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Information Highway Advisory Council

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*Canada's Information Highway:  
Building Canada's Information and  
Communications Infrastructure*

Providing New Dimensions for Learning,  
Creativity and Entrepreneurship



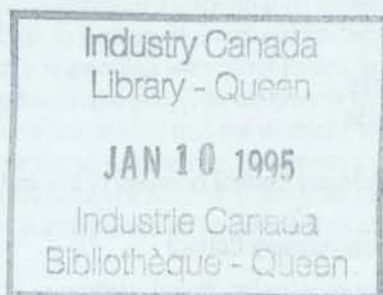
*Progress Report of the  
Information Highway  
Advisory Council*

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*Progress Report of the  
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Advisory Council*

November 1994

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## ***To the Honourable John Manley, Minister of Industry:***

Canada's Information Highway Advisory Council is pleased to present a progress report. We set a goal to advance quickly on identifying options and making recommendations on how to accelerate the development and implementation of Canada's Information Highway.

As a council, our primary responsibility is to give solid and realistic advice to the government. While still early in the process, we have been able to capitalize on the diversity and collective expertise of the council members, the ability to work closely with federal policy makers and the continuing interest of Cabinet ministers and fellow Canadians.

As individuals and members of the council, we represent the people who will build, supply and use the highway. In this capacity, there has been a significant demonstration of private sector commitment. Based on the public/private sector partnership that the government initiated by establishing this council, strategic alliances are being created, Information Highway investments are being made and the Canadian vision for a network of networks is being expanded.

Government demonstrated leadership by forming the council and announcing its intention to implement a national strategy for Canada's Information Highway. The council is responding with commitment to provide advice to assist and stimulate government policy. As we present this report and our early recommendations, we acknowledge that the decisions with respect to whether and how to respond to our suggestions lie with government. However, it is the council's view that in order to implement a national strategy for Canada's Information Highway, the current public/private sector partnership must continue.

This is a work in progress report, reflective of achievements to date and prospective in setting our agenda for the future. We have benefitted from contributions from many people and encourage Canadians to continue to work with us to develop our advice. In particular, we want to ensure that the council's work plan reflects the priorities of Canadians and recommend the public release of this report so that Canadians may provide the council with their comments.

A handwritten signature in black ink, appearing to read "David Johnston". The signature is fluid and cursive, with a large loop at the end.

David Johnston, Chair



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# 1

## Council Terms of Reference

### Structure

The Information Highway Advisory Council was established in April 1994. Chaired by David Johnston, Professor of Law at McGill University, the council includes 29 members from industry, the education, research and consumer communities, as well as labour and other interested constituencies. To further extend the council's base of knowledge and representation, the council added another 26 Canadians to its five working groups. A list of council and working group members is included in Appendices I and II.

### Mandate

The council's primary mandate is to provide advice to the government. The work of the council is aimed at addressing the 15 issues outlined in the discussion paper *The Canadian Information Highway: Building Canada's Information and Communications Infrastructure*. These issues include how to use Canada's Information Highway to support Canadian cultural and other content-based products and services, how to ensure universal access to essential services at an affordable cost, and how to use Canada's Information Highway to improve the growth and competitiveness of all Canadian businesses, especially small and medium-sized enterprises (SMEs) throughout Canada.

### The Goal

The discussion paper states that the goal for Canada is to build the "highest-quality, lowest-cost information network in the world, in order to give all Canadians access to the employment, educational, investment, entertainment, health care and wealth-creating opportunities of the Information Age."

The Advisory Council was established to advance the goal of making Canada a world leader in the provision and use of the Information Highway, creating substantial economic, social and cultural advantage for all Canadians. Based on advice from five working groups, the Advisory Council is persuaded that the Canadian vision for an Information Highway must focus on providing new dimensions for learning, creativity and entrepreneurship.

### Objectives and Principles

The work of the Advisory Council is guided by three policy objectives:

- creating jobs through innovation and investment in Canada
- reinforcing Canadian sovereignty and cultural identity
- ensuring universal access at reasonable cost.

## COUNCIL TERMS OF REFERENCE

The council was also given four operating principles:

- an interconnected and interoperable network of networks
- collaborative public and private sector development
- competition in facilities, products and services

- privacy protection and network security

The Advisory Council formally added a fifth operating principle:

- lifelong learning as a key design element of Canada's Information Highway.



# 2

## Chair's Comments

The Canadian vision for the Information Highway evolves from the concept of an integrated and seamless network of networks that will carry and support a vast range of advanced communications and information services. This infrastructure represents the foundation for Canada's prosperity in a knowledge-based global society by providing new dimensions for learning, creativity and entrepreneurship.

The metaphor of an Information Highway is the foremost example of the electronic revolution through which we are passing. However, as a means of describing the scope and depth of the changes that are currently underway within our society and of reflecting the aspirations and concerns of individual Canadians, it is an imperfect concept. The term conveys imagery about the physical structures through which information will move, such as networks, terminals and databases, but does not capture its potential as a network for building a new sense of Canadian community and opportunity.

