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TELECOMMUNICATION DEVELOPMENT IN THE GLOBAL INFORMATION SOCIETY AND ECONOMY: A CANADIAN PERSPECTIVE

The purpose of this contribution is to provide a perspective on the changing telecommunication environment in the context of a) the implications of the WTO Agreement on Basic Telecommunication Services and b) the follow-up to the Global Knowledge Conference (GK97) co-sponsored by Canada and the World Bank held in June, 1997. The WTO Agreement, in providing a catalyst to the processes of liberalization, privatization and competition, offers all countries - developed and developing alike - both opportunities and challenges. This paper will address how Canada has responded to these challenges, particularly in the context of access and connectivity, the use of information and communication technologies in the development of the global information infrastructure (GII)/Global Information Society (GIS), and in sector reform. Policy-makers have recognized that as the "information highway" evolves, rural and remote areas of Canada in particular will experience economic renewal as the "highway" overcomes the barriers of distance and difficult terrain. How Canada has addressed extension of service issues to remote and rural areas - the successes and pitfalls - can perhaps offer a valuable lesson on how Canada has addressed the challenges of the information age.

The experience of GK97 was also significant from the point of view of demonstrating the advantages of partnering arrangements between organizations which can be extended to the private sector. The paper is not intended to provide a proscriptive blueprint for future action which can be adapted and applied to the circumstances of developing countries, but as a demonstration of a series of practical steps which may be taken to alleviate difficulties in adapting to a rapidly changing environment.

The WTO Agreement and the Canadian response to the development of the Global Information Infrastructure

Having pursued a policy of liberalization in its telecommunication industry for more than a decade, Canada views the WTO Agreement from two interrelated perspectives: a) on the international front, the Agreement has afforded Canada an opportunity to pursue a liberalization agenda in a multilateral forum and to gain access to new international markets; and b) on the domestic front, the

Agreement has accelerated the process of adaptation to a new knowledge-based economy. The forces that are shaping this emerging economy are related and reinforcing - globalization, improvements in information and communication technologies and increasing demand for knowledge. The challenge for Canadian policy-makers has been to establish a legislative and regulatory framework which has moved industry rapidly down the road to open competition in telecommunication services involving any available technologies - be they wireline, wireless, satellite or cable. In recognizing that perhaps the most important role for government is to establish an environment that encourages the private sector to invest in the development of the information infrastructure, Canada has pursued telecommunication policies that encourage competition, which in turn fosters innovation, investment and more consumer choice.

In recognizing that economic well-being depends in large measure on being able to participate in a global knowledge-based economy in which trade barriers are falling in virtually every country of the world and investment is growing rapidly, Canada has set out to develop the infrastructure for the new economy - the information highway where all Canadians will have access at reasonable cost, where Canadian products and services are available, not only in Canada but around the globe, where innovation, economic growth, job creation and communication across Canada will be facilitated.¹ In creating a favourable environment to encourage the private sector to build the information highway, Canada has placed considerable emphasis on the need to build an information infrastructure that will connect all its citizens. While an emphasis on open competition in the provision of telecommunication services is a critical factor in the orderly development of the information highway, it is also recognized that even with the best telecommunication infrastructure in the world, it will mean very little unless affordable access is provided which can empower and enable all citizens to take full advantage of the entire range of economic, cultural, social and educational opportunities that the new technologies can offer.

To capture the full range of economic and social benefits of the information highway, a number of interrelated policy priorities have been identified. One principal component is focused on providing all Canadians with the opportunity of being connected with each other, with their governments, to their businesses, their banks, their schools and their hospitals. Most importantly they will be connected to the information and knowledge they require to create their own economic and social prosperity.

In partnership with the provincial and territorial governments, the private sector and others, the federal government has initiated a number of programs that are helping Canadians connect to the information highway at reasonable cost, whether as private citizens or as business people. One recent initiative which has been undertaken is referred to as the "Community Access Program", which is designed to help Canadians in smaller communities familiarize themselves with the concepts and potential of the global Internet. The Program is giving people in Canada's remote areas access to municipal, provincial and federal information services, and helping them learn the skills needed to compete in an information-based economy. The goals of the Program are ambitious - to connect every rural Canadian community with a population of more than 400 people by 2000-2001,

¹ In addition to the commitments forming part of the WTO Agreement, most countries participating in the negotiations also adopted the Reference Paper on regulatory principles. Through this Paper, Members have agreed, *inter alia*, to address the issue of universal access/service in a neutral and transparent manner. Canada views this principle as having particular significance in the evolution and development of the information highway.

and to provide an additional 5 000 community access centres in urban areas to create a national infrastructure accessible by all Canadians.

