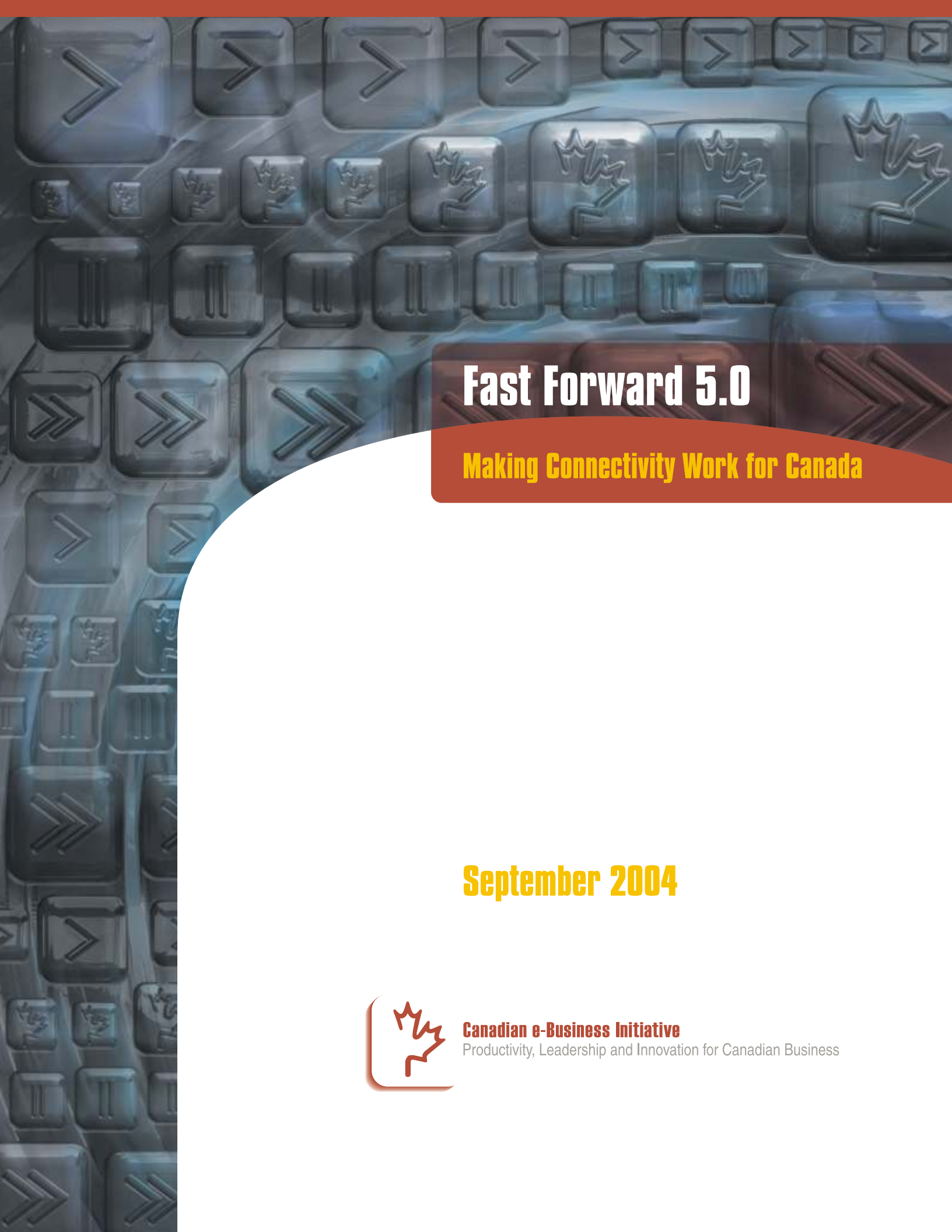

Fast Forward 5.0

Making Connectivity Work for Canada

September 2004

Canadian e-Business Initiative
Productivity, Leadership and Innovation for Canadian Business

PREFACE

E-business is a key enabler of productivity growth, increasing profit and decreasing costs of Canadian firms. While most enterprises are aware that doing business electronically is a prerequisite for success in today's global economy, many businesses, especially small businesses, remain unaware of the value of e-business.

Over the last two years, the Canadian e-Business Initiative (CeBI) has focused on spreading the e-business message to the Canadian small-business community. We have experienced a large degree of success. Through the *Net Impact* and *Fast Forward* report series, we have raised SME awareness of the value of networked e-business solutions and their contribution to the bottom line. We have benchmarked Canada's e-economy, raised overall knowledge of the barriers facing firms, and provided recommendations on how Canada can continue to grow; and we have raised awareness about privacy and security issues, and produced an online guide to facilitate understanding of this complex area.

In reading this report, you will find that, while Canada started out as a leader in e-business, without a sustained commitment to creating an environment that promotes e-business, we will find ourselves slipping from the lead. For Canada to experience fully the economic benefits e-business can bring, it is not enough to sit back. A concerted growth strategy that aims to build the right economic environment is needed to enable strong, long-term economic growth.

Fast Forward 5.0 marks the final report in our mandate. We would like to thank the dedicated members of CeBI who have given their time and energy to this initiative. We would also like to acknowledge the work and support of the CeBI Secretariat.