The Information Highway, in our view, is not so much about information as it is about communication in both its narrowest and broadest senses. It is not a cold and barren highway with exits and entrances that carry traffic, but a series of culturally rich and dynamic intersecting communities, large and small, north and south, east and west,

populated by creative thinking people who reach out and enrich one another. Rather than a highway, it is a personalized village square where people eliminate the barriers of time and distance, and interact in a kaleidoscope of different ways. It really is the next step en route to the global village that Marshall McLuhan described so forcefully and eloquently.

The vision is to establish a network of communities around the globe in the fullest pursuit of individual expression, creativity, learning opportunities and entrepreneurship. As we design the various intersection points, we must reflect the fact that ideas, knowledge, attitudes, traditions and institutions define us as Canadians and contribute to our economic, social, cultural and educational well-being. In its capacity as a communications network for Canadian community and opportunity, Canada's Information Highway can develop, convey and extend these attributes. Its essence is to provide a medium for us to achieve our goals as individuals and as a nation.

Our success in this enterprise demands leadership. We must make well-considered decisions about what will and should be available on the Information Highway, from entertainment, to business, to learning content, and to how people can get this content, use and share it. We need to enable the progress of those who build

these advanced networks and respond to the wishes of those who use them. We recognize that time will not stand still while Canadians ponder the possibilities and opportunities presented by integrated broadband communications. At the same time, it is important for us to understand the impact that the communications infrastructure will have on our lives and on our shared future as we move to an economy in which the ability to capitalize on ideas and knowledge will be the primary source of our competitive advantage.

In order for Canada's Information Highway to meet the economic, social, cultural and educational objectives set out by the government, the Advisory Council must not only foster the development of the highway, but also ensure that it responds to the needs of Canadians. The challenge is to ensure that Canada's Information Highway carries not only opportunities for all Canadians, but also the means by which they can realize them.

We are en route. Already, Canadians are developing and using the advanced network infrastructure that will evolve as Canada's Information Highway. For example:

- Canadians across the country are part of the fastest growing "Freenet" movement in the world, launching community-based computer networking projects to provide modem-based access to E-mail and business services.
- Distance education networks are operating in almost every province. New Brunswick is linking 30 sites across the province in its Tele-

Education New Brunswick initiative, and in Nova Scotia, distance education is provided through the Cape Breton Community Network.

- The goal of electronically linking Canada's 16 000 elementary and secondary schools across Canada is well under way. As of June 1994, 3 200 schools were on-line. There have been over 800 000 accesses to date. The Computers for Schools Program donates 7 000 or more computers and 10 000 or more pieces of software annually.
- The Canadian Network for the Advancement of Research, Industry and Education (CANARIE) is providing research and development (R&D) funding and support to upgrade CA\*net, the Canadian core of the Internet, develop the next generation of networking products, services and applications for the marketplace, and to create a national experimental test-bed network linking other Canadian community networks to allow them to develop, test and showcase their products and services.
- In Ottawa, several high technology companies, educational institutions and government laboratories launched the Ottawa Carleton Research Institute network (OCRInet), which currently provides advanced communications research capabilities and workstation-based video services. Similar community networks are being put in place in London, Ontario (LARG\*Net), the Prairies (Wnet), Vancouver (Rnet) and Montreal (Réseau interordinateurs scientifique



québécois — RISQ), with networks planned for the Maritimes.

- To help Canadian companies use information technologies to run their businesses effectively and efficiently, Newfoundland and Labrador operate on-line business information networks, including training and support service information and an opportunities database.
- The Ontario Air Ambulance Services is using Canada's Mobile Satellite service to transmit vital medical information about patients being transported from remote areas to Ontario hospitals.
- Culturenet, to be launched in April 1995 as part of CANARIE, will provide Internet access to Canada's cultural and artistic communities.
- In Quebec, there will soon be a home communications service called UBI offering interactive banking, shopping, mail and government services including the ability to file personal tax returns.
- Manitoba On-line offers a single-point access to government information and services including land registry, Manitoba Hansard and the Western Purchasing Information Network.
- The Media Resources Network, operated by the University of British Columbia Computing and Communications Branch, is linking researchers across the country and around the world who are working on the art and science of new media.

- In New Brunswick, NBTel will soon be offering "CallMall service," which will allow subscribers to bank, shop and obtain community information through their telephones.

These examples demonstrate Canadian creativity in the development and use of the information and communications infrastructure. For the Information Highway to meet the goal of creating substantial social, economic, educational and cultural advantages for all Canadians, these kinds of examples need to become commonplace. We must link networks to form a Canada-wide network, affordable and available to everyone. We need to provide Canadians with the skills to be comfortable with technology. We must continue to develop Canadian content that Canadians will choose, even while they have the databases of the world opening up to them.

Historians of our age speak of three industrial revolutions —the agricultural, industrial and electronic revolutions. The first two revolutions began at least 200 years ago and the last one within the past few decades. As well as shifting the structural foundations upon which our economy functions, each revolution has had sweeping impacts on our society at large. The striking difference is that the third revolution is occurring in a period of months and years, rather than decades and centuries. The speed of adjustment and adaptation to these new realities is heightened. The question is how best to use that to our nation's advantage and not allow it to be a tide which overwhelms us.

