CONTENTS

PURPOSE

This document presents a vision for Canada's future in electronic commerce and how it can be achieved. The Canadian electronic commerce strategy outlines challenges and opportunities for business and consumers, identifies ten priority issues and establishes the Canadian plan for addressing these issues. Our goal is to become a world leader in the development and use of electronic commerce by the year 2000.

Action is required for electronic commerce to become the pervasive business platform for businesses and consumers . . .

Despite growing media and public attention, use of electronic commerce is still concentrated in closed networks, such as electronic data interchange (EDI), while use of the open Internet is dominated by business-to-business transactions. Less than one in five North American Internet users are willing to make purchases on-line, reflecting overriding concerns about the security of transactions, privacy and consumer redress. Businesses, moving from closed networks to the Internet, are also concerned about security and confidentiality of corporate information, consistency and predictabilty of rules and the reliability of the information infrastructure. Until these issues are addressed, electronic commerce is unlikely to become the pervasive business platform for both businesses and consumers.

The Canadian electronic commerce strategy addresses these concerns through . . .

- *Building trust in the digital economy:* increasing consumer and business confidence in electronic commerce by addressing security, privacy and consumer protection concerns.
- *Clarifying marketplace rules:* removing barriers to the use of electronic commerce by updating the rules governing how the market functions, including legal and commercial frameworks, financial issues and taxation, and intellectual property protection.
- *Strengthening the information infrastructure:* ensuring networks support the growth of electronic commerce and allow interoperability.
- *Realising the opportunities:* maximizing the jobs and growth potential of electronic commerce by developing skills and awareness and showing government leadership as model users.

Electronic commerce is one of the six interlinked elements of the Government of Canada's Connecting Canadians agenda . . .

The Government of Canada has established a goal of making Canada the most connected nation in the world by the year 2000, and to make the Information Highway infrastructure and information

society accessible to all Canadians. As a country we need to ensure that Canadians, their communities, businesses and institutions will have access to the social and economic opportunities created by the new technologies, information infrastructure and digital content. This will result in business growth and development, new and innovative jobs, improved capacity for communications and improved ability to extend our reach to other countries. Electronic commerce is a key element of Connecting Canadians (see sidebar).

Connecting Canadians

Canada On-line

Smart Communities

Canadian Content On-line

Electronic Commerce

Canadian Governments On-line

Promoting a Connected Canada to the World

The Canadian electronic commerce strategy is based on private and public sector partnerships . . .

The private sector has the lead role in the development and use of electronic commerce in Canada. The role of governments is to support the private sector – this can be done in three ways.

First, governments can provide a supportive and responsive domestic policy environment for electronic commerce, one that allows for market flexibility while ensuring that minimum baselines exist for a fair marketplace and consistent treatment of digital and paper-based commerce.

Second, Canada can work with other governments and international organizations to establish a truly global regime that provides consistent and predictable global rules, and ensures the interconnection and interoperability of the information infrastructure. Canada is taking a leadership role establishing such frameworks in hosting the Organisation for Economic Co-operation and Development (OECD) Ministerial Conference on Electronic Commerce, in Ottawa, October 7-9, 1998. This legacy conference leads to the establishment of agreements and action plans spelling out the roles of government, international organizations and the private sector in addressing key electronic issues. Canada is also actively involved in the work of the Asia Pacific Economic Cooperation (APEC), the World Trade Organization (WTO) and other international organizations in developing frameworks for electronic commerce and promoting its use.

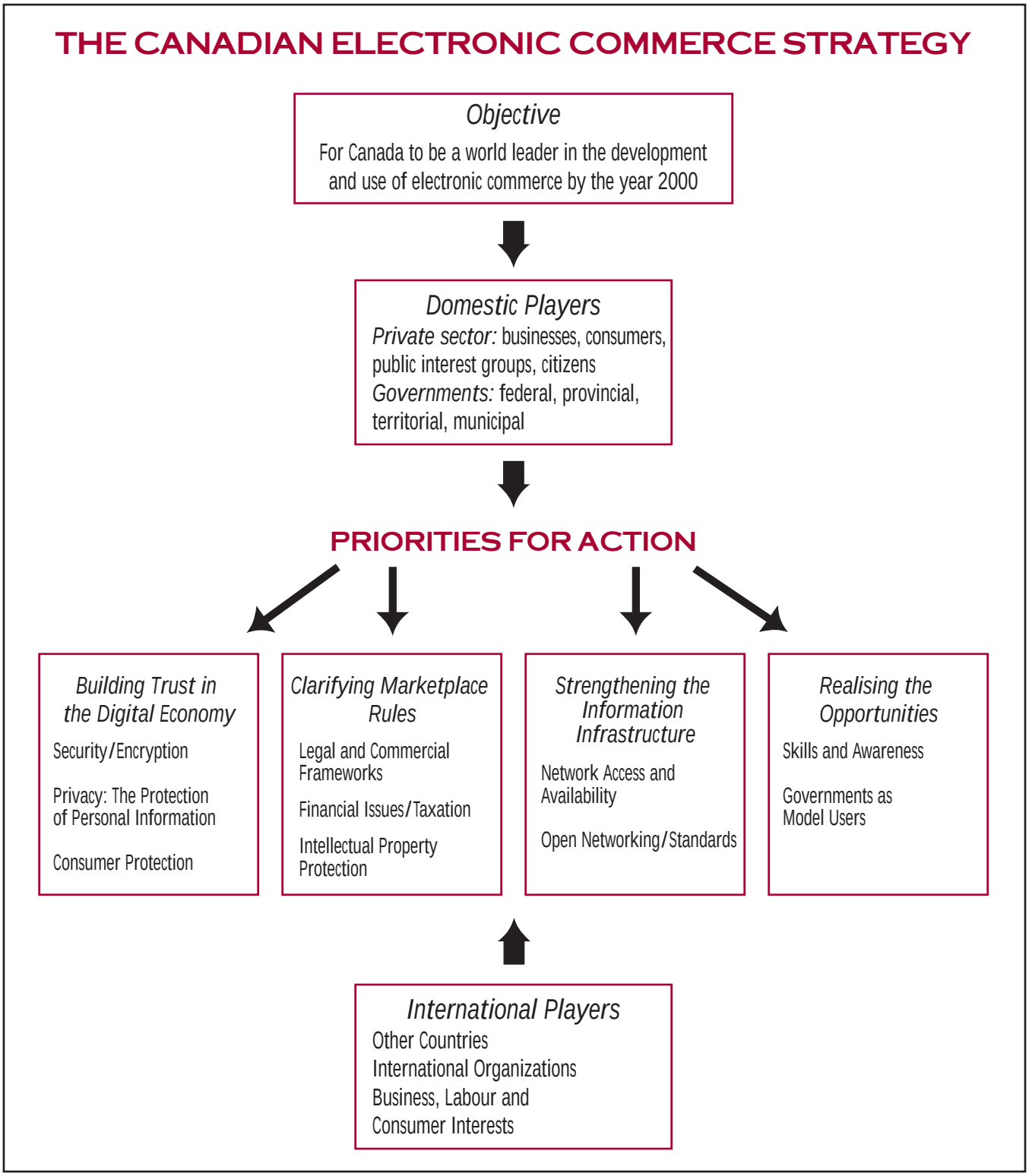
Further information can be found at the Task Force on Electronic Commerce Web site:

http://e-com.ic.gc.ca

Third, governments can also show leadership by acting as model users of new technologies, serving to demonstrate the advantages of electronic commerce, and building trust among businesses and consumers.

Information on the Connecting Canadians agenda can be found at http://www.connect.gc.ca

Canadian businesses, consumers, public interest groups and governments have a tradition of working together to achieve goals in Canada's interests – electronic commerce represents an emerging area where this tradition can be continued.


THE CANADIAN ELECTRONIC COMMERCE STRATEGY
Objective
For Canada to be a world leader in the development and use of electronic commerce by the year 2000
Domestic Players
Private sector: businesses, consumers, public interest groups, citizens
Governments: federal, provincial, territorial, municipal
PRIORITIES FOR ACTION
Building Trust in the Digital Economy
Security/Encryption
Privacy: The Protection of Personal Information
Consumer Protection
Clarifying Marketplace Rules
Legal and Commercial Frameworks
Financial Issues/Taxation
Intellectual Property Protection
Strengthening the Information Infrastructure
Network Access and Availability
Open Networking/Standards
Realising the Opportunities
Skills and Awareness
Governments as Model Users
International Players
Other Countries
International Organizations
Business, Labour and Consumer Interests

SECTION ONE:

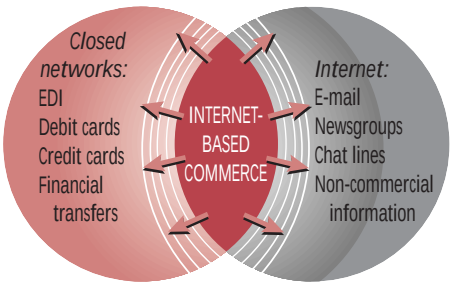
UNDERSTANDING ELECTRONIC COMMERCE

1. WHAT IS ELECTRONIC COMMERCE?

Governments, the private sector, the media, the academic community – all are heralding electronic commerce as a revolutionary means of conducting business and interacting as citizens and consumers. As with the application of any new technology, our understanding of electronic commerce is continually evolving. While many varying definitions and growth projections exist, forecasters agree that exponential growth will continue well into the next century.

Electronic commerce, broadly defined, includes all transactions using electronic means . . .

Electronic commerce can be defined narrowly or broadly. Broader definitions include any kind of transaction that is made using digital technology, including open networks (the Internet), closed networks such as electronic data interchange (EDI), and debit and credit cards.



The narrower definition specifies that electronic commerce includes only transactions using Transmission Control Protocol/ Internet Protocol. Electronic commerce is thus seen simply as an Internet application. While the focus of attention and most growth projections are indeed on Internet-based electronic commerce, the two remain separate yet intersecting, as the diagram above illustrates. This document has adopted the broader definition, viewing electronic commerce as encompassing both the Internet and closed networks, as well as hybrid networks.

Key Terms

Electronic commerce includes all transactions using electronic means: the Internet, electronic data interchange (EDI), and debit and credit cards.

The Internet is an international network of networks that allows different computer users to share information and communicate interactively. It allows computers and networks to communicate openly and effectively regardless of make, architecture, speed, manufacturer, connection or resources.

EDI is a standard for compiling and transmitting information between companies, often over private communications networks called "value-added networks."

Areas of Electronic Commerce Activity

Transactions:

- *business-to-business*
- *business-to-consumer*
- *government services*

Supported by:

- *computer hardware*
- *computer software*
- *enabling services*

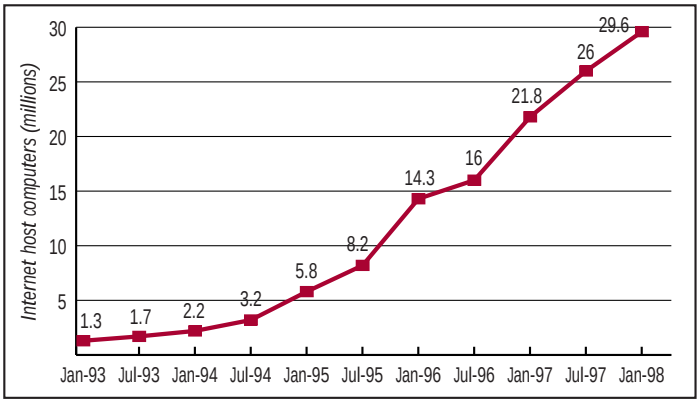
Internet-based electronic commerce is predicted to grow rapidly . . .