Terry Walsh
President
Cisco Systems Canada

Nancy Hughes Anthony
President and CEO
The Canadian Chamber of Commerce

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CHAPTER 1: THE e-BUSINESS ENVIRONMENT

1.1 CANADA IN THE WORLD

The 21st century economy is an e-economy.[1] The Internet, and information and communications technologies (ICT) are central to economic growth and productivity. They are also essential technologies for promoting advances in new fields, such as biotechnology and nanotechnology, and facilitating collaboration, modelling and information sharing. In addition, Internet-based technologies and networks can increase productivity, decrease costs and open new market opportunities; they are the foundation for increasing private-sector competitiveness and for public-sector service reform.

Since 1999, experts from around the world have recognized Canada as a world leader in electronic commerce and Internet adoption. Canada has attained some of the highest levels of Internet connectivity and infrastructure development. According to a recent Ipsos-Insight report, Canada leads in Internet adoption by individuals, followed closely by South Korea, the U.S. and Japan.[2] Canada is second only to Korea in terms of broadband Internet adoption and is consistently in the top five globally in terms of business connectivity. The Conference Board of Canada similarly finds that, in terms of connectivity—including availability, price, reach and use—Canada ranks second among G-7 nations.[3]

However, despite good infrastructure and a high level of connectivity, a variety of recent international reports indicate that Canada's rank in the world economy is slipping. In 2001, Canada ranked fourth out of 64 countries in the Economist Intelligence Unit e-readiness rankings. By 2002, we were ranked ninth; in 2004, we were eleventh.[4] The U.K. E-Envoy Study similarly concluded that, despite Canada's high level of infrastructure deployment and consumer acceptance of the Internet as a commercial medium, basic access to the Internet has not translated into increased electronic commerce.[5] Canadians have not taken full advantage of online opportunities.

Electronic commerce sales continue to be a small portion of overall consumer spending, and Canadians remain very concerned about online security. Similarly, a relatively high number of SMEs do not engage in e-commerce, citing high cost, lack of time, concerns about security and lack of IT skills as the major barriers to their participation in e-business. *Net Impact Study*, *The International Experience*[6] noted that Canadian firms have already implemented less costly and less complex Internet Business Solutions (IBS), such as e-mail enabled applications and simple websites, and eschewed more advanced back-end solutions, which often bring the most value to firms.

Encouragingly, SMEs continue to increase their investment in Internet technologies and, in many cases, Canadian firms are adopting technology more aggressively than their U.S. counterparts. Value improvement in the Canadian dollar forced many Canadian firms to employ e-business to make their firms more productive and competitive. As the next generation of young, technologically aware Canadian entrepreneurs enters the market, we may expect a greater focus on e-business. With Canadians and Canadian enterprises leading the world in terms of Internet adoption, there is still an opportunity to take Canada to the forefront of the world. To do so, there is a need for renewed focus on efforts that build an innovative economy, including consideration of the contribution of ICT to economic growth and productivity.

The low ranking assigned Canada by various reports stems in part from cautious public-policy leadership in this area. ICTs are by their nature transformative, redefining how business, educational and health institutions, and all of society, interact. In combination with the 1999 technology downturn, this factor contributed to government caution in pursuing strategic policy making on this front and de-emphasized a previously ambitious national policy.

1 Industry Canada, *The Challenge of Change: Building the 21st Century Economy*, e-Economy Conference Background Paper, September 2004.
2 Ipsos-Insight, *The Face of the Web*, January 2004.
3 Conference Board of Canada, *Cashing In on Connectedness*, April 2004.
4 Economist Intelligence Unit, *The 2004 e-Readiness Ranking Report*, 2004.
5 Office of the e-Envoy, Country Report, *The Canadian e-Economy*, July 2003.
6 CeBI, *Net Impact Study Canada*: *The International Experience*, May 2003.

Meanwhile, political leaders in other nations, including the U.K., Australia and Korea, have recognized the importance of ICT to productivity growth, and implemented aggressive strategies to drive adoption of e-business within their countries.

The February 2004 Speech from the Throne and the March 2004 Federal Budget[7] have emphasized the government's priority of building a 21st century economy in Canada. The Canadian government, the business community and the educational sector must develop a co-ordinated public-policy approach to capitalize on Canada's technological advantages, including a strong focus on encouraging Canadian SMEs to adopt more sophisticated e-business solutions.

How is Canada Doing?

Caution, Conservatism and Complacency: the three "Cs" that resign us to the digital doldrums

Business in Canada has been overly **cautious** in its adoption of e-business practices and complacent about its investments in ICTs to improve business processes.

Though our **consumers** are well-connected and apparently window shop online, they are **conservative** in their online purchasing habits.

Traditionally cautious, **Government** has been **complacent**, relying on Canada's head start in technology use, rather than strategic policy leadership, to lead to continued growth. **Canada's** once outstanding global performance and growth potential risks being exceeded by other nations.

1.2 e-BUSINESS: THE VALUE PROPOSITION

E-business denotes using computer-mediated networks to perform a wide range of commercial transactions, to automate and transform business processes at the firm level, and to manage more effectively value chains across firms. In addition to e-commerce, customer service and support applications, e-business can include human-resource functions, sales-force automation, supply-chain management and other applications to automate firms' central internal processes.

E-business can deliver real returns to firms, making them more productive and profitable. The ability of e-business to generate profit for firms has proven to exceed even the most optimistic economic predictions. Forrester Research predicted in 1999 that U.S. consumer e-commerce would reach $108 billion by 2003. In fact, despite slowdowns in the U.S. economy in 2002, this figure stood at $95 billion in May 2003.[8]

Economists also agree that ICTs contribute to productivity growth.[9] In studies of the impact of ICTs on the U.S. economy, economists found that the jump in ICT investment by firms, combined with higher-skilled workers, has contributed significantly to productivity growth since 1995.[10]

It is easy to see how, at the most basic level, using ICTs to deliver services can enable customers to receive services faster and more conveniently. For example, computerized reservation systems combined with automated ticket machines enable customers to purchase tickets—whether for travel or entertainment—much faster. The real value for firms, however, comes from automating internal business functions and transforming processes to realize efficiencies and reduce administrative costs, as well as cost of goods sold.