One answer lies in using Canadian traditions to our advantage. The first is

individual creativity represented in our pioneering traditions. The second is our emphasis on equality of opportunity for personal development. The third is our capacity to cooperate and collaborate across regional and community lines with tolerance and respect.

Our history is distinguished by nation-building triumphs based on the use of communications to provide Canadians with opportunities for social, economic, educational and cultural advantage. These triumphs include the invention of the telephone and establishing the first transatlantic radio communication. We were the first country to implement a domestic geostationary satellite communications network and now have the longest fibre-optic communications network in the world. We are one of the most cabled countries in the world, and continue to be the world's largest users of telephone service and enthusiastic television viewers.

Our next step is to define, as Canadians, our shared future based on our ability to capitalize on ideas and knowledge through the use of Canada's Information Highway. In a knowledge-based society, it will not be government planning or isolation from the rest of the world that distinguishes us as a people. Rather, it will be the power of ideas and the ability to enable each individual in each community to become more creative and to innovate through technology, to develop new products and services, to increase flexibility in our institutions, to eliminate market barriers and stimulate competition, and to encourage spontaneity, creativity and individuality. These were all words present in our discussions for the first six months of our council's work. We believe they will be at the core of the advice we

give to create an environment which catalyses the development of Canada's Information Highway as a communications network for community and opportunity, and educates our fellow citizens about the promises it has to offer.

Canadians, as individuals and active members of their communities, are at the core of our deliberations. As *The Economist* said in a special essay on "Economic Growth — Explaining the Mystery" (4–10 January 1992):

... lack of human capital (i.e. education), not lack of investment in physical capital, is what prevents poor countries from catching up with rich ones.

The new growth theory confirms that governments are mistaken to concentrate so exclusively on the business cycle. If, however indirectly, it leads them instead to think harder about education, investment, research and development, trade reform, intellectual-property rights and so on, it will be a breakthrough indeed.

We are grateful for the opportunity to be a part of that breakthrough, which facilitates both the communication of ideas and knowledge, as well as the generation of new ideas and knowledge.

Our task is threefold:

- to advise government
- to serve as a catalyst for the accelerated development of Canada's Information Highway
- to inform and educate about its possibilities.



Our group of dedicated Canadians — members of the Advisory Council and participants in our five working groups — reflect this individuality. We do not have the expertise on public policy held by public servants in various government departments, nor do we aspire to substitute ourselves to elected members of Parliament. Rather, we are 60 individuals who have each done some work in the building of Canada's Information Highway and who, through the two great Canadian traditions of individual creativity and cooperation, hope to advise wisely for continued Canadian breakthroughs.

Our commitment is to provide the best possible advice on how Canada's Information Highway can help us, as a nation, achieve our objectives in a way that reflects our shared values. While it might not be realistic to expect that our public policy makers will embrace and implement our every recommendation,

we hope that the results of our labour will receive fair consideration. However, what we are entitled to expect, as are all Canadians, is that the government not relent in its determination to make the building of Canada's communications and information infrastructure one of our national priorities, as stated in its January 1994 Speech from the Throne. This means continuing leadership through policy. It also means immediately addressing the economic, social, educational and cultural needs of Canadians through the use of information and communications technologies. The globally integrated "network of networks" that will provide Canadians with the wide range of information and entertainment services might still be many years away. However, creating the environment to enable Canadian businesses, entrepreneurs, educators, creators and consumers to take full advantage of our information highway must happen now.

## Public Policy Issues

This section reports on the progress to date by the Information Highway Advisory Council and its working groups on the 15 public policy issues presented in the discussion paper *The Canadian Information Highway: Building Canada's Information and Communications Infrastructure*. This paper forms the basis for the council's work. Issues are grouped according to the headings of the discussion paper. Under each heading is a summary of the council's views and progress to date on recommendations.

### **BUILDING A COMPETITIVE, ADVANCED NETWORK INFRASTRUCTURE**

#### **Issue 1 — How fast should the advanced network infrastructure be built? How will network improvements be financed?**

While there have been extensive discussions on the various possible policy and economic models for Canada's Information Highway, all Advisory Council members agree on the urgency of creating the appropriate conditions for fostering investment in content and infrastructure development. There is a broad consensus within the council that the private sector, facilities-based carriers and service providers, should make the investment decisions and bear the inherent risks regarding the development of an advanced Canadian network infrastructure. As a general principle, direct government support should be seen as an exception, where market forces do not suffice. One such exception is R&D. Advisory Council

members recognize that Canada's geography dictates that wireless and satellite communications will be an important component of this infrastructure and for this reason made an early recommendation in this area.