Total current use of electronic commerce, including the use of closed networks, and debit and credit cards, is measured in the trillions of dollars. For example, worldwide financial transfers through the Society for Worldwide Interbank Financial Telecommunications (SWIFT) network alone account for transactions of US$3 trillion per day.[1]

Electronic commerce conducted over the Internet is modest by comparison, currently estimated at approximately US$30 billion.[2] However, exponential growth is forecast, building on the skyrocketing growth of the Internet (see Figure 1). While estimates vary widely, as many as 100 million consumers are projected to be on-line by 2001 in the United States alone (see Figure 2), with most observers predicting worldwide electronic commerce revenues of about US$400 billion by 2002[3] (see Figure 3). To put this in perspective, US$330 billion worth of electronic commerce would be equal to three times current U.S. direct mail catalogue sales, and represent a quarter of current U.S. credit card purchases.[4]

FIGURE 1: Growth of Internet is Skyrocketing

(Internet host computers in millions)



Source: Network Wizards *Internet Domain Survey*. Data are available at www.nw.com

1 "Business at Net Speed," Information Technology Annual Report, *Business Week*, June 22, 1998, p. 148.

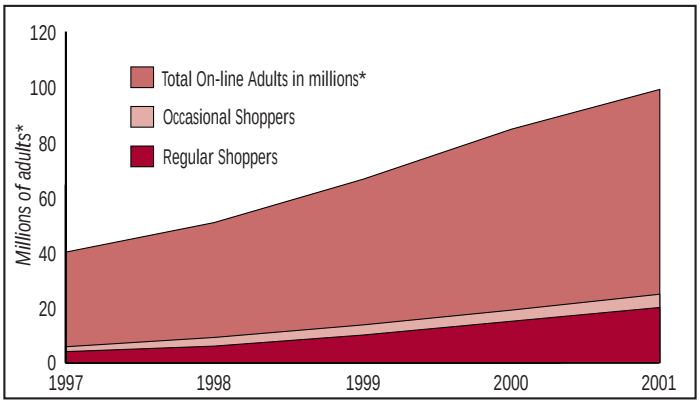
2 Forrester Research Inc., IDC Canada Ltd.

3 *Ibid.*

4 Unpublished OECD data.

FIGURE 2: On-line Consumers Projected to Grow Rapidly

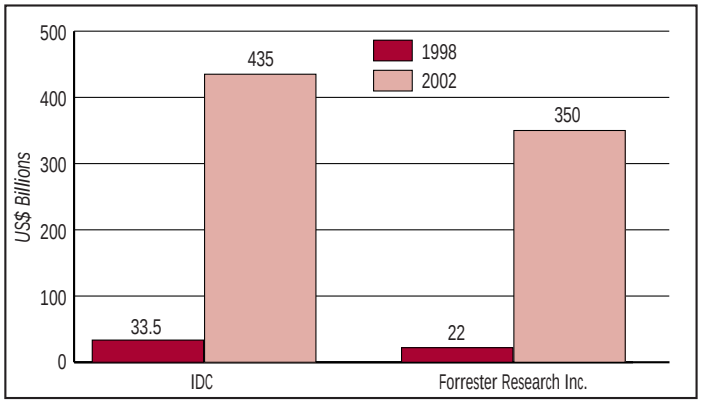
(Millions of adults, U.S. only)



* U.S. only.
Source: *Forrester Research Reports*, Volume 4, Number 6, "Retail Revs Up," October 1997.

FIGURE 3: Electronic Commerce Projected to Grow Rapidly

(Global e-commerce growth estimates, 1998-2002 US$ Billions)



Source: IDC Canada Ltd.; Forrester Research Inc.

Intranets

Companies use intranets to distribute information and speed data between offices. Intranet activities usually take place behind secure "firewalls" so that only authorized users have access. An intranet can span multiple business locations via the Internet.

Extranets

When a company throws open its internal network – or intranet – to selected business partners, the intranet becomes an "extranet." Suppliers, distributors and other authorized users can now connect to the company's network over the Net or through virtual private networks.

Source: "Business at Net Speed," Business Week, June 22, 1998, p. 136.

Electronic commerce, used in a generic sense, encompasses three distinct types of transactions, supported by the information technology infrastructure . . .

Electronic commerce encompasses three distinct types of transactions: those between businesses, those between businesses and consumers, and government services. These transactions are supported by the information technology infrastructure, consisting of hardware, software and enabling services.

Transactions are not limited to purchases of goods and services, but move along a spectrum beginning with information gathering and exchange, progressing to negotiation and decision to purchase, finally to completion of transaction and after sales support. In fact, at present, much of electronic commerce activity is concentrated in information gathering and exchange used to support purchase decisions. As electronic commerce grows, the importance of sales transacted on-line is expected to increase.

Transactions between businesses are leading electronic commerce growth . . .

Business-to-business applications are driving the growth of electronic commerce, accounting for about 80 percent of Internet-based electronic commerce.[5] Businesses have used EDI for over 25 years to conduct transactions with suppliers. Now, lower costs and greater accessibility are causing businesses to move to the Internet, or to create hybrid networks through the use of intranets and extranets (see sidebar). In addition, an entirely new group of business users is coming on-line, mainly small and medium-sized firms that lack the resources required to support EDI.

Consumer use of the Internet is still in its infancy. A Commerce Net/Nielsen survey conducted in 1997 found that only about 16 percent of Internet users in Canada and the United States have made purchases over the Internet.[6]

5 Forrester Research Inc.

6 Cited in Lynn Margherio, David Henry, Sandra Cook, Sabrina Montes, *The Emerging Digital Economy*, United States Department of Commerce, April 1998, p. 35.

Government use of electronic commerce to deliver services is growing: the Government of Canada has indicated that electronic commerce will become the preferred means to conduct business. Provincial, territorial and municipal governments are also increasingly turning to electronic commerce as an affordable means of increasing range, reach and availability of services.

Additional economic activity results from investing in the information infrastructure . . .

As companies anticipate rapid growth in electronic commerce, significant investments are being made in the hardware, software and services required to support it. Global Internet-related investments were estimated to sum to about US$40 billion between 1995 and 1997, a portion of which was dedicated to electronic commerce. This US$40 billion in fact exceeded electronic commerce revenues.[7] An entirely new cadre of network-based intermediaries is developing, providing information search and evaluation (e.g. search services, Web site evaluators), marketing, product and customer information, and secure on-line payment. Traditional sectors of advertising and delivery also play critical intermediary roles.

Intermediary activity tends to be concentrated in North America, which is leading in the development and growth of electronic commerce . . .

The United States is estimated to account for about 80 percent of worldwide Internet commerce revenue, followed by Canada at 5 percent.[8] The United States accounts for between 70 and 85 percent of the top 100 sites by category of Internet purchases (e.g. finance, shopping). Canada has the second highest number of top-100 sites.[9]

7 Unpublished OECD data.

8 OECD, "Webcasting and Convergence: Policy implications," OECD/GD (97)221; IDC Canada Ltd., *Internet Commerce in Canada 1997-2002*, August 1998.

9 *Challenges to the Network: Telecommunications and the Internet*, International Telecommunication Union, September 1997, Section 3.3.3.

2. ASSESSMENT OF GROWTH PROSPECTS: HOW REALISTIC ARE THE ESTIMATES?

Many people are predicting that electronic commerce will become a pervasive form of business within the next ten years. Assessing how likely this is to happen requires an examination of the intrinsic advantages and challenges of electronic commerce in general, and of specific types of transactions (i.e. business-to-business, business-to-consumer).

Information technologies have been leading economic growth: electronic commerce will contribute to this growth and diffuse throughout economy . . .

Electronic commerce provides a powerful means of diffusing the advantages of networking throughout the economy, based on a platform provided by the information technology sector. This sector is strong and growing, as demonstrated by increasing shares of gross domestic product (GDP). In the United States, the information technology sector has grown from just under 5 percent of the economy in 1985 to just under 8 percent in 1997. Given that prices for information technology goods and services have fallen dramatically – for example, the cost of microprocessing computing power has fallen from US$230 to US$3.42 per MIPS (millions of instructions per second) since 1991 – this increasing share of GDP is even more impressive.[10] The story is the same in Canada. The information and communications technology sector accounted for 5 percent of GDP in 1990, increasing to over 7 percent in 1996. This sector accounted for 30 percent of total economic growth between 1990 and 1996, with compound annual growth rates of 7.6 percent during this period, compared with 1.5 percent for the total economy.[11]

Electronic commerce will spur continuing growth in the information technology sector. Given its potential to change how business is done, electronic commerce will have even broader impacts, promising to accelerate growth not only in the information technology sector itself, but also across all sectors of the economy, such as manufacturing and retailing.

Electronic commerce presents compelling advantages for businesses . . .

The intrinsic advantage of the Internet as a platform for electronic commerce rests on the open, non-proprietary nature of the network: the Internet allows businesses to use a global, interactive means of information exchange at a low cost. While some would argue that such a capability

10 Margherio et al., *The Emerging Digital Economy*, p. A1-2.

11 Canada, *Information and Communication Technologies (ICT), Economical and Statistical Information*, March 1998, pp. 2-3.

already exists through existing communications networks such as telephone, fax or proprietary networks, the Internet offers an unmatchable combination of interactivity, versatility, low cost and speed.

The implications of worldwide, low-cost information exchange are profound. The full potential of computerized design, manufacturing, delivery and services may now be realised by linking all parts of a distribution chain together, from product concept, design, testing, and manufacturing to marketing, after sales and service. For example, software designers and automotive manufacturers can test concepts and prototypes with users, and demand forecasts can be immediately passed from marketing to production and the supply chain.

As a result, efficiency and productivity are increased through lower procurement costs, reduced processing errors, reduced inventories, and faster time to market. For example, by linking marketing to manufacturing and procurement, IBM improved inventory turns and experienced savings of US$500 million due to lower investment and operating costs. Automotive companies have reduced material flow to the supply chain from up to six to less than two weeks.[12]

Companies are also adopting the Internet as a base for business transactions to gain a competitive advantage, often at the insistence of other business partners in a supply chain. These forces are expected to result in the rapid growth of business-to-business electronic commerce.

Consumers benefit from increased choice and convenience . . .

From the consumer's perspective, electronic commerce offers significant benefits. Convenience, increased access to information, lower prices, and choice are benefits cited most often by consumers (see Figure 4). For example, a small business, Unique Patterns Design of Halifax, Nova Scotia, is able to offer custom patterns that are tailor-made for each customer. Electronic commerce is also being used to support purchases made in conventional retail channels, as it allows consumers to gather information and comparison shop on-line. For example, Canadian Tire is using its eFlyer to tailor product information to individual customers.

Advantages of Electronic Commerce to Business:

- *lower procurement costs*
- *reduced processing errors*
- *reduced inventory costs*
- *reduced time to market*
- *extended business reach*
- *improved customer service*

Just a Few Examples:

The Automotive Network eXchange (ANX) links suppliers to each other and to auto assemblers, reducing errors, improving inventory turns and reducing lead times. Savings of US$1 billion annually are projected.

Major Canadian steel and parts suppliers – Dofasco and Magna – are key participants in ANX.

Canadian Tire's eFLYER

The eFLYER provides personalized product information:

"Shop only for what you want – tell us what you want to see in our flyer, and that's exactly what you'll get. eFLYER is personalized to your preferences, so you can make your buying decisions faster and easier."