7 Budget 2004, *New Agenda for Achievement*, March 23, 2004.

8 BusinessWeek, *The E-Biz Surprise*, May 12, 2003.

9 OECD, *ICT and Economic Growth: Evidence from OECD countries, industries and firms*, 2003.

10 Industry Canada Research Monograph, *Economic Growth in Canada and the United States in the Information Age*, Dale Jorgensen, ed., May 2004.

Net Impact Canada: The SME Experience, published in November 2002, reported on how Canadian small and medium-sized enterprises were using IBS to improve their business processes. (SMEs are defined as businesses with fewer than 500 employees.) The study suggests that, in a "best case" scenario, an average firm could increase net profits by more than 150 percent due to changes in revenues and costs brought about by the adoption of IBS.

The case for using e-business is clearly compelling. By increasing productivity, e-business can make an integral contribution to Canada's economic growth and prosperity. Canada has the infrastructure to enable firms to take the next step. How, then, are Canadian firms doing? Are they proactive in utilizing e-business? If not, what policy or structural changes are needed to spur e-business adoption?

CHAPTER 2: CANADA'S e-REPORT CARD: 2004

Canada's e-report card provides a snapshot of Canada's performance in the digital economy and attempts to grade the effectiveness of factors necessary to establish a healthy e-business environment. It focuses on three areas critical to recapturing Canada's place as one of the most progressive digital economies in the world:

- ***e-Business Readiness***

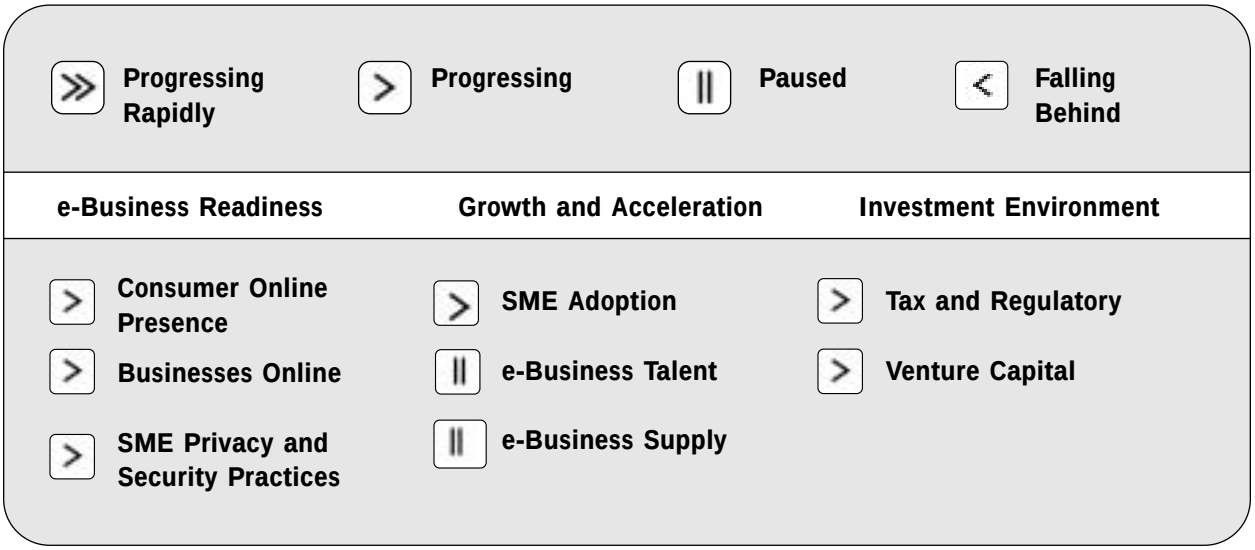
  E-Business Readiness explores the level of Canadian consumer and business connectivity, and the level of trust and use of privacy and security in the Canadian Internet environment.

- ***Growth and Acceleration***

  Growth and Acceleration investigates the levels of e-business adoption by Canada's SME community, the ability of the Canadian labour market to fill the demand for e-talent, and the capabilities of Canadian technology firms to supply SMEs with e-business tools that are affordable, scalable and suited to meet business needs.

- ***Investment Environment***

  Investment Environment examines the policy and tax environments crucial to the growth of the digital economy.



CHAPTER 3: e-READINESS

3.1 CONSUMER ONLINE PRESENCE

According to Ipsos-Insight, Canadians are the world's leading Internet users. More than 71 percent of Canadians accessed the Internet in 2003, compared with 70 percent of South Koreans, 68 percent of Americans and 65 percent of Japanese.[11] Canada's Internet use is based primarily on access, availability and price. Though this high number of users has led to very rich content, it has not translated directly into a high number of online shoppers. In addition, growth in Internet use among Canadian households has levelled off.[12]

The majority of Canadians continue to use the Internet primarily for information and services including sending and receiving email, searching for health information, banking and making travel arrangements (see Box 1). In fact, Canadians are significant users of online banking. Between 2000 and 2004, 42 percent of Canadians banked at least occassionally on the Internet, and the percentage of Canadians who bank primarily through in this way almost tripled from eight to 23 per cent.[13]

BOX 1: CANADIAN CONSUMERS IN 2002

12.2 million total households; 7.5 million households with Internet access

Surfing

3.6 million households regularly used the Internet at home. Of these:

- 64 percent searched for health information
- 51 percent accessed online banking services
- 25 percent used the Internet for work-related purposes

Source: Statistics Canada, *Household Internet Use Survey*, September 2003

Shopping

1.7 million households used the Internet to "window-shop"

2.8 million households placed orders online:

- 27 percent purchased books, magazines and newspapers
- 18 percent used the Internet to make travel arrangements
- 18 percent purchased jewelry, clothing or accessories

While Canadians prefer to shop on Canadian sites, $3.64 of every $6.36 or $884 million was spent on non-Canadian websites.