#### **Council recommendation:**

**Recognizing the role of wireless links in Canada's communications infrastructure, the Information Highway Advisory Council recommends that the federal government adopt the policy framework developed by Industry Canada for Global Mobile Satellite Systems in order to position Canadian facilities providers for increased competition and user demands.**

The Advisory Council was pleased that the government acted on this recommendation (see *Canada Gazette*, November 5 1994) and implemented the



proposed policy. In the same area, the Ministers of Industry and Canadian Heritage have announced a review of policies related to Direct-to-Home (DTH) satellite broadcasting and have asked the Advisory Council for advice. The council is also taking into account the Canadian Radio-television and Telecommunications Commission's (CRTC) landmark telecommunications decision of 16 September 1994, and analyzing the impacts of this decision upon several policy issues, including the financing and timing of communications infrastructure development. The council's deliberations are more broadly based than the legal and regulatory focus of the CRTC's mandate.

To build on its existing strengths in communications, particularly in the areas of network infrastructure, the Working Group on R&D, Applications and Market Development recommended a further investment in the CANARIE initiative in order to continue to upgrade and link the various provincial and regional networks, and to facilitate industry/government coordination (see recommendation under Issue 11). In support of the council's fifth operating principle on lifelong learning, the Working Group on Learning and Training stressed the importance of ensuring that advanced new media-based learning and training services also be developed quickly, and that they be available on the information infrastructure, and that these services be accessible to learning institutions.

## **Issue 2 — What is the proper balance between competition and regulation?**

Advisory Council members agree that competition, not regulation, should drive the development of the Information Highway and new communications and information services. There is at the same time, however, consensus on the continuing need for a national regulatory agency. Discussions within the Working Group on Competitiveness and Job Creation are focusing on defining a new role for the regulator, namely as a referee or an arbitrator.

Whereas traditionally the key providers of the network infrastructure, namely the telecommunications and cable television industries, have been regulated, technological change and the global forces of deregulation and free trade have resulted in pressures for greater reliance on market forces and re-regulation. Canada's policy makers and regulators have responded to these pressures by gradually moving toward a more competitive system. The CRTC decision to increase the level of competition in the telecommunications market and the government's call for public hearings on matters relating to the convergence of telecommunications and broadcasting are most welcome by the Advisory Council. They demonstrate that the government is exercising its ongoing policy responsibility in creating the most favourable conditions for the development of new information and communications services, while ensuring that infrastructure needs continue to be met.

*too little too late?*

The Working Group on Competitiveness and Job Creation has also examined this issue. A Task Force on Competition and Regulation established by the working group has developed a framework on

regulatory issues associated with the Information Highway, which examines regulatory barriers to competition, safeguards to ensure that competition is fair and sustainable, and opportunities for market growth. Within this framework, the task force has reviewed such issues as harmonizing foreign ownership rules under federal legislation, alternatives to rate-base rate-of-return regulation, cross-subsidization from monopoly to competitive services, ownership protection of program rights, equal access to local bottleneck facilities, increasing competition in the provision of international services, establishing rules for unbundling of services and facilities, ensuring consistent assignment of spectrum and conditions for market entry.

The Working Group on Learning and Training will examine whether conditions of access may be required for suppliers to ensure the universality of certain specified services.

### **Issue 3 — Should requirements for Canadian ownership and control of communications networks be reviewed?**

There is broad agreement within the Advisory Council that Canadian ownership requirements should be maintained in federal legislation dealing with communications industries. While the council has made a formal recommendation dealing with the ownership provisions in the *Broadcasting Act*, there has also been discussion about introducing into the 1989 *Radiocommunication Act* the same requirements established in the telecommunications legislation.

#### **Council recommendation:**

**The Information Highway Advisory Council has recommended to the Minister of Canadian Heritage that public consultation be initiated with the view to reviewing ownership rules for broadcasting undertakings to increase foreign ownership to 33 1/3 percent from the present 20 percent in order to attract investment capital. This proposal would harmonize the ownership regulations of broadcasting and telecommunications.**

The Department of Canadian Heritage responded quickly to this recommendation and published a policy proposal in the 8 October 1994 *Canada Gazette*.

There is general agreement that ownership and control requirements are and will continue to be necessary. However, some council members also feel more flexibility may be required in order to allow Canadian undertakings better access to foreign investment capital for the development of network infrastructure and new communications services. There has been some discussion about introducing a regime that would be based on reciprocity with other jurisdictions.

Some council members have noted with interest a formula contained in the Mobile Communications Satellite policy, which the Advisory Council has formally endorsed. The new policy calls for Canadian equity levels that are, at least, proportional to Canadian use, when equivalent services are not available from Canadian service providers.



#### **Issue 4 — How quickly can Canadian industries move toward universal standards, and how should these standards be determined?**

*Dave?* Based on its early considerations, the Advisory Council believes that government should endorse open standards to allow the development of the widest possible range of new technologies. The Working Group on R&D, Applications and Market Development is currently addressing how the government, as an important purchaser and end user of new technologies, can facilitate the development and deployment of universal technical standards.

As stated in our discussion paper, which originally set out this issue for consideration, the adoption of universal technical standards will be a key element in ensuring the interconnection of existing and planned networks, the interoperability of information systems and services domestically and globally, and the provision of new media-based learning solutions.

The Working Group on R&D, Applications and Market Development suggests that Canada should monitor the development of standards, adopt a proactive role in setting emerging international standards and take positions on these standards. In addition, the working group also recommends that the federal government should endorse open standards that are supported by industry. The working group believes that the formula for approving standards should reflect the

partnership between the government and industry. The group will explore the issue of standards further, particularly with respect to how the public and private sectors can best collaborate.