Sources: *Internet Week,* April 1998*; Canadian Tire Annual Report, 1997.*

12 Margherio et al., *The Emerging Digital Economy*, pp. 16-18.

Products and services most suited to electronic sale are those that are information intensive and can be delivered digitally, or tangible products that do not require tactile examination and can be easily shipped. Early leaders in consumer electronic commerce have fit this profile, most notably financial services, computer hardware and software, travel, entertainment, and books and CDs (see Figure 5).

Advantages of Electronic Commerce to Consumers:

- *greater choice*
- *increased convenience*
- *more complete information*
- *lower prices*

Just a Few Examples:

On-line book sellers can offer a potentially unlimited inventory versus the 150 000 titles offered by a typical large bookstore.

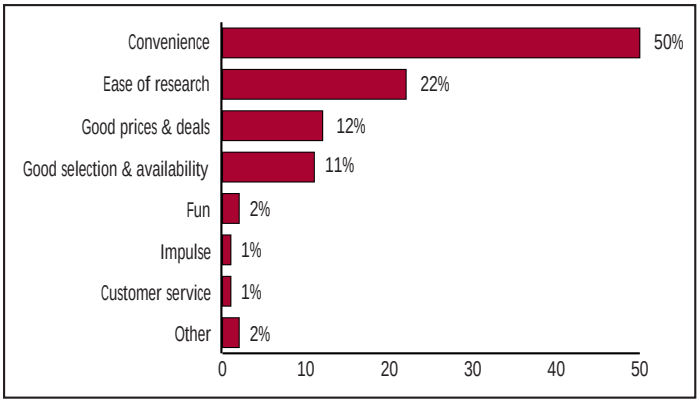
Internet airline reservations cost US$1.00 versus US$8.00 through a travel agent.

Bank transactions cost one cent on-line versus US$1.07 at a bank branch.

Source: Air Transportation Association of America, Booz-Allen & Hamilton, cited in Margherio et al., The Emerging Digital Economy, pp. 28-29; Decision Resources, Report on Focus Groups, June 1998.

FIGURE 4: Advantages of Internet Commerce to Consumers

(Percentage of respondents)



Source: *Forrester Research Reports*, Volume 4, Number 6, October 1997.

FIGURE 5: Focus of Consumer Purchases

(Estimated revenue)

	1997 (US$)	*2001 (US$)**
Financial services	1.2 billion	5 billion
Personal computer hardware and software	863 million	3.8 billion
Travel	654 million	7.4 billion
Entertainment	298 million	2.7 billion
Books and music	156 million	1.1 billion
Apparel and footwear	92 million	514 million
Ticket event sale	79 million	2 billion

* Estimate.
Source: Forrester Research Inc.

Citizens benefit from increased convenience and speed of service and strengthening of the social infrastructure . . .

Electronic commerce has widespread benefits beyond those related to the transaction of business. Governments at all levels are turning to the Internet as a means of increasing the range, reach and availability of their services. Services are available 24 hours a day, seven days a week, independent of location. The costs of providing these services can be significantly reduced for both users and governments. Electronic delivery of government services will also facilitate the future integration of government services from different departments and different levels of government.

Other public sector institutions such as those in the education and health sectors are also using the Internet as an affordable tool to increase the reach of their services. Computer-based training can provide information which is immediately available and tailored to specific needs, making the goal of lifelong learning more attainable. In the health care sector, the Internet is being used to allow rural or remote doctors, clinics and hospitals to access specialized knowledge and services usually found only in urban centers, and to diffuse information to the public (see sidebar).

Most broadly, networking promises to allow citizens to participate more fully in society and create new sense of community through greatly improved means of communications.

Balanced with this potential, electronic commerce also faces limitations, many based on the Internet itself . . .

The potential for electronic commerce is real. However, limiting factors exist, many based on the Internet itself, including issues of universal access, governance, and the future capacity of the underlying network.

Access to the Internet, while growing, is far from universal: in Canada, 36 percent of households own a personal computer, and 13 percent had Internet connections in 1997.[13] If Internet access from home, work, school and elsewhere is included, access is just over 30 percent.[14] The majority of large businesses and an estimated 43 percent of small businesses have Internet access.[15] While these levels of access are among the best in the world, they do not come close to the near-universal penetration of established communications technologies such as the telephone.

Advantages of Electronic Service Delivery to Citizens:

- *increased accessibility and convenience of services (government services, tele-learning, health information)*
- *quicker response*
- *reduced cost of operation to governments, citizens and businesses*

Just a Few Examples:

Legal firms are now taking advantage of the ability to file applications electronically under the Investment Canada Act*, leading to quicker turnaround times.*

The Canadian Health Network *(CHN) provides timely and accessible health information to the general public and health intermediaries. The Internet-based network consolidates health promotion and disease prevention information from federal/provincial/territorial, non-government, university and private sector organizations.*

13 Statistics Canada, 1998.

14 ACNielsen *Canadian Internet Survey*, 1997, p. 21.

15 "In the Net," Canadian Federation of Independent Business, *Research and Reports*, June 1998.

Governance remains an issue, as the Internet is composed of myriad smaller autonomous networks, lacking central management. This means that no one is responsible for the reliability and speed of service. Basic rules establishing domain names, protocols and routing procedures are in a state of flux, as control is passed to the private sector. This lack of guarantees and predictability is of significant concern to businesses that are used to controlling their own closed networks.

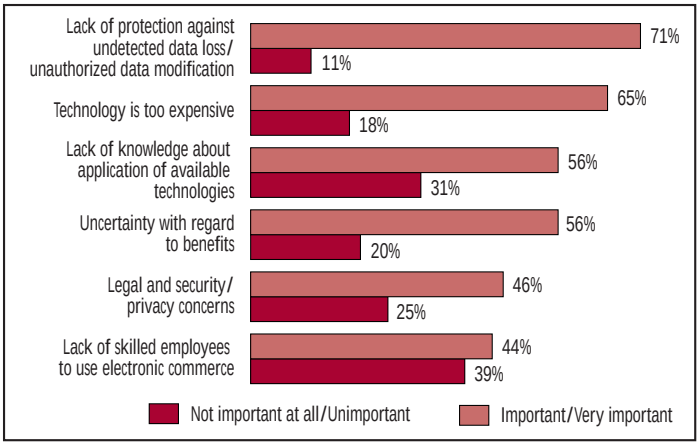
The network also presents challenges – namely, will information networks be able to support the exponential growth that is forecast? It is estimated that at current growth rates, Internet traffic will soon consume half of the available bandwidth on networks worldwide, increasing to 90 percent by 2002.[16] In addition, sufficient bandwidth does not yet exist for the multimedia applications required to make electronic commerce attractive to a wider range of users.

The Internet exposes businesses to risk and uncertainty, and a range of unknown potential partners, customers and suppliers . . .

Using the Internet exposes businesses to issues that are not experienced in private, closed network environments, where parties to a transaction are known and relationships have existed over time. Is information truly private, or will it be given to a competitor? Is the payment mechanism secure? What are the legal and financial frameworks that support electronic transactions? Businesses are also concerned about how to make choices about new technology and how to find the skilled workers required to use it (see Figure 6).

FIGURE 6: Security and Uncertainty Are Significant Business Concerns

(Percentage of respondents)



* Based on 3000 establishments across eight service industries.
Source: *Technologies in Services* – report for Industry Canada and the Canadian Electronic Commerce Committee, April 1997.

16 *PCWeek Online*, May 6, 1998.

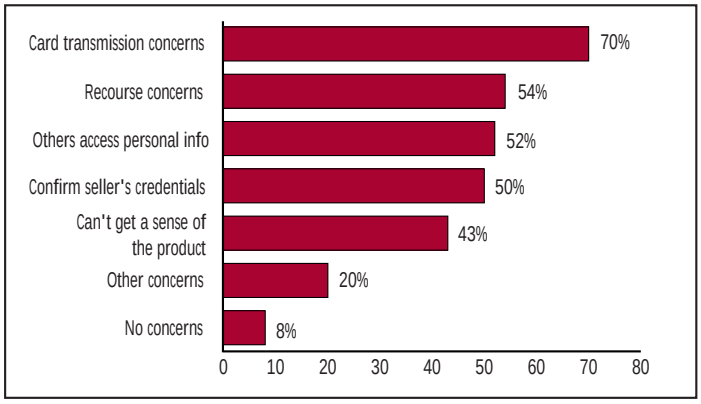
Consumers are reluctant to transact business electronically until issues of security, privacy and redress are resolved . . .

Consumer demand for electronic commerce remains low, due in part to limited product and service offerings, and more fundamentally, to a lack of consumer trust (see Figure 7).

To date, consumer products offered on-line have capitalized on the Internet's strength in distributing information, consisting largely of digital products and services such as entertainment, software and on-line banking. Growth of digital products and services will depend to a large extent on the development of new telephony, wireless and multimedia applications, and on clear assurances of copyright protection for information producers.

FIGURE 7: Security, Privacy and Uncertainty Are Significant Business Concerns

(Percentage of respondents)



Source: ACNielsen, *Canadian Internet Survey,* 1997.

Tangible products offered on-line have been concentrated in goods that do not require physical examination, such as books and CDs, or that can be identified by brand and reputation, such as computer hardware and brand-name apparel. Sales of unknown tangible products are unlikely to increase significantly until consumers can have assurances of quality and the products can be made more real, for example, through improved three-dimensional imaging.

Apart from the nature of products and services offered on-line, consumers have clearly signalled that they will not be willing to make purchases on-line until issues of privacy, security, redress and certainty of dealing with reputable merchants are solved. The majority of consumers are worried about the security of financial transactions, the protection of personal information and the availability of redress if problems occur. Citizens also share these concerns in transacting business with government.

3. WHAT IS NEEDED?

Electronic commerce promises to transform the conduct of business, consumer and government transactions, offering the benefits of more efficient supply chains, greater convenience and choice, and lower cost of doing business. However, before these benefits are realised, businesses and consumers want to know that transactions are private and secure, that legal and financial frameworks exist to support transactions and that the information infrastructure works.

Many possible scenarios exist for the future of electronic commerce. Optimists assume that these issues will be addressed and that electronic commerce will continue to grow. The contrary, pessimistic belief is that growth in electronic commerce, particularly growth in on-line sales, will stagnate as underlying problems remain unresolved, which could lead to a splintering of the Internet into smaller managed proprietary networks.

"There are two extreme possibilities: cyberspace could turn into a place where people set up shop, build communities, share ideas, and shape the future on the basis of democratic choices. Or, it could continue to hurtle along as a Wild West type outpost where anonymity, lack of privacy and unsecured communications keep outlaws and high risk takers happy."

Source: Don Tapscott, *Blueprint to the Digital Economy: Creating Wealth in the Era of E-Business.* McGraw-Hill, 1998.

Issues to be addressed cut across all dimensions of electronic commerce . . .

