A database of policies and programs at the international level will also be required. **It is recommended, therefore, that HRDC's Office of Learning Technologies continue to collect information on national and international policies and programs and share this information with other stakeholders (Rec. 7.9).**

The advisory body will need to have access to a network of experts to help identify the learning needs of the various constituencies. Several such networks of experts already exist and could provide the assistance required. It is therefore important that existing networks of experts participate in and advance the policy work of the proposed mechanism.

Steering Committee on Workplace Issues and Lifelong Learning, April 1997