#### **Issue 5 — How can the federal government coordinate its activities with other governments?**

The full implementation of Canada's Information Highway is a multilateral, multi-jurisdictional undertaking, involving other levels of government within Canada and foreign governments. The federal, provincial, territorial and, in some cases, municipal governments are active in the development of network infrastructure and advanced information technology products and services. There is a need for different levels of government to work together to reinforce initiatives and to maximize the economic, social, educational and cultural benefits for all regions of Canada.

The Working Group on Learning and Training will be looking at ways to increase collaboration and coordination among the various levels of government with regard to a new media-based learning and training strategy in support of the Canadian Information Highway. The council also notes that there have been substantial activities by federal, provincial and territorial governments to create effective internal coordination mechanisms for Canada's Information Highway and to establish intergovernmental discussions. Some provincial governments have developed comprehensive information technology strategies and have created advisory groups.

The Premiers of the provinces and territorial leaders, meeting in Toronto last summer, agreed that the Information Highway has enormous potential as an instrument of growth and job creation, and agreed that ministers responsible for communications should meet. The Advisory Council shares the optimism expressed by the Premiers and it urges the federal, provincial and territorial governments to convene a First Ministers meeting to pursue opportunities offered by the Information Highway. The province of Manitoba also hosted a meeting of senior communications officials in October 1994 at which the proposal for a meeting of ministers was endorsed.

The Advisory Council is also persuaded that Canadian interests in the global coordination of Information Highways must be pursued more vigorously. Many other nations are also seeking to establish a strategic approach to developing Information Highways so that their people may realize the benefits. As in Canada, most industrialized economies are engaged in experimentation to learn more about how best to use the technology and develop policies for an environment that will facilitate rapid deployment of networks, services and information content. Many consider that the United States is perhaps the most aggressive in positioning its industry to supply the global Information Highway. American industry has the visible support and active involvement of the President and the Vice-President in expanding the American Information Superhighway.

Other nations, such as Japan, see the Information Highway as a solution to the growing problems of urbanization and environmental degradation associated

with traditional energy intensive manufacturing industries. The Japanese go further than most in recognizing the potential of the Information Highway as one means of creating an information economy in Japan that would be based on sustainability through conserving resources and reducing pollution. The Japanese Telecom Council, similar to our Advisory Council, has recommended to the Japanese government, among other things, to extend fibre to the homes, businesses and institutions of the nation by the year 2005 as the means of accelerating the benefits of the Information Highway for all its citizens. The Telecom Council considers the Information Highway to be the means of opening up Japanese culture to the world and a prerequisite to equipping the Japanese for success in the creation of content and services.

The member nations of the European Economic Community (EEC) have been active for many years in creating the capability to develop the Information Highway and to introduce key communities to the associated advantages and benefits. The EEC also considers the Information Highway as fundamental to its goal of further political and economic integration. Individual member nations such as Germany have additional specific domestic needs for the Information Highway. Since reunification, Germany must operate its federal government from two physical locations. The German government has challenged its information industry to develop and provide the means by which it may operate efficiently and effectively, immediately and over the long term, as several departments and agencies move to Berlin, leaving other federal entities in Bonn. In this way, the German



government has cast the Information Highway as central to the functioning of the nation state.

The nations of the Pacific Rim have also demonstrated initiative through the Asia Pacific Economic Cooperation (APEC) forum to accelerate realization of the benefits of the Information Highway, particularly as a means of fostering development and trade. Certain Asian countries have taken leadership positions, as in the case of Singapore, which is very advanced, not only in deploying the Information Highway to all citizens, but also in using technology to train and develop its work force through distance learning.

In February 1995, the Group of Seven (G-7) nations, with the largest economies in the world, will convene a special meeting in Brussels on the Information Society to consider strategies aimed not only at developing their own economies through high-speed networks and services, but also at world trade and development in general. Clearly, the world at large has grasped the importance of the developing information revolution.

The challenge for Canada will be to implement a national strategy aimed at maximizing the benefits for Canadians.

## **CONTENT ON THE INFORMATION HIGHWAY**

### ***Issue 6— How should copyright and intellectual property issues be addressed?***

The Advisory Council has recognized from the outset that the development of Canada's Information Highway would be seriously hampered if issues relating to intellectual property and copyright protection and compensation were not resolved. The council is addressing the issue on two fronts — developing policy recommendations to government on copyright reform, and defining appropriate mechanisms to ensure that the rights of creators and rights holders are respected. At the same time, there is a need to ensure that users of protected materials can have reasonable access to them.

Given the ease with which content can be reproduced and manipulated in

digital format, the protection of, and appropriate payment for, copyright is a critical issue. The need is to make sure that copyright protection and compensation systems are effective in the increasingly electronic distribution of cultural, information and entertainment products.