It is sometimes assumed that issues of concern to businesses in their use of electronic commerce are intrinsically different from those facing consumers and governments, and that separate approaches must be developed for each. In fact, businesses, consumers and governments share concerns with these fundamental issues:

ISSUE	*Business-to-Business*	*Business-to-Consumer*	*Governments*
Security/Encryption	✔ Information, financial transactions	✔ Information, financial transactions	✔ Information, financial transactions
Privacy: Protection of Personal Information		✔ Personal information	✔ Personal information
Consumer Protection		✔ Information, certainty about merchants, redress	✔ Consumer protection frameworks
Legal and Commercial Frameworks	✔ Contracts, jurisdiction, enforcement, liability	✔ Contracts, jurisdiction, enforcement, liability	✔ Media-neutral statutes
Financial Issues/Taxation	✔ Taxation, financial services	✔ Taxation, financial services	✔ Financial issues frameworks
Intellectual Property Protection	✔ Availability of products and services, protection of content, liability, trade-marks	✔ Availability of products and services, protection of content, liability, trade-marks	✔ Availability of products and services, protection of content, liability, trade-marks
Network Access and Availability	✔ Reliability, speed, access	✔ Reliability, speed, access	✔ Reliability, speed, access
Open Networking/ Standards	✔ Interoperability, universal communication	✔ Interoperability, universal communication	✔ Interoperability, universal communication
Skills and Awareness	✔ Skilled workers	✔ Build consumer awareness	✔ Build citizen awareness

SECTION TWO: FRAMEWORK

1. GOAL

The objective of the Canadian electronic commerce strategy is for Canada to be a world leader in the development and use of electronic commerce by the year 2000.

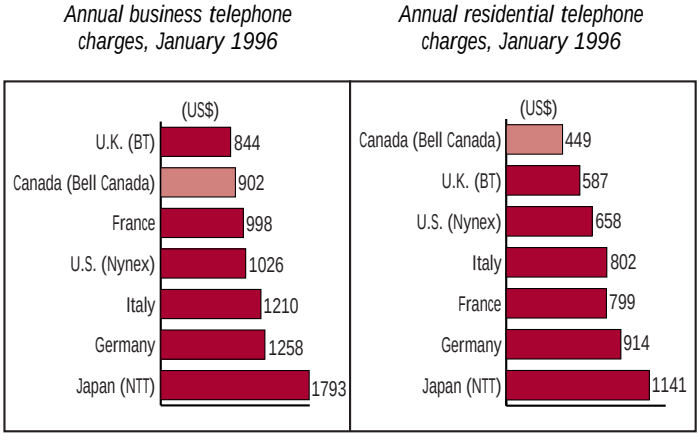
Why is it important that Canada be a world leader in electronic commerce?

Electronic commerce promises to be a major generator of jobs and growth in the next century, through improvements in the productivity of business, growth in consumer transactions, and development of the supporting information technology infrastructure. Experience has shown that early leaders quickly establish market dominance. Those who enter first are able to help shape evolving rules as well as business and consumer behaviour.

Canada is well positioned to compete . . .

Canada enjoys many advantages that position it to compete effectively in electronic commerce. Canada has the highest standing of post-secondary education enrolment in the world, ranked first in knowledge workers by the World Economic Forum. Its telecommunications infrastructure is world class – it has among the lowest telephone costs in the world and the lowest Internet access charges among G-7 countries (see Figures 8 and 9); it is second only to the United States in telephone mainlines and Internet hosts per capita among G-7 countries (see Figure 10); and it has many pioneering telecommunications and information technology companies that are recognized worldwide.

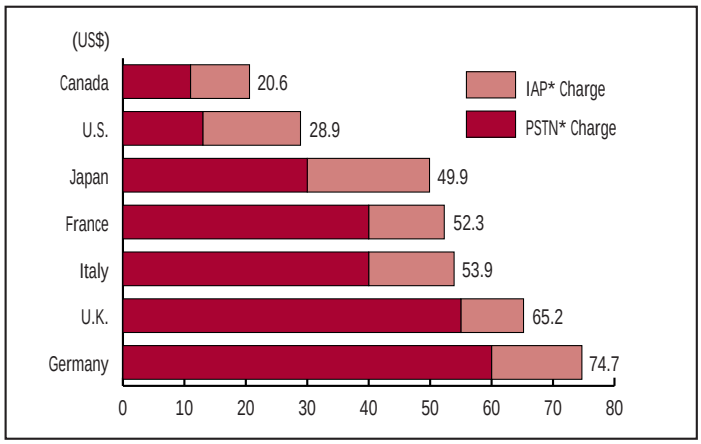
FIGURE 8: Canada's Telephone Costs Are Among the Lowest in the World



Source: OECD, *Communications Outlook*, 1997.

FIGURE 9: Canada Has Lowest Internet Access Charges in the G-7

(Internet access charges, 1996)

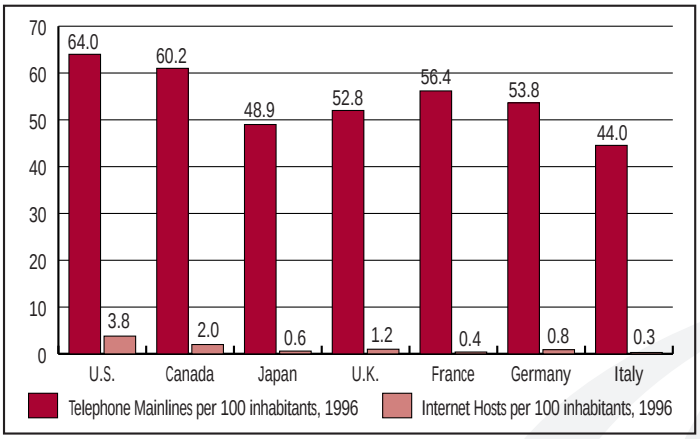


* The charges include both those levied by the Internet Service Provider (IAP) and by the PTO for the use of the Public Switched Telephone Network (PSTN). The PSTN charges include both an element of connection and rental charge as well as usage-based charges, but not long distance charges.

Source: OECD, *Communications Outlook*, 1997, Volume 1.

FIGURE 10: Canada Is Second Only to United States in Telephone Mainlines and Internet Host Density in G-7

(G-7 countries)

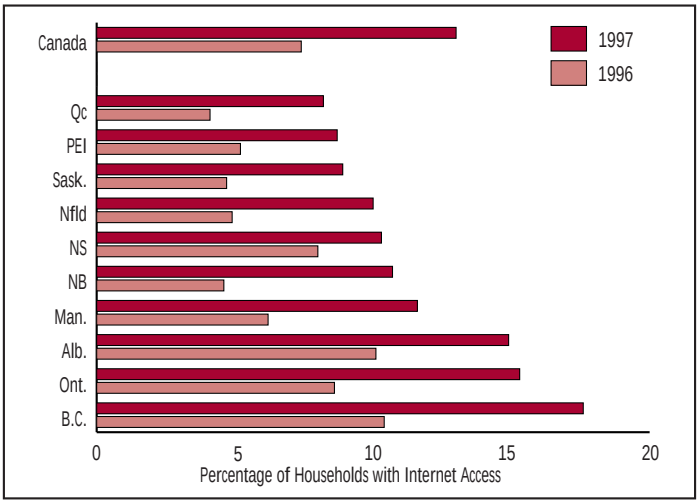


Source: *World Telecommunication Development Report*, International Telecommunication Union, 1998.

Just as important in developing early markets is the role of the consumer. Canadian consumers are "early adopters" of new applications. Internet use by both individuals and businesses is increasing rapidly in Canada (see Figures 11 and 12). Canada is second only to the United States in Internet users per capita (see Figure 13).

FIGURE 11: Household Internet Use Is Growing in Canada

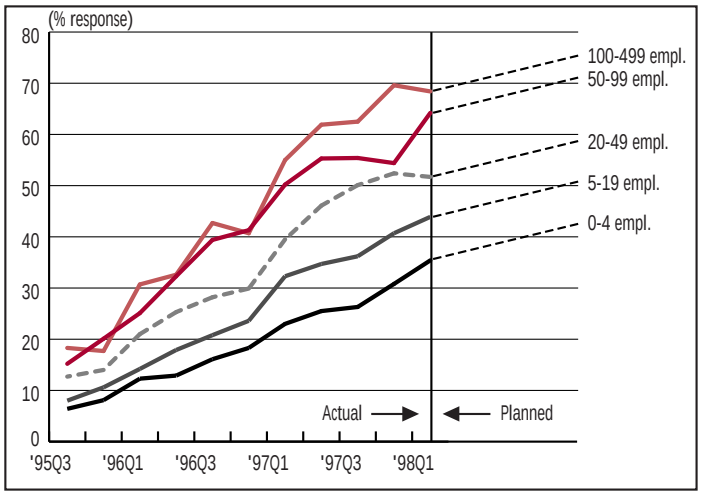
(Percentage of households with Internet access)



Source: Statistics Canada.

FIGURE 12: Use of Internet by Small and Medium-sized Enterprises Is Growing

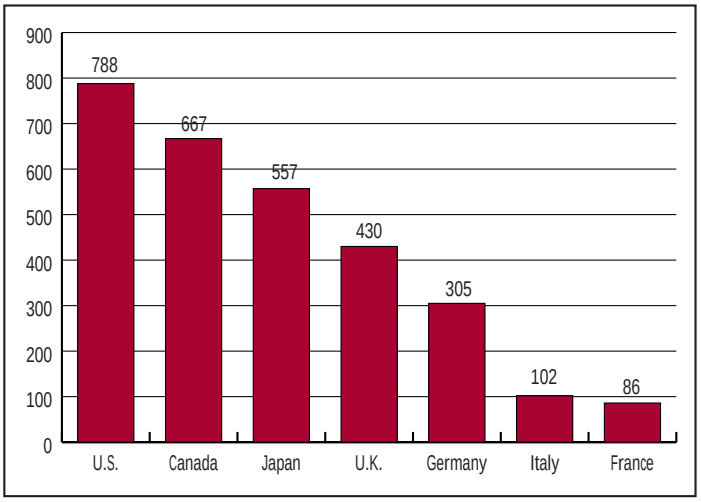
(Percentage of businesses using Internet, by size of firm)



Source: Canadian Federation of Independent Business, results of Members Opinions Surveys #37-42.

FIGURE 13: Canadians Are Second Only to the United States in the Use of Internet

(Internet users per 10 000 inhabitants, 1996)

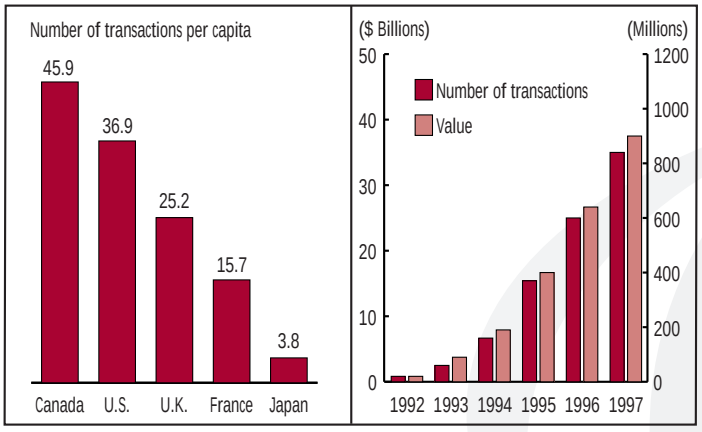


Source: *World Telecommunications Development Report*, International Telecommunication Union, 1998.
© ITU 1998.

Over half of Canadians are frequent users of debit cards. Canadians made over one billion Interac transactions in 1997, totalling over $44 billion, representing over one tenth of all consumer spending in Canada.[17] Eighty percent of all routine retail banking transactions in Canada are done through automated teller machines.[18] Canada leads the world in use of automated banking machine transactions per capita (see Figure 14).

FIGURE 14: Canadians Are Leading Users of Electronic Banking/Interac Direct Payment

Use of automated banking machines in 1995



Source: Canadian Bankers Association.