Source: Statistics Canada, *E-commerce; Household Shopping on the Internet,* Dec. 2003.

Though online consumer spending is growing, this growth remains slow and Canadians continue to express reservations about purchasing online. Canadians spent just over $2.4 billion online in 2002, up 35 percent from the $1.8 billion spent in 2000. However, this $2.4 billion represents only a small fraction of the $656 billion total spent by Canadians in 2002.[14]

11 Ipsos-Insight, *Face of the Web*, January 2004.
12 Statistics Canada, *Household Internet Use Survey*, July 2004.
13 Canadian Bankers Association, *Taking a Closer Look: Ways Canadians Bank* at: **www.cba.ca**, July 2004.
14 Statistics Canada, *Household Internet Use Survey*, December 11, 2003.

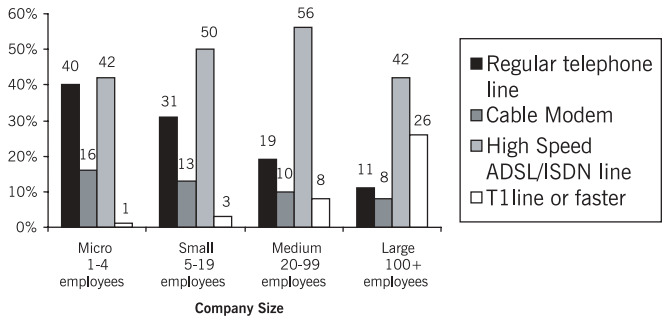
Why have Canadians, leaders in Internet usage, not flocked to online shopping? Many still have reservations about the security of paying for goods and services online. Data collected by Statistics Canada have shown that more than three-quarters of Canadian households that paid online in 2002 indicated that they were "very concerned" or "concerned" about completing financial transactions over the Internet.[15] Yet, as the prevalence of banking online indicates, Canadians will use online services if confident of the their security.

In addition, while Canadians increasingly find goods and services from Canadian e-retailers, many goods and services continue to be unavailable through Canadian websites (see Box 1).

3.2 BUSINESSES ONLINE

Basic use of ICTs is an important measure of a firm's ability or "readiness" to develop e-business and participate in electronic commerce. Canadian SMEs continue to make gains in basic connectivity. Though there continues to be a marked difference between the percentages of large enterprises and SMEs that are connected to the Internet, the overall sustained trend of business Internet adoption is encouraging. Statistics Canada's 2003 *Survey of Electronic Commerce and Technology* reported that over three-quarters of Canadian businesses had Internet access in 2003, up 15 percent since 2000.[16] Another source indicates that, in 2003, 82 percent of businesses used Internet and email.[17] Small firms, especially, are increasingly using basic technologies. While in 2000 only 56 percent of small firms used email and 59 percent used the Internet, by 2003, 74 percent used email and 78 percent had Internet connections.[18]

Figure 1: Type of Internet Access, 2003



Source: EKOS, *Rethinking the Information Highway*, December 2003.

In addition, the type of Internet access is an important precursor to advanced IBS use and continues to vary according to business size. Large companies tend to have high-speed, always-on connections, while many smaller businesses continue to use low-speed, dial-up access. In 2003, 95 percent of large firms used broadband access, compared to 56 percent of small firms.[19]

These findings are significant given the important contribution of ICTs to the productivity of firms. The capability of Canadian businesses to leverage the potential of ICTs is supported, in part, by their access to, and efficient use of, the Internet. Access remains a barrier: while in 2003 Canada continued to rank in the top ten among all countries when it came to Internet connectivity,[20] 41 percent of businesses surveyed in a recent report noted lack of availability as the main reason for not having broadband access.[21]

Increased use of ICTs by Canadian businesses of all sizes indicates that businesses are becoming technologically ready to deploy at least basic e-business technologies. Before doing so, however, businesses today must also consider the security of their applications and systems, and the privacy of their clients.

15 Ibid.

16 Statistics Canada, *Survey of Electronic Commerce and Technology*, 2003.

17 EKOS, *Rethinking The Information Highway*, Winter 2004.

18 Mark Uhrbach and Bryan van Tol, *Information and Communications Technology Use: Are small firms catching up?*, Analysis in Brief, Statistics Canada, 2004.

19 Statistics Canada, *Survey of Electronic Commerce and Technology*, 2003.

20 World Economic Forum, *Global Information Technology Report*, 2003-2004.

21 EKOS, *Rethinking The Information Highway*, Winter 2004.

3.3 SME PRIVACY AND SECURITY PRACTICES

Effective privacy and security practices are integral parts of a successful e-business adoption strategy, both nationally and at the firm level, and must be considered by firms at the outset of implementing an e-business strategy. As the online environment grows more complex, the use of this medium for illegal and undesirable activities also increases. Virus creation, spamming, hacking, identity theft and denial-of-service attacks are doubly damaging to the e-economy. These activities directly increase the cost of adopting and maintaining e-business capabilities and, perhaps more importantly, they erode consumer confidence in the safety of the Internet and electronic transactions (see Box 2).