The Working Group on Canadian Content and Culture concluded that Canadian creators must be satisfied that proper mechanisms regarding the use of their works are implemented. Accordingly, the working group established a task force whose role is to propose policy options on copyright. The Working Group on Learning and Training is addressing the issue particularly as it relates to the importance of fostering creativity and its recognition in the information society, the requirements for easy identification of rights holders, the importance of access for users as a fundamental principle of lifelong learning, and

preferred treatment requirements for schools and libraries.

### **Issue 7 — What measures are needed to support Canadian cultural and other content-based products and services?**

The Advisory Council endorses government policy that the Canadian Information Highway should reinforce Canadian sovereignty and cultural identity. The Advisory Council agrees that the cultural objectives set out in the *Broadcasting Act* should be the basis for its recommendations. The council also recognizes that the Canadian content issue is closely linked to the job creation objective and should be addressed in that perspective.

The Working Group on Canadian Content and Culture discussed the potential for revisions to the *Broadcasting Act* to include the words "sound or visual images, or a combination of sound and visual images, that are intended to inform, enlighten or entertain, and contribute to the attainment of the objectives and policies of the Act."

The working group is also considering a recommendation that all undertakings governed by the *Broadcasting Act* be required to contribute financially to the production and promotion of Canadian cultural products and services.

The working group will also propose specific actions aimed at facilitating the export of Canadian programming and film productions. As a first step, it recommended that the federal and

provincial governments harmonize their support funds, access rules and criteria as well as other relevant incentive measures. The working group proposed that harmonization then be extended to other countries that have signed co-production agreements with Canada. These proposals will be reviewed by the council over the coming months.

Since most of the economic activity related to the Information Highway will be generated by the production of relevant value-added content, the resolution of this issue is also critical to the creation of new Canadian jobs. Furthermore, to ensure that all Canadians can benefit from the content travelling on the Information Highway, we must address the issue of universal access at reasonable cost.

The Working Group on Learning and Training is examining federal government procurement policies and how the purchase of Canadian content materials could be given a higher priority. Other policies, such as the provision of investment capital rather than grants, and incentive programs to increase the number of Canadian producers might reinforce Canadian sovereignty by fostering a strong learning technology industry.

### **Issue 8 — What controls, if any, should be placed on the information that is put on the network?**

The Advisory Council supports the principle that freedom of expression be preserved on the Information Highway, consistent with Canadian law. The Working Group on Access and Social



Impacts is reviewing the capacity of existing law to deal with offensive content in the context of new information technologies. Offensive content is easier to disseminate in electronic form and is more difficult to monitor and to proscribe. The working group notes that pornographic, obscene and hate-mongering materials have begun to appear in various computerized and electronic forms such as electronic bulletin boards and in Internet newsgroups. The working group is reviewing the capacity of existing laws to address the situation and will examine the issue in the context of access and information policy. A public discussion paper is being developed to seek the views of a broad spectrum of interested parties. The Working Group on Learning and Training will look closely at information control issues and in particular the impact of allowing children to access bulletin boards containing objectionable content.

### **Issue 9 — How can the Information Highway be used to improve government services to the public?**

The Advisory Council has considered the work being done within the federal government following the *Blueprint for Renewing Government Services Using Information Technology*. The council welcomes the initiatives aimed at standardizing government information platforms as an important step toward open government. Members also welcome steps being taken by a number of government departments and agencies to use new information

technologies to deliver services and information to Canadians.

The council takes the view that government should move quickly to go substantially beyond the Blueprint. It should set targets for deliverables and benchmark performance. The council will make specific proposals for measures by governments to further develop and harmonize on-line access to government information and services and to increase technology-based learning and training services, through, for example, its employment centres, business information centres and museums.

### **Issue 10 — How can the personal privacy and security of information be protected?**

The Advisory Council agrees that protection of personal information should be one of the primary considerations in implementing Information Highway services. Recognizing that wireless communications will be an important component of Canada's Information Highway, the council moved quickly to address the issue of privacy protection in the rapidly growing area of radio-based communications. The council concluded that Canadians should enjoy the same level of privacy protection in wireless communications and Information Highway services as is guaranteed in the *Telecommunications Act* for wired communication. Thus, its recommendation to ban digital scanners of wireless communications would ensure an overall level of security and privacy protection for all communications services.

**Council recommendation:**

**The Information Highway Advisory Council recommends that the federal government amend the Criminal Code and the Radiocommunications Act to make it an offense to intercept any radio-based telephone communications. The council also recommends that, except as authorized by the responsible minister, the manufacture, importation, sale and distribution of scanners capable of monitoring radio-based telephones, including cellular telephones, be prohibited. Finally, the council recommends that government and industry cooperate to accelerate the development and implementation of affordable encryption services for radio-based communications.**

This recommendation has been referred by Minister John Manley to the

Telecommunications Policy Branch of Industry Canada for consideration. X

The Working Group on Access and Social Impacts has begun consultations on privacy with the community at large and a public discussion paper on privacy protection has been issued. This paper puts forward a number of possible policy and regulatory options to prevent undue intrusion and to protect personal information. The paper calls for public comments to be made to the Advisory Council. With respect to security, the working group has consulted with experts on encryption technologies and has been briefed on work currently being done within the federal government. Recommendations in this area will be developed based on further consultations with interested parties and expert papers. The Working Group on Learning and Training will also be developing recommendations on measures to ensure the protection of education and training records.