A twin program is SchoolNet, an initiative to help connect almost 20 000 Canadian public schools and libraries to the Internet by the end of 1998. The next challenge will be to ensure that there is at least one connected computer in every classroom. SchoolNet is also concerned with content. The SchoolNet website includes a collection of Internet-based educational services and resources for both teachers and students. It includes career guides and university and college course calendars. There are thousands of teacher-designed projects and lesson plans, and virtual tours of institutions that range from the Louvre to the Canadian Museum of Civilization. The SchoolNet Digital Collections program contracts with organizations to hire young people to digitize material for display on SchoolNet.

A further illustration of the importance of partnership between government and the private sector in constructing the Information Highway relates to the support of the former for the efforts of the latter to research and development. The government, for example, contributes to the Canadian Network for the Advancement of Research Industry and Education (CANARIE), an industry-led partnership of some 400 private (most of which are small to medium-sized enterprises) and public sector organizations engaged in developing new networking technologies and applications, using a high-speed experimental test network. One example of a partnership arrangement forming part of the CANARIE initiative concerned the development by one consortium of companies of a World Wide Web browser accessible to people with disabilities who use alternative access systems. The same browser will also provide features and user interface enhancements which will make it a highly competitive mainstream product. A project underway in telehealth will allow an accurate hearing test to be administered anywhere in the world where Internet access is available. It will reduce hearing health care costs by up to 60% for schools, governments, health care providers, industries, insurance companies and the hearing aid industry. Some Canadian companies have formed alliances with international partners to develop advanced telecommunication products and services.

A second priority component of Canada's "connectedness" agenda is electronic commerce. Electronic commerce has various definitions but refers to the conduct of business activities by means of computer-based information and communication technologies. This could involve a transaction between major banks which exchange vast amounts of financial assets, electronic data interchange (EDI), telephone banking, or the sale of products and services electronically on the Internet. Electronic commerce over private, closed networks is not new, and the major activities involve business-to-business transactions. What is new is electronic commerce over open, public networks such as the Internet and the expectations of huge potential for business to consumer transactions. The OECD in fact predicts that global commercial activity on the Internet will grow from its current \$US 500 million to \$US 5 billion by the year 2000. Given the enormous potential impact of electronic commerce, Canada holds the firm view that any nation which desires its citizens to prosper must move forward to capture opportunities, which include the enhancement of access to new global markets and revenues, lower transactional and distribution costs, increased consumer choices, improved product support and information, the development of new niche markets, product customization and rapid response, and the forging of new relationships between businesses and consumers. In terms of the economy as a whole, electronic commerce will provide a source of jobs, new products and services, and economic growth.

While the private sector plays a key role in developing, promoting and expanding electronic commerce, the government has recognized that it also plays a critical role. Electronic commerce will only reach its full potential if barriers and uncertainties that relate to government regulations or

policies are resolved. The global nature of networks and commerce further complicate the issues and solutions will require cooperation with other governments, both domestically and internationally in order, for example, to establish the rules for the digital marketplace both in the domestic context and among global trading partners. This will involve coming to terms with the meaning of intellectual property in a digital world, and settling commercial rules and taxation issues. Other issues relate to digital signatures, security and encryption, and the need to assure consumers that their interests will be protected and their privacy assured.^{2, 3}

Other components of Canada's agenda to connect Canadians include the provision of government services and the placing of Canadian content on-line, as well as an initiative to secure a sustained and innovative electronic presence for Canada in the world. Canada will use the information highway to sell goods and services, to attract investment, to invite tourists and students, and to promote Canadian culture and values. In this way this state of "connectedness" will go well beyond the Canadian borders.