Interac transactions in Canada

Source: Interac, *Annual Review 1997*.

17 Interac Association, 1998.

18 Ray Van Eng, *Netcash*, March 17, 1997.

2. DEFINING PRIORITIES

Analysis of the challenges facing the use and growth of electronic commerce, reflecting views from business, consumers, provinces and territories, as well as international organizations, points to four key areas for electronic commerce action in Canada.

Building Trust in the Digital Economy	*Clarifying Marketplace Rules*	*Strengthening the Information Infrastructure*	*Realising the Opportunities*
Security/Encryption Privacy: The Protection of Personal Information Consumer Protection	Legal and Commercial Frameworks Financial Issues/ Taxation Intellectual Property Protection	Network Access and Availability Open Networking/ Standards	Skills and Awareness Governments as Model Users

Building trust in the digital economy: Most business relationships, whether between a consumer and a company or between firms, require a strong element of confidence and trust. The impersonal and remote nature of electronic commerce places a heavy burden on the need for means to reduce or eliminate risk. Security, privacy and consumer protection are all required to instill trust in electronic commerce, for both businesses and consumers.

Clarifying marketplace rules: A body of rules that govern how business and government transactions are conducted has developed over time. To remove barriers to the use of electronic commerce, these rules need to be examined to assess how they apply to the digital world, and adapted where necessary, to create a level playing field which is predictable and consistent for all kinds of commerce.

Strengthening the information infrastructure: Electronic commerce will not grow without a strong platform that includes network access and availability, and open standards.

Realising the opportunities: Electronic commerce is part of a broader process of economic, social and cultural change, characterized by the globalization of markets and the shift toward an economy based on knowledge and information. Opportunities for jobs and growth created by electronic commerce need to be distributed as widely as possible among citizens, consumers and businesses, through development of skills and awareness, and government leadership as model users.

3. ROLES

Private sector innovation, risk taking and investment are driving the growth of electronic commerce, with government providing a supportive framework . . .

The Canadian electronic commerce strategy is based on the recognition that the private sector has the key role in developing and expanding electronic commerce in Canada. Government's role is to provide a supportive and responsive policy environment for businesses and consumers, one that allows for market flexibility while ensuring a minimum baseline for a fair marketplace. Countries that can provide such environments will be better positioned to compete internationally. To this end, the Canadian government and private sector are working together to implement the Canadian electronic commerce strategy (see sidebar).

Federal-Provincial-Territorial Partnerships:

Federal-Provincial-Territorial Information Highway Ministers have agreed:

- to promote and support the removal of legal, policy or regulatory obstacles to electronic commerce;
- to promote and support the use of open standards for network interconnection and interoperability, and the electronic delivery of government services;
- that consumers must have confidence that their personal information will be adequately protected and that industry must have a fair and predictable business environment, with a consistent set of rules across jurisdictions.

Harmonization of government frameworks is key to building trust and clarifying marketplace rules . . .

Much of the legislative reform required by governments involves provincial and territorial governments as well as the federal government. Consistency among and between all levels of government is critical for the development of consistent, predictable frameworks for businesses and consumers.

Ongoing consultations between the federal, provincial and territorial governments, both on individual issues such as privacy and consumer protection, and on the overall approach, are fundamental to the Canadian electronic commerce strategy (see box).

Private-public Partnerships: The Electronic Commerce Summit, April 30, 1998

Business, consumer groups and governments agreed to work together to:

- *adopt measures that ensure Canada is the most connected nation in the world and a centre of excellence for electronic commerce*
- *create an environment of trust, to inspire the widespread use of electronic commerce*
- *create a predictable, consistent framework and flexible, adaptable legislation, developed in consultation with the private sector*
- *position electronic commerce as the preferred means of doing business with government*
- *make public-private sector partnerships an integral part of Canada's strategy – the Team Canada approach*
- *continue to take an active role in international venues, to encourage global cooperation.*

Source: Proceedings, Electronic Commerce Summit, April 30, 1998. Co-sponsored by Information Technology Association of Canada (ITAC) and Industry Canada.

Public interest groups are calling attention to the impacts of electronic commerce on consumers and society . . .

Canadian consumer groups, such as the Consumers' Association of Canada, the Fédération nationale des associations de consommateurs du Québec (FNACQ) and the Public Interest Advocacy Centre, are active in developing a consumer perspective on electronic commerce, both domestically and internationally. The Canadian Labour Congress is chairing the OECD's Trade Union Advisory Committee (TUAC), which is examining issues such as the employment and labour market effects of electronic commerce, education and training requirements, changes in the organizational structure of enterprises, and the regulation of content and advertising.

OECD Ministerial Conference on Electronic Commerce, Ottawa, October 7-9, 1998

This international conference brings together government ministers, industry leaders, labour and public interest groups to address issues surrounding the evolution of electronic commerce and to discuss measures to promote its growth on a global basis.

The OECD conference breaks new ground on a number of fronts. For the first time, OECD countries have invited the active participation of international organizations, businesses, labour and consumer interests in mapping out the elements of global electronic commerce. The Ottawa Conference also includes for the first time an industry-led showcase demonstrating key policy issues debated during the conference.

4. INTERNATIONAL CONTEXT: BORDERLESS MARKETS

Canada's strategy is to show international leadership through forward-thinking domestic policies, and to lead in shaping global frameworks for electronic commerce . . .

Electronic commerce is intrinsically global. The actions of any one country will have limited impact unless they are part of a larger international framework. Canada is not developing domestic policies in isolation, but is committed to working with other countries to develop the international frameworks necessary to make electronic commerce grow.

Canada is actively participating with international organizations in developing electronic commerce frameworks . . .

Organisation for Economic Co-operation and Development: Canada's commitment to the international agenda is demonstrated by hosting the OECD Ministerial Conference on Electronic Commerce, in Ottawa, October 7-9, 1998. The conference includes governments and international organizations as well as business, labour and consumer interests. It leads to the establishment of agreements and action plans spelling out the current and future roles of government, international organizations and the private sector in addressing key electronic commerce issues. The Ministerial Conference represents the culmination of a series of electronic commerce conferences held by the OECD, beginning with a conference focussing on consumer views held in Paris in March 1997, followed by a conference focussing on business views held in Turku, Finland, in November 1997.

Asia Pacific Economic Cooperation: In November 1997, APEC leaders agreed to the development of a work plan for electronic commerce. Under the direction of a task force co-chaired by Australia and Singapore, the first phase of the work plan – consisting of benchmarking electronic commerce developments in member countries – has been completed. The second phase of the

program is being reviewed by leaders at their meeting in Kuala Lumpur in November 1998, including the development of an electronic commerce vision statement to promote the use of electronic commerce in the region, and the development of recommendations for technical cooperation and capacity building, public sector use of electronic commerce, and outreach programs targeted at small and medium-sized enterprises (SMEs).

In addition to the Task Force, APEC Ministers of Telecommunications and Information Industries approved a reference framework for action to guide the work of telecommunications groups on a range of electronic commerce issues.

World Trade Organization: Canada has also taken a leadership role in ensuring that the trade disciplines of the WTO apply to electronic commerce. At the second WTO Ministerial in May 1998, members agreed to launch a comprehensive study of the trade policy aspects of electronic commerce, with a view to providing recommendations to ministers for future actions by the third Ministerial in 1999. Over the next year, the Government of Canada will be consulting with the provinces and territories, the private sector and other interested stakeholders in order to establish a Canadian position concerning the WTO discussions.

Free Trade Agreement of the Americas (FTAA): The FTAA has formed the Joint Government-Private Sector Committee of Experts on Electronic Commerce to make recommendations to ministers on how to increase and broaden the benefits of electronic commerce and, in particular, how electronic commerce should be dealt with in the context of FTAA negotiations. The committee is developing working guidelines and will be delivering recommendations for ministers prior to their October 1999 meeting.

G-8 Pilot Project: "A Global Market for SMEs": The project, being coordinated by Japan, the United States and the European Commission, involves 20 countries and international organizations, including Canada. Its overall objective is to provide a framework and implementation plan for global coordination and cooperation in electronic commerce, focussing on SMEs. The project is organized around three themes:

- a Global Information Network for SMEs, led by Japan
- the business requirements of SMEs, led by the European Commission
- international testbeds and pilot projects, led by the United States.

Achievements include a network of business information on the Web and analysis of legal, technical and institutional policy issues. A best practice book was issued in April 1997 and updated in April 1998, as a tool to raise awareness. Regional conferences are being held, with a major G-8 Project Conference planned in April 1999.

Canada is also working actively with international organizations specializing in particular issues . . .

Canadian private sector and government representatives are participating in a range of international organizations dealing with specific aspects of electronic commerce, such as the United Nations Commission on International Trade Law, the International Organization for Standardization, the International Telecommunication Union and the World Intellectual Property Organization (WIPO). Products being developed by these groups include model laws for electronic commerce and standardization frameworks to ensure interoperability.

. . . and is taking a lead in encouraging governments to act as model users of electronic commerce . . .

Canada has also advanced the issue of increased use of information technology in government procurement in the WTO and the North American Free Trade Agreement. Canada has suggested changes to the WTO Agreement on Government Procurement, to allow governments to move toward conducting their purchases electronically if they so choose. These changes are being discussed as part of an effort to simplify and modernize the agreement.

SECTION THREE:

PRIORITIES FOR ACTION

1. BUILDING TRUST IN THE DIGITAL ECONOMY

Building trust in the digital economy will depend on private sector actions, supported by government . . .

Business and consumer transactions require assurances of trust – trust that transactions are secure and private, that transactions are supported by complete and accurate information, and that consumer redress is available. Measures developed for conventional commerce may be inadequate to provide trust in the digital economy. For example, while once data were held securely within an organization, either in paper-based files or in internal computer systems, now the Internet and hybrid forms such as extranets and intranets allow for potentially widespread information access. Issues of security once related only to law enforcement, not to protecting on-line transactions. Government baselines exist for business and consumer protection, but key issues – such as the verification of the identity of parties and the determination of transaction jurisdictions within a global context – remain unaddressed.

In addressing these issues, both governments and the private sector have a role. Governments can legislate or regulate, while looking to the private sector to introduce voluntary codes and develop technological solutions. Many of the elements of building trust involve both federal, provincial and territorial governments – the Uniform Law Conference of Canada, and the Consumer Measures Committee established under the Internal Trade Agreement, are pivotal in establishing model laws and providing guidance on consistent national approaches. While these models are important, the challenge is one of timeliness and consistency. Given the new issues raised by electronic commerce, federal, provincial and territorial governments have the opportunity to create new frameworks together to ensure cross-Canada trust and confidence in the digital marketplace.

1.1 SECURITY/ENCRYPTION

Secure electronic transactions can be provided through the use of encryption technologies . . .

Trust infrastructure: Secure electronic transactions can be provided through the use of cryptographic technologies and certification authorities. These authorities, by binding parties to their respective digital signatures, provide authentication as to the identity of the transacting parties. Cryptographic technologies also provide for the integrity and confidentiality of the messages that are exchanged, and ensure that neither party to the transaction can deny its participation in the exchange of information (otherwise known as non-repudiation). The benefits of cryptography for electronic commerce, privacy protection and crime prevention are clear. It is equally true that cryptographic technologies can be used to hide criminal activity and to threaten national security. Investigations, prosecutions, and the enforcement of laws and regulations could be hampered without lawful access to the evidence of illegal activity.