## **BENEFITS OF THE INFORMATION HIGHWAY**

**Issue 11 — How can we ensure that Canadian information industries take full advantage of the R&D and technological development opportunities presented by the Information Highway?**

While recognizing the principle that private sector decisions and investment should develop Canada's Information Highway, the Advisory Council believes that the federal government has an

important role to play in supporting R&D. As an example, the council supported the Phase II CANARIE business plan which has now been submitted to the federal government.

**Council recommendation:**

**The Information Highway Advisory Council endorses the Phase II business plan put forward by CANARIE, a private sector led education and research networking initiative aimed at facilitating the development of an advanced Canadian communications infrastructure.** rde



**While supporting the business plan, the council also recommended that the CANARIE consortium and the federal government explore ways to get access to network facilities at minimal cost and apply the ensuing savings to supporting the applications development program within CANARIE. Furthermore, the Advisory Council recommended that the feasibility of commercializing CANARIE operations be considered after Phase II.**

The Advisory Council has also endorsed two other recommendations brought forward by the Working Group on R&D, Applications and Market Development:

**Council recommendation:**

**The Advisory Council recommends that the federal R&D tax credits be expanded significantly, irrespective of the size of the firm completing the R&D, for R&D that:**

- **is directed at Information Highway products, technologies and applications requiring network capabilities**
- **is incremental to current R&D spending.**

In support of the government's commitment to fiscal restraint, the Advisory Council decided that all recommendations involving federal expenditures including tax expenditures, would be reviewed at the end of the council's mandate.

Through a number of meetings with ministers, Advisory Council members

have become aware of the enormous wealth and diversity of federal government information holdings, whether it be collections in national museums, films and documentaries held by the National Film Board or economic data held by agencies such as Statistics Canada. A number of working groups are looking at this field from various perspectives, such as Canadian content or economic opportunity. The council has endorsed a recommendation brought forward by the Working Group on R&D, Applications and Market Development which calls for funding reallocation and shared risk partnerships with the private sector.

**Council recommendation:**

**The Advisory Council recommends that Industry Canada, Canadian Heritage, Human Resources Development Canada and the Secretary of State for Science, Research and Development should facilitate, through funding reallocation and strategic/shared risk partnerships, development of electronic access to the information, documentation, heritage materials, etc. in this nation's libraries and other cultural and information-handling agencies, including government departments.**

The Working Group on Learning and Training will also examine this issue in the context of their mandate. Further discussions on market development, special applications development incentives in areas such as health and government services, and other factors affecting R&D performance are expected in early 1995.

***Issue 12 — How can the Information Highway best be used to improve the growth and competitiveness of all Canadian businesses, especially SMEs, throughout Canada?***

Advisory Council members agree that the Information Highway's impact on economic growth and competitiveness will flow from its enabling and empowering effects on individuals. The council recognizes that the fundamental challenge is to increase the level of awareness of these opportunities within the Canadian business community and to encourage a commitment to lifelong learning as a key design element of Canada's Information Highway. The federal government can exercise leadership by example. It can also support the development of business networks and provide training. Council members also welcome government initiatives in the area of electronic commerce, and in particular, in establishing standards for national and international electronic commerce.

The Working Group on Competitiveness and Job Creation will take primary responsibility for this issue. It has established a Task Force on Growth, Employment and Competitiveness. Its task will include examining how to increase the level of awareness among Canadians of the benefits and job creation potential of applying information technologies, how to improve the readiness of Canadian suppliers to exploit the advances in network technology, and how to

encourage the development of business and consumer networks to share information on the effective use of information technologies.

***Issue 13 — How can Canadians be assured of universal access to essential services at reasonable cost?***

The Advisory Council recognized that the issue of universal access to essential services is extremely complex and required broad consultations, for example, with representatives from Canada's remote and northern communities and handicapped Canadians. There is consensus within the council that the principle of universal access at affordable cost, set out in telecommunications legislation, was an appropriate basis for its work. It recognizes that access and affordability will have to be considered by a number of its working groups. The Working Group on Access and Social Impacts has also studied how new information technologies can be matched to human needs in the areas of health care, education and justice. The working group is also reviewing Information Highway potential in areas like electronic democracy.

Universal access to Canada's Information Highway is twofold: access to transport/network services and to information/content services. In the area of transport/network services, Canada has long sought universality in telecommunications, off-air broadcasting and in cable television. As new and enhanced services are introduced, the effectiveness of the electronic delivery of commercial, public and government services will depend on the widest possible customer base.



The Working Group on Access and Social Impacts is engaged in an extensive examination of this issue. The working group has sought the advice of experts from northern and remote communities on how basic services can adapt technology to human needs in the areas of health, education and justice. Strengthening the linkages between remote communities, in addition to connections with major urban centres, has the capacity to enhance job creation and quality of life. The working group feels that Canada must not miss the opportunity to connect the North.