A general increase in awareness of these threats has caused consumers and businesses to demand adequate privacy and security protection. A 2003 poll by Ipsos Reid showed that nearly one-third of Canadian Internet users are more concerned about online security compared to a year ago, and that 35 percent have suffered a breach of privacy online. Canada's major trading partners are equally concerned about privacy and security of information crossing borders. The European Union (E.U.) has a Privacy Directive and privacy laws that prohibit the flow of personal data to countries with inadequate privacy protection.

January 1, 2004 was a milestone in Canadian policymaking as the *Personal Information Protection and Electronic Documents Act* (PIPEDA) came fully into effect, applying to all businesses across the country, and in provinces that have not enacted "substantially similar"[22] legislation. With the implementation of PIPEDA, and its recognition by the E.U. as meeting the requirements of the Privacy Directive, business transactions with the E.U. have been facilitated.

Many in the business community are aware of the new legislation and are responding to consumer demand for privacy protection. However, security and privacy issues, including the new legislation and its requirements, are often not understood by small firms, with only eight percent of firms feeling "extremely confident" about their level of e-security.[23]

To aid SMEs in understanding and complying with privacy legislation, and to mitigate SME concerns about the perceived barriers presented by online privacy and security practices, CeBI recommends that the federal Privacy Commissioner's office continue its efforts to educate SMEs in this area. In addition, CeBI recommends that the federal government continue to aggressively address security issues.

22 *Personal Information Protection and Electronic Documents Act*, S.C. 2000, c. 5.

23 Canadian Bankers Association, *Minding Your eBusiness: Privacy and Security Matter*, Final Report, September 2003.

BOX 2: SECURITY THREATS IN THE ONLINE ENVIRONMENT

Spam

Spam may be defined as an electronic communication that cannot be reasonably assumed to be wanted or expected by the recipient. Spam has become the Internet *issue du jour*. According to Brightmail, a leading Internet security firm, in June 2004, spam accounted for 65 percent of Internet email. While comparable figures for Canada are not available, spam is becoming a significant worldwide problem that clogs networks, consumes resources and, due to its implication in virus distribution, identity theft and other criminal activities, significantly erodes trust in electronic commerce.

Canada is implicated in spamming, rated among the top ten countries from which spam originates. According to software firm Sophos, Canada is responsible for 2.91 percent of worldwide spam. The United States leads at 56.74 percent. Spamhaus, an organization dedicated to identifying spammers and fighting spam, places Canada as seventh on its list of top ten spamming countries.

Source: Brightmail Logistics and Operations Centre (BLOC): **http://www.brightmail.com/spamstats.html**

Recognizing the need for a concerted approach to fight spam, the Ministerial Task Force on Spam will review the current legislative situation and, in 2005, present to the Minister of Industry its recommendations.

Identity Theft

Identity theft involves securing pieces of an individual's personal information (e.g. birth certificate, social insurance card, driver's licence) and using the information to impersonate the individual. Once an identity has been "stolen", this personal information is usually used to commit a forgery or fraud for financial gain. Identity theft is often associated with email "phishing", where look-alike emails and websites with the names and logos of legitimate financial institutions, business and government agencies are used for illegal purposes.

- According to the U.S. Federal Trade Commission, identity theft is the fastest growing crime in North America that targets consumers (Source: USFTC to the Senate Judiciary Committee's Subcommittee on Technology, Terrorism and Government Information, March 20, 2002);
- In 2003, 13,359 Canadians reported being victims of identity theft, with direct losses totalling approximately $21 million (Source: Phonebusters, **http://www.phonebusters.com/Eng/Statistics/idtheft_canada_stats_2003.html**);
- The Canadian Council of Better Business Bureaus estimates that identity theft costs the Canadian economy approximately $2.5 billion per year.

Business practices that protect customer information and prevent the theft of identification data are key to meet growing security problems, both in the online and offline world. But business and consumer action is only one part of the solution. Government must also take the necessary legislative steps to effectively address these issues, including amending and strengthening existing legislation as necessary, for example clearly defining identity theft in the *Criminal Code* and enacting a provision making it an offence to possess multiple pieces of identification, and modernizing existing *Criminal Code* offences aimed at addressing identity theft to better reflect the technological advances. In addition, it will be important to work closely with businesses and consumers through initiatives such as the Ministerial Task Force on Spam.

CHAPTER 4: GROWTH AND ACCELERATION

Despite a technologically ready business environment, e-business adoption among Canadian SMEs grew slowly and unevenly across business size and sectors. While more SMEs used customer-focused IBS, e-business adoption of advanced solutions by SMEs, especially smaller firms, has not dramatically increased in 2004; and barriers, including cost and supply issues, continue to be important obstacles in the minds of many small-business owners.