Canada does not restrict the freedom of choice of individuals or businesses to import or use cryptography. Users are free to determine what kinds of authentication and encryption products and services they need. Canada controls the export of cryptography along with 32 other nations that are members of the Wassenaar Arrangement, which stipulates which products require export permits and which do not.

The government released a cryptography discussion paper in February 1998 . . .

Canadian cryptography policy is under review in order to ensure that it contributes to the realisation of Canada's goal to be a leader in the use of electronic commerce, and to ensure that it reflects an appropriate balance among business, human rights and privacy interests, public safety and law enforcement, and national security interests. A discussion paper, *A Cryptography Policy Framework for Electronic Commerce*, is available at *http://strategis.ic.gc.ca/SSG/cy00005e.html*

The policy, released in the fall of 1998, provides greater certainty for the business community, more confidence for consumers and support for law enforcement and national security.

1.2 PRIVACY: THE PROTECTION OF PERSONAL INFORMATION

The strategy for the protection of privacy is to put the Canadian Standards Association National Standard into effect through light legislation, complemented by private sector action and consumer awareness . . .

Legislation: The Government of Canada's fall 1998 private sector information privacy legislation strikes a balance between industry's interest in compiling and using personal information and the consumer's right to have personal information adequately protected. Consultations held during early 1998 found that there is strong support for using the Canadian Standards Association (CSA) Model Code for the Protection of Personal Information (also referred to as the CSA National Standard), as the basis for any such law (see sidebar), and the Office of the Privacy Commissioner of Canada as the oversight agency. There is also general agreement on the need for a consistent approach among federal and provincial privacy laws for the private sector. While to date, only Quebec has legislation, there is strong support for the use of the CSA Standard as the starting point for any new legislation. The discussion paper used as the basis for consultation, *The Protection of Personal Information*, is available at *http://strategis.ic.gc.ca/privacy*

Voluntary codes: Canada has led the world in developing a National Standard for the protection of privacy. This Standard, developed by businesses, consumers and governments, addresses the way organizations collect, use, disclose and protect information, and the way individuals access personal information. Some organizations, such as the Canadian Bankers Association, have already adopted the Standard.

Public education: An informed public is vital to the protection of personal information. Both the private sector and governments can work to raise awareness of privacy issues and ensure that citizens know their rights and the best way to protect their personal data. A good example is the partnership of the federal government and Stentor to fund a multimedia game, *Privacy Playground: The First Adventure of the Three Little Cyberpigs*, to raise privacy awareness among children.

Privacy-enhancing technologies: Technologies such as cryptography, firewalls and screening devices can help protect personal information. The government encourages the development and use of such technologies for the lawful protection of its citizens.

Private Sector View

The Information Technology Association of Canada stresses that the development and delivery of electronic commerce across Canada would be greatly enhanced by the harmonization of federal and provincial legislation and regulation. The association recommends the CSA Standard to the attention of all levels of government in Canada, as the team that developed the standard included representatives of federal and provincial agencies, as well as industry and consumer groups.

Source: Information Technology Association of Canada, March 27, 1998.

1.3 CONSUMER PROTECTION

The strategy for consumer protection in electronic commerce is also based on a balance of voluntary and legislative measures, education and the application of technology . . .

The Working Group on Consumers and Electronic Commerce, composed of consumer and business associations and governments, is finalizing Canadian guidelines on consumer protection in electronic commerce. The guidelines define consumer protection requirements and provide the basis for development of voluntary and legislative measures related to consumer information, contract formation, privacy, security and redress (see sidebar).

Legislation: A range of consumer protection legislation already exists in Canada, in both provincial and federal spheres. The Consumer Measures Committee established under the Agreement on Internal Trade is considering ways to address consumer protection in electronic commerce. *Consumer Protection Rights in Canada in the Context of Electronic Commerce*, a report prepared by the legal firm of Gowling, Strathy & Henderson, is being used as a basis for discussion. The Government of Canada is also looking at provisions under the *Competition Act* governing deceptive trade practices and misleading advertising.

Voluntary codes: Governments, business and consumer groups agree that voluntary codes can play a vital role in areas not covered by legislation. For example, the Canadian Code of Practice for Consumer Debit Card Services, established in 1992 by consumer groups, businesses, and provincial and federal governments, has successfully guided consumer protection practices of financial institutions. The Office of Consumer Affairs and Treasury Board have published a handbook on developing and using voluntary codes, available at *http://strategis.ic.gc.ca/SSG/ca00863e.html*

Public education: The Working Group on Consumers and Electronic Commerce will be addressing consumer awareness in the guidelines on consumer protection in electronic commerce, including the need for consumers to be provided with advice on how to minimize the risks entailed in electronic transactions, and legal rights and obligations.

Enabling technologies: Technology can provide the tools to make information available to consumers. Examples include posting information on laws that apply in different jurisdictions, and posting seals of approval on Web sites that meet defined criteria (e.g. CA WebTrust).

Toward Canadian guidelines on consumer protection in electronic commerce

Consumer, business and government representatives have agreed that electronic commerce protection should be guided by principles of:

Media-neutrality: Consumers should enjoy the same level of protection in on-line transactions as they do in other forms of commerce.

Harmonization: Consistent frameworks can help Canadian consumers and businesses become early adopters of electronic commerce and attract business worldwide.

Consultative approach: Consumer, public interest groups and governments will work together to define the right blend of voluntary and regulatory measures.

Source: Working Group on Consumers and Electronic Commerce, Office of Consumer Affairs, August 1998.

2. CLARIFYING MARKETPLACE RULES

Canadian governments, in consultation with the private sector, must move quickly to clarify marketplace rules . . .

A body of rules that governs how business and government transactions are conducted has developed over time. These rules include legal and commercial frameworks, financial issues and taxation, and the protection of intellectual property.

As new forms of business practice evolve, marketplace rules play a critical role in creating codes of conduct – for example in the use of electronic signatures, the assignment of liability, and the protection of trade-marks. Without clear rules, the use and growth of electronic commerce will be stalled.

The overriding need is to remove barriers to the use of electronic commerce by clarifying how these rules apply to the digital economy and updating them where necessary. The objective is to ensure that equivalent treatment is provided for digital and non-digital transactions in a consistent and predictable manner. Business has clearly stated that clarifying marketplace rules should be the government's top priority.

Consistency among and between provinces and territories and the federal government is critical, particularly for legal and commercial frameworks. The Uniform Law Conference of Canada (ULCC) is playing a leadership role in this regard.

2.1 LEGAL AND COMMERCIAL FRAMEWORKS

How the law is applied to paperless transactions is often uncertain – governments are acting to address this uncertainty . . .

All government and business operations are subject to law. Law has traditionally presumed the presence of paper records – that presumption is no longer valid. As a result, the application of law to paperless transactions may lead to uncertain results. Governments are acting to make adjustments to laws to bring certainty to the use of technology.

Media-neutrality of statutes: Over 300 federal statutes contain provisions requiring documents to be "in writing" or equivalent words. Rather than have each department amend legislation piecemeal, the Government of Canada's fall 1998 electronic documents legislation allows departments to adopt a set of general provisions authorizing the use of electronic communications. Provinces and territories are being encouraged to undertake statutory reforms along similar lines, as set out in the *Uniform Electronic Commerce Act* approved in principle by the ULCC in August 1998.

Evidence rules for electronic records: Many legal rules and the law of evidence assume the existence of paper, signed or original records. While most electronic records are, in practice, being admitted in litigation, the courts have struggled with the traditional rules of evidence with inconsistent results. The ULCC approved the *Uniform Electronic Evidence Act* in August 1998, which evaluates the integrity of an electronic record by considering evidence of the reliability of the record-keeping system that generated the record. The federal Department of Justice has proposed amending the *Canada Evidence Act*, to make it consistent with the ULCC *Uniform Electronic Evidence Act.* Provinces and territories will also consider amending their legislation to reflect the ULCC *Uniform Evidence Act*.

Recognition of electronic signatures: The challenge is to link the electronic signature to the person signing the electronic document. The Government of Canada is proposing that what makes an electronic signature trustworthy is the use of a reliable technology, such as digital signature technology, combined with a reliable certification authority (CA), such as those operating under the Government of Canada Public Key Infrastructure (GOC PKI) and those CAs that have cross-certification or are otherwise recognized by the GOC PKI.

Uncertainty concerning liability is also of concern to business, particularly Internet Service Providers and other Internet intermediaries . . .

Liability: Internet Service Providers and other Internet intermediaries have expressed concern about the possible extent of their liability with respect to areas covered by a number of federal and provincial laws – e.g. obscenity, copyright, consumer protection, fraud and defamation – which may result from actions of their clients. The uncertainty surrounding liability may be an impediment to investment in electronic commerce and to its pace of development. The OECD has reviewed legal frameworks applicable to content in its member countries. The Government of Canada has released for comment a study on Internet content-related liability and is currently analyzing the issue.

Corporate and competition laws: In the longer term, impacts on other aspects of legal frameworks such as corporate and competition laws will be of interest.

The relationship between competition laws and intellectual property is discussed in section 2.3 Intellectual Property Protection.

2.2 FINANCIAL ISSUES/TAXATION

The reach of electronic commerce in terms of financial issues is extensive and includes taxation, tariffs, and financial services and markets . . .

Taxation: The view of both Canadian and international taxation authorities has been that current tax systems and structures founded on basic principles of neutrality, fairness, certainty and simplicity will continue to be appropriate to address the changes brought about by electronic transactions.

Attention has been focussed on ensuring that tax administration can keep up with changes in the market. The Minister of National Revenue's Advisory Committee on Electronic Commerce issued a report in April 1998 titled *Electronic Commerce and Canada's Tax Administration* that examines how existing taxation systems apply to electronic commerce. The report examines, among other issues, jurisdictional questions (e.g. the concept of a permanent residency), impacts of disintermediation (the splintering of intermediary services) on tax collection, and tax compliance (see sidebar). The Government of Canada's response to the report was released in the fall of 1998.

Given the global reach of electronic commerce, most of these issues can only be dealt with in an international context. Canada is participating with other OECD member countries in developing international implementation strategies that will include the implications of electronic commerce on tax treaties, transfer pricing guidelines, the application of consumption taxes and customs duties and tariffs.

Tariffs: In May 1998, WTO members agreed to refrain from applying customs duties on the electronic products and services delivered electronically and to review this decision at the third WTO Ministerial meeting in 1999. A two-track approach, linking a comprehensive WTO work program on electronic commerce with a moratorium on customs duties, was based on a proposal submitted by Canada to the General Council in April 1998, and was later adopted by ministers of the QUAD (Canada, the U.S., the Commission of the European Union and Japan).

Financial services and markets:

Channels of delivery: Financial firms are rapidly expanding their delivery channels, by using new communications technologies to broaden the geographic scope of their operations and obtain more convenient, cost-effective links with customers. Financial intermediaries, such as banks, credit unions, brokerages and insurance agencies, are supplementing personal branch banking with on-line services through the Internet, telephone networks and automated teller machines. Intermediaries are applying new digital technologies to reduce their cash-handling costs and simplify payment processing. With the help of new technology, specialized financial service providers are entering the sector, increasing competition and leading to the unbundling of services in certain

Private Sector View on Taxation

The Canadian private sector supports the principles of tax neutrality and equity that dictate that taxpayers should not be subject to different taxes simply because they provide services either on or off the Internet. Tax neutrality and equity require that functionally equivalent transactions be taxed in the same fashion and the Committee is against imposing new taxes on electronic transactions.