The working group has also heard presentations on telecommunications and broadcasting from Industry Canada and Canadian Heritage representatives, pertaining to universal access and essential services. Discussions focussed on policies, infrastructure, and the legislative and regulatory frameworks which surround telecommunications, broadcasting and some electronic democracy or "public spaces." Ultimately, the working group seeks to answer the following questions, 'How should universal access and basic services be defined?' and 'What pricing mechanisms should be in place?' The working group wants to base its policy recommendations on a thorough understanding of what works and does not work in the current regulatory environment as defined by the recent CRTC decisions.

The issues are complex and consequently the working group has recommended that the council commission an expert study in order to document the status of universality in Canada, reflecting the impacts of the CRTC decisions. The study will examine the structural and regulatory constraints that may impede the offering of new services to the population; elaborate

criteria to revise and modernize the concept of basic services within the context of the Information Highway; and explore new technologies, sources of financing and methods for promoting access to the resources of the Information Highway at reasonable prices, for all Canadians, regardless of where they live.

This issue is of concern as well to other working groups. For example, the Working Group on Canadian Content and Culture will also examine this issue in the context of promoting Canadian content and culture. The Working Group on Learning and Training will examine the universality of access and affordability to network-based learning solutions. This includes formal education (kindergarten to grades 12-13, and post-secondary), learning in the workplace, professional training and personal development. Lifelong learning is considered a prerequisite for Canada to be competitive and for Canadians from all regions to participate in the information society. As well, it is key to nation building and to meeting the needs of groups with special needs.

### ***Issue 14 — What consumer awareness and learning opportunities should be provided to enable Canadians to be effective users of the Information Highway?***

The Advisory Council agreed that consumer awareness and learning opportunities should be considered from the perspective of an integrated approach to learning as an ongoing process. The council feels that such an

approach would address the awareness issue while ensuring that Canadians had access to opportunities to learn new skills in a rapidly evolving economy.

The challenge for the council in responding to this issue will be to determine how to increase consumer awareness of the benefits of the Information Highway in its broadest possible sense. Consumers will need to be convinced of the importance of Canada's Information Highway to their individual lives in, for example, employment, education and recreation. In addition, there will be a need to identify learning opportunities that can combine the development of functional skills and a general comfort with technology.

The Working Group on Learning and Training submitted the new operating principle on **lifelong learning**. The working group has adopted its own operating principles, including one that states that its recommendations should not involve any new funding.

The working group will be developing recommendations to be included in a national strategy on learning and training, which will stress the importance for Canada of adopting a lifelong learning culture. Recommendations will be directly linked to user needs and propose a series of measures, which involve governments, business, learning institutions and the learning profession, publishers of new media materials, distributors and users.

## **Issue 15 — What opportunities does the Information Highway present to improve government operations?**

The Advisory Council has been briefed on current initiatives under way within government to improve its internal operations. The Advisory Council has asked senior officials to look at specific issues, such as how the government can support Information Highway development by being a model user. The council believes that governments across Canada can substantially improve their operations through the application of communications and information technologies. The federal government has a published *Blueprint for Renewing Government Services Using Information Technology*. Several provincial governments also have plans. The council believes that government must move quickly to implementation. Beyond the improvement of internal operations, governments can stimulate the development of the Information Highway by acting as model users of the highway and its services.

The Working Group on Competitiveness and Job Creation has established a task force to examine this issue and will bring forward recommendations to the council in early 1995. The Working Group on Learning and Training is reviewing recommendations aimed at making information on government training needs more accessible. The working group believes that training by new media-based solutions and outsourcing policies for new media-based training could support the development of a Canadian technology-based learning and training industry.



# 4

## The Next Steps

For Advisory Council members, the past few months have been an enriching experience. We discovered the many facets of public policy and the complex structures of the industries that are developing Canada's Information Highway. As the senior executives of major Canadian companies shared their vast knowledge of infrastructure development, they were in turn confronted by the enlightened and imaginative views of academics, creators, consumers, teachers or independent business people whose perspectives were often radically different. These discussions might have appeared laborious; nevertheless, they were necessary. Council members read, studied and discussed many policy papers and information documents. We received presentations from experts and debated with cabinet ministers.

Early on, the council determined that a greater process for public discussion was required. Consequently, Advisory Council working groups invited submissions and views from a wide range of interested parties and are preparing a series of public discussion papers. The first of these, on privacy, has been issued through the *Canada Gazette*, asking for submissions by 23 December 1994. In addition, the council is closely monitoring activities at the provincial and international levels and is investigating the plans of other

jurisdictions. The council also looks forward to reviewing the report of the CRTC following its public hearings on the question of facilitating further competition in the provision of communications services. This report will be referred to us in March 1995 for our review.

These exchanges will help guide our work for the final months. While the Advisory Council and its working groups have dealt, sometimes in great detail, with the complex issues relating to the development of Canada's Information Highway, it has become clear that our real value as a council does not reside in tinkering with and adjusting policy and regulatory frameworks. While we will continue to provide ongoing advice on issues, these tasks are best left to governments and regulators. Our best value lies in our ability to catalyse the promise of the Information Highway into plans for action.

Contact us to share your views.

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