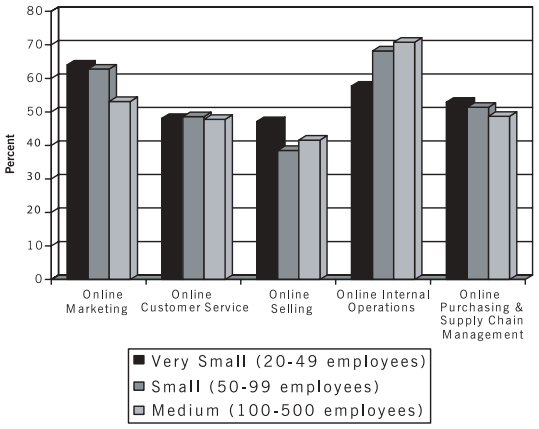
4.1 SME e-BUSINESS ADOPTION

SMEs are the lifeblood of the Canadian economy. SMEs—enterprises of fewer than 500 employees—account for 99 percent of Canadian companies and contribute significantly to job creation and economic growth.[24] For instance, between the third quarter of 2002 and the third quarter of 2003, SMEs created 36 percent of net new jobs in Canada.[25] E-business enables these firms to substantially reduce costs and streamline operations to produce better and faster service, remaining competitive in today's fast-paced global economy. *Net Impact Study: The SME Experience* found that a typical firm adopting advanced e-business solutions could increase profits by 150 percent, after increases in revenue and decreases in cost brought about by the transformation of business processes.

Overall, in 2003, Canadian SMEs outperformed their international counterparts, with higher rates of IBS adoption than SMEs in the E.U. across all industry categories, and adoption rates generally similar to U.S. SMEs.[26] In fact, more Canadian SMEs claimed financial benefits from IBS adoption—both increase in revenue and decrease in cost of goods sold, and in sales, general and administrative expenses—than did SMEs in the U.S. and the E.U.[27] SMEs are increasingly cognizant of this trend, and look for the bottom-line benefits of technology adoption. However, the high overall results for Canada mask the fact that adoption is uneven across firm size and sector. While small firms (fewer than 100 employees) led their international counterparts in adoption rates for customer-focused solutions, and financial, accounting and procurement solutions, medium-sized firms (100 to 500 employees) lagged internationally.[28]

Nationally, across IBS types, very small firms lead in the use of online marketing, sales, purchasing and supply-side management solutions (see Figure 2). Medium-sized SMEs, meanwhile, are using basic applications, such as e-mail and websites, but continue to lag far behind both larger enterprises and their smaller counterparts in adoption of more advanced technological solutions. Specifically, advanced e-business applications, such as e-procurement, supply-chain management, accounting, finance management and human-resource management, are not being used by medium-sized SMEs despite their substantial cost-saving and profit-enhancing potential.

Figure 2: Internet Business Solution Adoption by Small and Medium Enterprises (2004)



Source: *Net Impact Study IV*, Strategies for Increasing SME Engagement in the e-Economy.

24 Statistics Canada, *Business Register*, June 2003, and Industry Canada, *Key Small Business Statistics*, May 2003. Of the approximately 2.2 million businesses in Canada as of June 2003, just over one million were "employer businesses", meaning they listed at least one employee on their payroll. Of these businesses, 2,780 had more than 500 employees. These enterprises are referred to as "large businesses".

25 Industry Canada, *Small Business Quarterly*, Vol. 5, No. 4, February 2004.

26 CeBI, *Net Impact: The International Experience*, May 2003.

27 Ibid.

28 Ibid.

In fact, a recent CeBI survey regarding the use of supply-chain transformation applications found that, of a pool of 173 firms in the manufacturing, distribution and retail sectors, 78 percent of independent SMEs are linked to digital networks for business purposes, including 69 percent of small companies and 93 percent of medium-sized companies. 5.3 percent of B2B (business to business) purchasing and 4.6 percent of B2B sales (lower bound, since not all interviewees were knowledgeable about sales) is carried out online by independent Canadian SMEs in the three sectors surveyed. At least some purchasing is done online by 56 percent of medium-sized companies and 37 percent of small companies. At least some B2B sales are done online by 25 percent of medium-sized and 15 percent of small manufacturing and distribution companies.[29]

This adoption pattern may be partially explained by the SME adoption path. SMEs first adopt simple e-mail and web-based solutions and are often unable or unwilling to attempt the second stage and substantially more difficult applications. Adoption of this second stage of IBS by SMEs, however, usually involves a higher level of risk and cost. In fact, cost continues to be rated as the foremost barrier to adoption by SMEs.[30]

BOX 3: THE BENEFITS OF ADVANCED e-BUSINESS PROCUREMENT[31]

The Canadian e-Business Initiative conducted five case studies to showcase the e-procurement efforts of small, medium-sized and large Canadian organizations (from both the private and public sectors). It was a challenge finding organizations to participate, especially smaller SMEs. Even among organizations using e-procurement, some consider it a low priority and others do not perceive their efforts to be "leading-edge".

Case-study participants generally define e-procurement as the placement of orders over the Internet with or without online payment. For the most part, organizations prefer to develop e-procurement solutions in a step-by-step fashion, rather than developing end-to-end solutions in one complete step. This approach enables organizations to gain incremental wins, manage risks and costs, and gradually bring other parts of the business along with their e-procurement efforts.

Regardless of how e-procurement takes place in these organizations, it is perceived by procurement officers and senior management as another essential "tool in the toolbox" for conducting business operations more efficiently and effectively. Despite some of the technology and change-management challenges that arise, organizations applying e-procurement balk at the idea of operating without it. Benefits they cite include streamlining supply-chain operations, cost reductions, quality enhancements, improved delivery-cycle times, reduced resources and increased volumes. E-procurement also gives them the opportunity to become more strategic in their daily activities, enabling them to improve their competitiveness, branding, market positioning, productivity and growth.

> "E-procurement has enhanced the efficiency and speed of our business. And while there are direct and measurable benefits in terms of ROI (return on investment), it also provides the opportunity for organizations to be seen in their market as progressive and at the leading edge of innovation."
>
> "Our business volumes have grown 114 percent. E-procurement has contributed to this growth and helps us to meet this demand."
>
> *— Case study participants*

29 Norm Archer, Shane Wang and Claire Kang, *Barriers to Canadian SME Adoption of Internet Solutions for Procurement and Supply Chain Interactions*, Industry Canada, and McMaster eBusiness Research Centre, July 30, 2003.