With the new technologies, and more importantly, the ability to use these technologies, citizens and communities everywhere will be presented with new opportunities to benefit from the knowledge-based economy, which have the potential to level the playing field between developed and developing nations. While this assumption may not appear to be readily justifiable given the wide diversity in teledensity among nations, for example, making investments in the infrastructure for a knowledge-based economy can enable developing countries to "leapfrog" old technologies. By using optical fibres or wireless technologies there will be no need to replace copper wires. Developing nations can also benefit from the reduced cost for telecommunication services and equipment as well as avoid some of the regulatory and policy pitfalls that have slowed down the introduction of these technologies in developed nations.

While recognizing that the full economic and social potential of the knowledge-based economy may be an elusive objective in the near term, efforts need to be intensified in creating affordable and equitable access to information and knowledge for all of the world's citizens. Canada firmly believes that access to information should be a basic right for every citizen, which should help avoid the potential threat of a two-tier society of those who use and participate in the knowledge-based economy and a society of the disenfranchised, lacking access to the knowledge that the information highway will carry. Equitable access must include acquiring the skills to make use of the technology that can bring the knowledge-based economy to every community worldwide.

² On 7 to 9 October, just prior to the 1998 Plenipotentiary Conference, Canada will host an OECD conference to set out the principles to drive the global development of electronic commerce. Domestically, Canada will put in place a National Electronic Commerce Strategy, and the federal government has established a Task Force to work with the private sector and the provinces in its development.

³ A meeting was held between officials of the ITU and the UN Conference on Trade and Development (UNCTAD) in September, 1997 for the purpose of discussing the relationship between telecommunications, business facilitation and trade efficiency. In recognizing the importance for all countries, especially of developing countries, of benefiting from practical possibilities to assess the potential benefits of electronic commerce for their own enterprises, in particular small and medium-sized ones, the meeting concluded that special attention should be given to cooperation with the ITU (particularly ITU-D), to ensure that electronic commerce is an integral part of its project to construct pilot community telecentres in rural and remote locations in developing countries.

Utilizing the Information Infrastructure for Development: Follow-up to the Global Knowledge Conference (GK97)

Having noted the critical role of the information infrastructure in relation to economic development, Canada and the World Bank, co-sponsors of the highly successful Global Knowledge Conference (GK97) held in Toronto in June 1997, have spearheaded follow-up discussions which have resulted in the establishment of the Global Knowledge Partnership involving a wide range of public and private organizations and institutions. Among the key objectives of the Partnership are to marshal information and knowledge resources for poverty alleviation and sustainable development and to build a collaborative framework among the participants in the interest of concluding partnership arrangements which are focused on a number of priority areas identified in the results of GK97. These areas include the following: regulatory and policy reforms in the telecommunications and related information technology areas; the improvement of access and connectivity to information and communication technologies (ICTs) for developing countries (which could result in the establishment of community access centres); long-term, self-sustaining development (which could be assisted through the provision of executive management training); and the use of ICTs in support of the reform of education from primary school to life-long learning consistent with the needs of an information-based economy and society. In all of these areas there is a strong interest in carrying out concrete projects which can have a long-term developmental impact. Partnering in the implementation of such projects can involve, not only the private sector (large and small companies), non-governmental organizations (NGOs), development agencies, international organizations and government agencies responsible for the delivery of services such as education and health, but also the ITU Development Sector itself in fulfilling one of its principal responsibilities in ensuring that the Union's catalytic role in stimulating telecommunication development is strengthened.

Conclusion

As noted in the foregoing, the unprecedented impact of the forces of liberalization, competition, globalization and improvements in information and communication technologies have precipitated a sense of urgency among all nations to develop the necessary policy and regulatory milieus to ensure that the needs and interests of business and consumer environments can be adapted to such changing circumstances. The process of change has been further accelerated through the negotiation of agreements liberalizing trade in telecommunications at the international and regional levels. In response to these challenges, Canada has placed emphasis on the following:

- the need to establish an environment that encourages the private sector to invest in the development of the information infrastructure;
- the need to construct the information highway where all Canadians will have access at reasonable cost which includes, as an essential element, service to remote and rural areas;
- the need to build an information infrastructure that will connect all its citizens;
- the need to enter partnership arrangements between public and private organizations and institutions;
- the need to address issues associated with electronic commerce.