Source: Minister of National Revenue's Advisory Committee on Electronic Commerce (private sector advisory group), April 30, 1998.

markets. For example, brokers offering both trading and securities market information are now competing with on-line brokers who simply trade and provide no other services.

New products and services: Changing delivery channels are intrinsically linked to opportunities to create new products and services. Technologies such as risk management tools, digital certification and cryptography create potential for new products such as automated sourcing of capital, on-line clearing and payment intermediaries, and information brokerage. Canada's financial institutions are involved in the development of new technology that may improve the efficiency of transactions and consumer convenience while helping to ensure privacy and the security of financial information (see sidebar).

Electronic Payment Technologies

Canadian banks are partnering in the development of new electronic payment systems based on smart cards that allow consumers to purchase goods and services using prepaid electronic "value" in lieu of cash. The value is typically stored on an integrated circuit in a plastic card and can be read using special devices including point of sale terminals. Special encryption software helps ensure the security of the electronic value. Some electronic money systems allow for the transfer of value over communications networks as well as direct, person-to-person transfers.

Mondex launched its first North American pilot in Guelph, Ontario. VISA Cash is being piloted in Barrie, Ontario.

These changes are having an impact on the nature and structure of the Canadian financial services sector. The (MacKay) *Task Force on the Future of the Canadian Financial Services Sector*, which reported to the government in September 1998, made recommendations aimed at ensuring the sector's ability to meet global competitive challenges and the interests of consumers, and to take advantage of technological advances.

The global nature of electronic commerce also raises issues related to cross-border transactions in financial services. These issues are being examined by both national governments and international bodies such as the Basle Committee on Banking Supervision and the World Trade Organization.

2.3 INTELLECTUAL PROPERTY PROTECTION

The protection of content, balanced with the needs of users, is vital to the growth of electronic commerce – these issues are being addressed in Canada within a global context . . .

Intellectual property (IP) laws establish the rules for the ownership and use of key types of digital content central to the development of electronic commerce, such as music, computer programs, video and multimedia works. In addition to the need for clear rules on ownership and access to content, other key IP issues include liability of Internet intermediaries, trade-marks and domain names, and database protection. New international agreements and other forms of cooperation are being considered to address these concerns, through the WIPO, the FTAA, APEC and the OECD. Canada is an active player in these discussions. Canada's national IP legislation is being reviewed to determine whether it needs to be adapted and whether it will be in Canada's interest to undertake any new international obligations.

Adoption of WIPO treaties: WIPO member countries adopted two new treaties in December 1996, the WIPO Copyright Treaty and the WIPO Performances and Phonograms Treaty. These treaties give right-holders including authors, performers and record producers an exclusive right to make their works, performances and sound recordings available through interactive media on a demand basis.

They also contain provisions with respect to copy protection and rights management information, among other new rights.

Canada signed the WIPO treaties in December 1997, but has not yet ratified them. In July 1998, the government released two discussion papers that consider what, if any, amendments to the Canadian *Copyright Act* would be necessary in order to comply with the treaties. Canada's copyright legislation, as amended in 1997, already provides a framework for copyright protection that is largely up-to-date compared with legislation in many countries. Consultations on the discussion papers are expected to conclude in the fall of 1998. Further information is available at *http://strategis.ic.gc.ca/SSG/ip00001e.html*

Liability of Internet Service Providers and other Internet intermediaries: The Canadian government is currently analyzing the issue of the liability of Internet intermediaries, such as Internet Service Providers, for intellectual property infringements, as part of its ongoing consultations on Internet content-related liability. WIPO is also considering certain aspects of liability, including applicable law and jurisdiction. (See section 2.1 Legal and Commercial Frameworks.)

Trade-marks and domain names: Ongoing reform of the Canadian and international domain name systems (DNS) has highlighted the need to ensure that these systems and other Internet practices reflect IP rights and obligations appropriately, notably trade-marks. One major structural problem is that the Internet is international, whereas trade-marks law is national in scope. WIPO, with private sector input, has convened an international process to solicit recommendations on IP issues associated with the DNS. Progress on the reform of the Canadian DNS has also led to the recognition that a balanced approach is needed.

Protection of databases: In the context of increased availability of data through electronic means, databases are more and more important in a knowledge-based economy. Industry Canada and Canadian Heritage are engaging in a consultative process with major stakeholders to assess how Canadian laws apply to protection of databases, and whether a special form of IP protection should be developed for databases (electronic or otherwise). WIPO is also reviewing this issue.

Relationship to competition laws: Uncertainty about how competition law affects the use of property rights granted under intellectual property law may discourage business in the electronic marketplace. The Competition Bureau is drafting guidelines to address this uncertainty to ensure that owners of rights under intellectual property laws fully understand how the Competition Bureau views how such rights may be affected by the enforcement of the *Competition Act*. One purpose of this guidance is to avoid discouraging innovation in the electronic commerce environment and to indicate how the *Competition Act* may be applied as a safeguard against abusive competitive conduct in the use of intellectual property.

3. STRENGTHENING THE INFORMATION INFRASTRUCTURE

Growth of electronic commerce is underpinned by the strength of the information infrastructure . . .

Canada's world leading telecommunications sector is supported by a policy of market liberalization as a spur to investment and innovation.

In addition to this telecommunications policy role, the Government of Canada has placed a high priority on supporting high-speed research networks and Internet access for institutions and communities. World leading projects include a partnership between the Canadian Network for the Advancement of Research, Industry and Education (CANARIE) and a Bell Canada-led private sector consortium to build the world's first national optical Internet. SchoolNet and the Community Access Program (CAP) are breaking ground in facilitating community and institutional access to the Internet, and using this access to attract investment and skills development.

The federal government is also helping to represent Canada's interests internationally as the global community debates the issues of how the Internet is to be governed and how open networks will evolve.

3. Strengthening the Information Infrastructure

3.1 Network Access and Availability

- *telecom investment*
- *research networks*
- *communities and institutions*
- *Internet governance*

3.2 Open Networking/Standards

- *information technology enablement*
- *localization and multilingualism*
- *sector-to-sector impediments*
- *cultural adaptability*

3.1 NETWORK ACCESS AND AVAILABILITY

Telecom competition has opened the way for private sector investment and innovation . . .

Telecom investment: Canada has liberalized its telecommunications policy, allowing competition between carriers and convergence between technologies. Competition provides the foundation for market growth and investment. The telecommunications sector spent $4.6 billion in 1996, estimated to have risen to $5.5 billion in 1997, to modernize and upgrade its networks in Canada (see Figure 15).

Governments, in partnership with the private sector, are investing in research networks, communities and institutions . . .

Research networks: CANARIE and a Bell Canada-led Consortium will deploy the world's first national optical Internet, CA*net 3, targeted to be fully active as early as October 1998. Its vastly increased bandwidth is poised to revolutionize the way industry, governments and researchers collaborate and conduct high-speed research and exchange information. Canada is leading the world in this technology – the United States, probably Canada's closest competitor in this area, is about six months behind, according to CANARIE's President and CEO (see sidebar).

Private Sector View on the Telecom Market

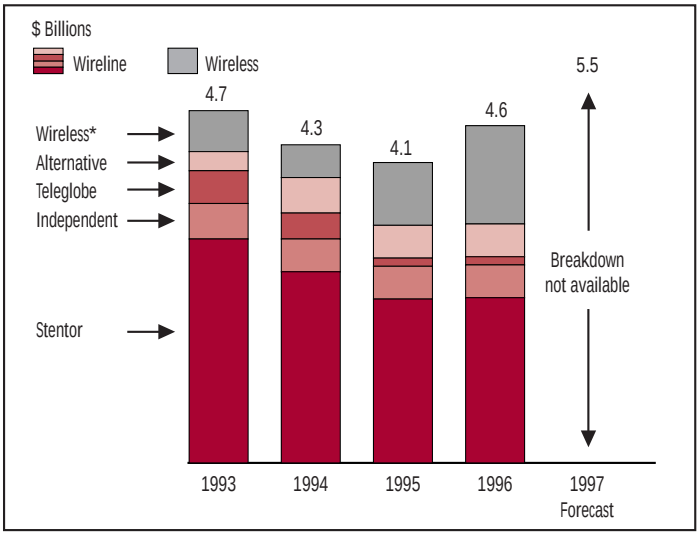
"The old order in telecommunications that has ruled for 100 years is being overturned. . . . This is a world where agility wins, where speed to market wins. New players will shake up the industry. The telecom industry is up for grabs."

John Sidgmore,
President & CEO of UUNet Technology Inc.

Source: PCWeek Online, May 6, 1998.

FIGURE 15: Substantial Sector Investment in the Telecommunications Infrastructure

(Telecommunications service industry capital investment expenditures, in current dollars)



* Includes cellular, paging and other wireless as well as Telesat, not PCS.
Source: Industry Canada, based on data from Statistics Canada and Annual Reports to shareholders.

The Bell Canada-led consortium includes Cisco Systems Canada Co., JDS Fitel, Newbridge Networks Corporation and Nortel (Northern Telecom). CANARIE's collaborative approach will extend opportunities for other carriers to participate in the associated research and development and to provide regional-level services. The February 1998 Federal Budget allocated $55 million to this project.

Communities and institutions: Since most Canadians do not yet have a computer at home, widespread access to the Internet can be most readily achieved by focussing on communities and institutions, through schools, public libraries and community access sites. The SchoolNet program is facilitating access to the Internet by all Canadian schools by the end of fiscal year 1998-1999.

Partnering to Make Canada the Most Connected Nation in the World

Mobility Canada announced that its member companies will invest over $60 million over the next three years in Canadian research and development projects, including up to $6 million to SMEs through CANARIE.

Source: Mobility Canada press release, Toronto, May 21, 1998.

*CA*net 3: Canada's New High-Speed Network Is the World's Fastest*

"Deploying the world's most advanced optical Internet across the country is another Canadian first, such as the first telecommunications satellite and the first radar imaging satellite."

Andrew K. Bjerring,
President & CEO of CANARIE.

*"This giant step in Internet history is a wonderful example of what can happen when Canada's public and high technology private sectors direct their joint skills and experience towards a common goal. CA*net 3 provides new opportunities for critical skill-building and research and development in Canada and significantly enhances the foundation of our digital economy for the new century."*

John MacDonald,
Chairman and CEO of Bell Canada.

Source: Press release, August 25, 1998.

The Community Access Program has a goal of establishing 5 000 public access sites in rural communities, and has already established over 2 000. The February 1998 Federal Budget expanded the scope and funding for CAP to connect up to 5 000 additional urban sites by the end of fiscal year 2000. Funding was also made available to facilitate the extension of Internet connectivity from the school to the classroom, through SchoolNet, and to establish the Voluntary Sector Network Support Program (VolNet), which will facilitate access of 10 000 voluntary organizations to the Internet.

Along with Internet access, stable and efficient functioning of the network is of fundamental importance to the future of electronic commerce . . .

Internet governance: Assignment of Internet addresses and interconnection arrangements between service providers are two major issues related to Internet governance. Until now, the assignment of domain names under generic top level domains (gTLDs), such as *.com*, *.org*, and *.net*, was determined by a company under contract to the U.S. government. Top-level country codes (ccTLDs) are under domestic jurisdiction, either private sector or government. The U.S. is proposing that all decision-making authority for gTLDs be transferred to the private sector by October 1, 1998.