30 See CeBI, *Net Impact Study Canada: The SME Experience*, November 2002 and *Net Impact: The International Experience*.

31 Conference Board of Canada and Purchasing Management Associaton of Canada (PMAC) *E-Procurement Case Studies*, 2004.

IBS adoption, including the type of solution, also varied by industry sector. While 75 percent of firms in the financial services industry were using or adopting some form of IBS, this was true for only 62 percent of the manufacturing industry and 63 percent of the retail industry.[32] In addition, different sectors adopted different solutions (see Figure 3), often not adopting solutions that would, at face value, seem highly useful to their sector. For example, firms in the retail sector reported low usage of supply-chain management tools, as did those in manufacturing.

Figure 3: Percentage of Organizations Adopting an Internet Business Solution by Industry

	Manufact.	Financial services	Wholesale/ Retail trade	Com/ISP	Public sector
Customer Development & e-Marketing	38.5	63.5	68.8	63.6	55.8
Customer Service & Support	**40.4**	**71**	62.5	54.2	68.2
E-Commerce (including B2B)	42.5	38.7	67.3	45.5	39.5
Finance & Accounting	35.8	58.1	33.3	35.7	51.2
Human Resources	13.5	25.8	16.7	43.6	37.2
Procurement & MRO	**30.8**	**19.4**	22.9	20	23.3
Sales Force Automation	25	30.2	34.7	25.5	9.3
Supply Chain Management	17.3	22.6	18.8	25.2	30.2
Corporate Portal	11.5	50.8	32.7	67.3	44.2

Source: *Net Impact Study Canada, The SME Experience*.

BARRIERS TO ADOPTION

When asked why they did not adopt a next-stage IBS, SMEs indicated a variety of qualitative perceptions regarding why these solutions would not work for them. SMEs generally responded that these systems were costly and difficult to implement; some believed that old ways of doing business, with strong reliance on personal connections, were superior.[33] *Net Impact Study IV* found that the reasons for not adopting differed by sectors and firm size, with retailers citing lack of time as a major adoption impediment, and smaller firms being more concerned about their ability to recruit and hire proper staff.[34]

Perception of the value of adoption also differed between industry sectors. Manufacturing firms were more often motivated by a consideration of customer preferences, and believe IBS is necessary to improve international sales. Retailers were much more convinced that suppliers demanded IBS adoption.[35]

These findings are typical. Firms cite cost, time and uncertainty about return on investment as major barriers to the adoption of these solutions. Yet, they also indicate that the needs of their firm or sub-sector are unique, requiring solutions that are custom designed.[36] Moreover, many SMEs seldom have readily available financial resources to invest in new technologies, and lack the internal resources and expertise required to adopt e-business applications. As noted in *Net Impact Study III: Overcoming the Barriers*, many small firms decide to adopt e-business on a reactive basis, responding to changes in their business environment. In some cases, small firms adopt IBS for fear of losing competitive advantage to competing firms within their sector that have adopted IBS. In other cases, SMEs are driven to adopt e-business technologies by their suppliers or customers. For example, companies such as

32 CeBI, *Net Impact: The SME Experience*, November 2002.
33 CeBI, *Net Impact Study III*, *Overcoming the Barriers*, October 2003.
34 CeBI, *Net Impact Study IV*, Strategies for Increasing SME Engagement in the e-Economy, September 2004.
35 Ibid.
36 CeBI, *Net Impact Study III*, October 2003.

WalMart, Dell and Cisco will only deal and transact with supplier firms online. As such, large business partners can have a positive impact on SME adoption.

These findings suggest that coordinated sectoral approaches can play an important role in driving e-business adoption among small firms. Industry associations and sector councils can play a key role in sponsoring creation of e-business solutions that are easily adaptable and scalable among SMEs within their sector. The work of the Electronic Commerce Council of Canada, for example, successfully brought large and small grocery retailers and distributors together to create a national produce registry (see Box 4).

BOX 4: INDUSTRY LEADERSHIP AND PARTNERSHIP: ECCNET (ECCC NETWORK SERVICES)

Use and promotion of standards is critical to global e-business. Standards such as the Universal Product Code (UPC), the barcode used to identify products in the grocery industry, and its potential replacement, the new Electronic Product Code, form an important part of the e-business environment by facilitating global recognition of products and services.

The Electronic Commerce Council of Canada (ECCC) is a not-for-profit, industry-led organization that promotes and maintains global standards for the identification of goods, locations and related e-commerce communication such as barcode issuance and maintenance. In addition to supporting and implementing global standards in Canada, ECCC represents Canada on global standards-setting bodies to ensure that standards for e-commerce and product identification meet the needs of Canadian businesses.

ECCNet, Canada's National Product Registry, aims to increase the efficiency of the supply chain by creating a national database of products, harmonised with the U.S. and internationally, for the grocery, food services and pharmacy sectors.

- Aiming for a January 1, 2004 deadline, ECCNet had all grocery retailers and distributors participating in the program.
- ECCNet is industry led and developed—a factor crucial to its success. In addition, it is industry endorsed, with product listing through the ECCNet a standard requirement for trade by major grocery distributors.
- To increase accessibility for SMEs, ECCNet uses subsidized fees to facilitate participation.