Some key questions raised by this proposal are: How will international representation on the proposed new governance body be ensured? How will disputes be resolved? How will competition be encouraged in the supply of domain name registration services? How will domain names relate to trade-marks? How will the interests of national ccTLD regimes be addressed? Canada has formed a private sector committee that will examine these and other issues from a Canadian perspective. A consultation paper, *Domain Name System Reform and Related Internet Governance Issues,* has been released for comment (available at *http://e-com.ic.gc.ca/english/documents/dns_intro.html*), with a fall 1998 final report.

3.2 OPEN NETWORKING/STANDARDS

For electronic commerce to be globally adopted, common standards for interoperability are required . . .

Electronic commerce, particularly business-to-business applications, consists of rules-based transactions that make extensive use of codes, often through tables, representing predefined possible choices of common aspects of business transactions. Examples include countries, currencies, languages and products (see sidebar).

Canada is working through international organizations to establish norms for the interoperability of networks and universal communication. The Joint Technical Committee (JTC) of the International Organization for Standardization and the International Electrotechnical Commission has been working on identifying key impediments to the deployment of electronic commerce globally. Four horizontal issues have been defined:

Information technology enablement: the need to transform currently existing business standards from manual to electronic form.

Localization and multilingualism: the need to identify objects in an unambiguous, linguistically neutral way that can be processed electronically.

Sector-to-sector impediments: the need to create common understanding between different industry sectors and disciplines that assign their own use and meaning to terms.

Cultural adaptability: the need to address cultural differences, such as business practices and interpretations of consumer rights.

Canada has formed a select group, led by the Telecommunications Standards Advisory Council of Canada and the Standards Council of Canada and representing key private and public sector organizations, to develop a Canadian Standards Framework for Electronic Commerce, based on the JTC work. An outline of this framework will be released in the fall of 1998.

Areas Requiring Standardization

User interfaces:

- *icons*
- *dialogue design principles*
- *customer profiles*

Basic functions:

- *trading protocols*
- *payment methods*
- *security mechanisms*
- *identification and authentication*
- *auditing and record keeping*

Definition and encoding of data and other objects:

- *information technology enablement of existing standards*
- *message semantics*

Source: Joint Technical Committee cited in Knoppers, Summary Overview of Strategic Directions in Electronic Commerce and Standardization, Telecommunications Standards Advisory Council, June 1998.

4. REALISING THE OPPORTUNITIES

Electronic commerce is part of a broader process of economic, social and cultural change, characterized by the globalization of markets and the shift toward an economy based on knowledge and information. It has the potential to act as a powerful source of jobs and growth and as a social enabler, helping to create stronger social institutions. It will also have impacts on how opportunities and income are distributed.

Information technologies have begun to make a significant contribution to strengthening the social infrastructure through improvements in social institutions such as education and health care. The open network is at the centre of a revolution in learning. Computer-based training programs have clear advantages over traditional training programs in terms of providing information that is most relevant and immediately applicable. This flexibility makes the goal of lifelong learning more attainable. The Internet is also useful as a labour market tool to match people's skills with the needs of employers. In the health care sector, information technologies can help realise cost savings while broadening the health care system's reach, through expanded services and service delivery options.

The effects of electronic commerce on the distribution of income and opportunities in the information society are the subject of ongoing research. One consistent finding across many countries is that intensive users of information technology tend to have higher than average incomes and are well educated, raising the possibility of the emergence of "information haves and have-nots." This possibility is of direct concern to governments, who are seeking to broaden access to opportunities through the development of digital skills and awareness. By acting as model users, governments can also build trust in the use of electronic commerce and demonstrate its advantages and benefits.

4.1 SKILLS AND AWARENESS

Learning on the Information Highway: A Learner's Guide to the Technologies

HRDC's Office of Learning Technologies partnered with Chenelière/McGraw Hill to develop A Learner's Guide to the Technologies to help Canadians better understand how to use the Information Highway to expand their knowledge and skills.

Digital literacy is required for businesses and consumers to use and develop electronic commerce . . .

At present, Internet users tend to be more educated, affluent and located in urban centres, and Internet usage is higher in larger companies. The challenge is to expand to a wider spectrum of consumers and all sizes of businesses.

Skills for all Canadians: Industry Canada's Community Access program is providing Internet access and opportunities for content development by communities and schools, and voluntary organizations. *(see Section 3.1: Network Access and Availability)*. Digitization projects give Canadians the opportunity to acquire marketable skills and knowledge of information technologies.

A recent partnership, between Industry Canada and Human Resources Development Canada (HRDC), the Canadian Opportunity Strategy, will result in new initiatives in lifelong learning, knowledge and skills development, community capacity building and access to information services.

The federal government is also partnering with the provinces in initiatives designed to develop digital skills for Canadians. For example, Prince Edward Island's "The Knowledge Economy Partnership" brings together the federal and provincial governments, along with the province's educators, to provide better and faster services to the public, increase the information technology skills of Islanders and stimulate job creation in the Island's knowledge-based industries.

Skills for business: Internet use by small business is increasing rapidly. New findings from the Canadian Federation of Independent Business (CFIB) survey for the first quarter of 1998 indicate that 43 percent of business owners have access to the Internet, a 12 percent increase from the level in same period a year ago. The challenge is to ensure that this growth continues, and that business owners understand the business opportunities electronic commerce presents.

Industry Canada's Community Storefronts is a pilot project designed to expose 250 SMEs and 60 non-profit organizations to electronic commerce. The project is run from CAP sites in four communities: North Okanagan region of British Columbia; Lanark County, Ontario (see sidebar); Joliette, Quebec, and Cape Breton, Nova Scotia. The project is led by a consortium of private sector companies, including Touch Net Canada, Strategic Profits Inc., GE Capital Information Technology Solutions and the Royal Bank of Canada.

Industry Canada has also launched the Electronic Commerce Newsletter, an educational vehicle for SMEs to present success stories, build trust and present compelling reasons for using electronic commerce. The newsletter is being distributed by the CFIB and Industry Canada's Entrepreneurship and Small Business Office.

Skills for the future: A number of universities in Canada are developing innovative academic programs, including the University of New Brunswick and Dalhousie University. Dalhousie University is offering an International Master's Degree in Electronic Commerce, and is participating in a G-8 project to create an international network of business schools, universities and industry offering an MBA in electronic commerce.

The issue of high-tech skills shortages in Canada is of concern to both the private sector and governments. Industry Canada co-hosted a skills workshop with the private sector on this issue in May 1998. Industry Canada is also working to develop a better understanding of electronic commerce usage through surveys conducted by Statistics Canada.

Community-based networks: Lanark County Communications Network (LCN)

The LCN is a not-for-profit corporation whose mission is to promote and facilitate the implementation of advanced telecommunications infrastructure and services through network applications development in Lanark County.

The LCN is developing a broadband regional network throughout the country, acting to attract jobs and investment and provide access to better social services as well as high-quality education.

In partnership with the Lanark County Community Information Network, the LCN is working to promote Internet access through Industry Canada's Community Access Program.

Lanark is one of the four national CAP sites chosen to pilot Community Storefronts. Community Storefronts offers local businesses the opportunity to learn how to take full advantage of the Internet as a new tool for doing business. Over 30 SMEs have signed up to participate, including firms in the retail, legal, insurance, optometry, tourism, entertainment, printing, crafts, agri-products, accommodations, hobbies and consulting services sectors.

Source: *www.communitystorefronts.com*
www.networks-ontario.com/news/e-NR_lanark

4.2 GOVERNMENTS AS MODEL USERS

Governments will play a key role in demonstrating the advantages of electronic service delivery, building critical mass and trust among users, and piloting new technologies . . .

Service delivery: The Government of Canada has indicated that electronic commerce will become the preferred means to conduct its business. The benefits are higher quality and increased efficiency of service, along with significant reductions in the cost of services to both clients and governments.

A range of projects are under way across the Government of Canada. For example, the Canadian public sector has been at the forefront in the use of electronic databases to procure goods and services. MERX is an Internet-based, national electronic tendering service available on a subscriber basis around the world. Industry Canada's recently launched National Insolvency Search Service allows clients to search data bases on-line. Industry Canada has committed to having all services made available electronically by the end of 1999. Health Canada is developing a national strategy for a Canadian Health Infostructure (CHI), initially consisting of a National Health Surveillance System, the Canadian Health Network and First Nations Health Information System.

Provincial governments, which in the past have used EDI and public kiosks to provide services electronically, are now moving to the Internet as a lower cost alternative with the potential to reach many more clients. For example, BC Online, Access Ontario and Atlantic Canada Online provide access to government data bases electronically.

The Government of Canada Public Key Infrastructure (GOC PKI): The GOC PKI will give the federal government the means to make secure electronic delivery of its services available to Canadians, through the use of uniform key management and certification authority (CA) services. The underlying technology – the Entrust suite of products – is now available, and will allow the GOC PKI implementation to begin before the end of 1998. The root CA and a number of departmental CAs have been established. Many federal departments and agencies are already undertaking PKI-related initiatives. Five of these have been initially selected as Pathfinder Projects (see sidebar).

This project has broad implications for the future of electronic commerce in Canada, not just for the government, but for all Canadians. The GOC PKI is providing a testing ground for a globally competitive technology developed by a Canadian company, Entrust. Through the GOC PKI, the government will provide a model that can serve as a standard for certification authorities, through cross-certification agreements with other levels of government and the private sector.

Private Sector View

The government should act aggressively as a model user of new technologies – both to improve service delivery and to demonstrate the advantages of electronic commerce.

Source: Information Technology Association of Canada, April 30, 1998.

Government of Canada Public Key Infrastructure (GOC PKI) Pathfinder Projects

Secure Applications and Key Management Service (Government Telecommunications and Informatics Service)

Investment Review Division Electronic Filing Pilot (Industry Canada)

Spectrum Radio Licensing Pilot (Industry Canada)

Electronic Regulatory Filing Project (National Energy Board)

Network Security Strategy (Indian and Northern Affairs Canada)

CONCLUSION

Electronic Commerce is one of the six core elements of the Government of Canada's Connecting Canadians agenda, an agenda to make Canada the most connected country in the world. The objective of the Canadian electronic commerce strategy is for Canada to be a world leader in the development and use of electronic commerce by the year 2000.

The strategy identifies ten priority action areas and outlines actions being taken to achieve this objective (see sidebar). In an environment of rapid global change, driven by technological advances, business innovation, and evolving international frameworks, the challenges are to:

- ensure that Canadians have trust in the digital economy, by addressing security, privacy and consumer protection concerns
- clarify and update, where necessary, rules that govern how business is transacted to ensure they apply to the digital world, removing barriers to the use of electronic commerce
- strengthen the information infrastructure, building on Canada's strong world position in the telecommunications sector
- fully realise the opportunities from electronic commerce, and ensure they are diffused to all Canadians.

In this emerging technology, a new form of partnership is required with the private sector, including businesses, consumers and public interest groups, and across Canada with every level of government. Canadians need to work together to ensure that we are leaders in electronic commerce, to give us a strong foundation for jobs and growth in the next century. The Canadian electronic commerce strategy will serve as a framework to report against our progress toward these goals in the future.

Priorities for Action

Building Trust

- *Security/Encryption*
- *Privacy: The Protection of Personal Information*
- *Consumer Protection*

Clarifying Marketplace Rules

- *Legal and Commercial Frameworks*
- *Financial Issues/Taxation*
- *Intellectual Property Protection*

Strengthening the Information Infrastructure

- *Network Access and Availability*
- *Open Networking/Standards*

Realising the Opportunities

- *Skills and Awareness*
- *Governments as Model Users*

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