Source: **www.ecc.org** and **www.eccnet.org**

4.2 e-TALENT

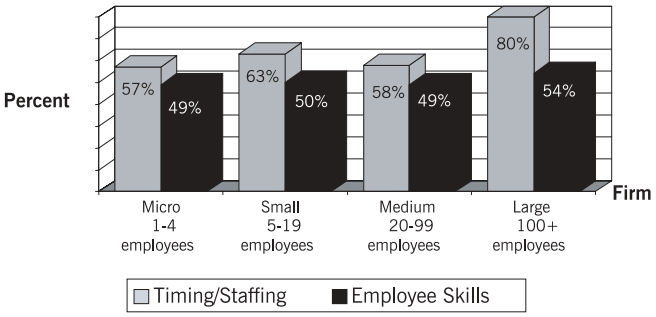
Success in adopting advanced e-business technologies also depends on availability of skilled professionals. The past five years have seen an unprecedented demand for highly skilled and versatile IT professionals. As the technology sector recovers in 2004, the need for skilled IT professionals to plan, design, build, implement and service e-business applications is likely to increase.

Although Canada has a highly educated workforce, many SMEs continue to report problems in easily identifying, and then attracting and appropriately compensating, the IT professionals that match their needs. Research from the U.S. Department of Commerce suggests that the adoption of information technologies needs to be developed together with worker training and revised workplace practices to yield productivity gains.[37] In other words, firms must not only adopt, but they must also plan to retrain employees on how to use new technologies most efficiently to realize higher productivity gains.

[37] U.S. Department of Commerce, *Digital Economy 2003*, December 2003.

IT professionals must now be versatile; they must be able to develop, operate, repair and maintain e-business solutions in addition to having a clear understanding of the business needs and expectations of these applications. Typically, SMEs cannot afford the time or money to train these employees in-house. It then falls to private-sector training and post-secondary institutions, such as colleges and universities, to offer training to these workers.

Figure 4: Impediments to e-Business Shared by SMEs – Percent of Firms Indicating Staffing Resources and Employee Skills as Barriers to e-Business



Source: EKOS, *Rethinking the Information Highway*, December 2003.

In the U.S., 2000-2001 saw employment in IT-based industries fall more than six times faster than all other private industries.[38] This decrease would suggest an increase in the availability of highly skilled e-talent into non-IT-based industries. However, SMEs continue to report problems in finding the e-talent to meet their specific needs, and cite this factor as a barrier to adopting e-business. Of Canada's one million SMEs, more than 20 percent or 200,000 reported that they could not find employees with the skills necessary to implement e-business solutions.[39] How can these findings be reconciled? Anecdotal evidence suggests that young graduates do not look for employment in the SME sector. This situation may be due to the fact that academic institutions focus on the value of working in large businesses or due to concerns of young graduates regarding compensation and mobility.

SMEs, however, must also become engaged and more proactive in retraining existing staff to meet business needs. While this may represent costs the SME is reticent to undertake, the productivity benefits for the business can be substantial. Employers should see retraining as part of their business investment and allow it to, where possible be part of employers daily activities. Canadian post-secondary institutions offer various community-based information technology and e-business learning on their campuses, resources are often flexible and be arranged to meet the needs and time demands of SMEs and their staff.

Universities and colleges also need to review their capabilities in developing graduates who are able to integrate information technologies, such as e-business into their careers, regardless of domain or field of study. Too many students graduate into the work force without the basic IT and e-business skills that so many firms require.

4.3 e-SUPPLY

There is a clear challenge to vendors offering e-business applications to Canadian SMEs. SMEs are searching for offerings that are affordable, scalable and sectorally specific. However, many e-business solutions on the market today are too costly, time consuming and complex for smaller firms to implement. Moreover, SMEs with small numbers of untrained staff often require much more communication and support than larger firms with in-house expertise. The level of interaction needed to aid SMEs with e-business implementation is too high relative to expected profit. For this reason, SME e-business applications remain somewhat limited.

While larger, well-known firms offer IBS, SMEs seek software designed for specific sectors—software that is easy to implement and use; software that is scalable and adaptable to changes in businesses and surrounding environments. There is a real need for cooperation among IBS providers, industry associations and large businesses within sectors to help develop sector-wide solutions and platforms with SMEs in mind. This cooperation will develop a level of trust and confidence in IBS offerings among SMEs and will lead to higher levels of adoption. Such shared solutions will also help SMEs avoid the high cost of developing their own IBS, a major barrier to e-business adoption.

38 Ibid.

39 CeBI, *Net Impact: The International Experience*, May 2003.

In addition, SMEs tend to be very skeptical about vendors and consultants that try to sell them business-related software. In an attempt to help validate the credentials of some e-business vendors, the Society of Internet Professionals (SIP) is in the process of developing three certification streams: privacy, security and e-business-oriented expertise and consulting. SIP Certified Professional status is granted to IT professionals that pass one core examination and an additional special examination for selected areas of specialization.[40]

It is also important that SMEs become involved in the process, helping these coalitions of technology companies and consultants develop tools that are easily implemented. Often, SMEs fear partnering with other firms within their sector because of competitive interest or an inability to commit the time and manpower required to engage in the strategic planning process needed develop the right tools to fit their firms.

Despite a high level of Internet literacy and use among consumers, and growing basic technology use in the business community, e-business adoption among SMEs continues to be slow. Firms continue to experience the same barriers, such as the high cost of e-business solutions, lack of skilled personal, and lack of accessible, impartial advice. While some of these barriers are clearly part of the nature and operations of small firms, which are forced to operate reactively and have little time to develop long-term IT strategies, other barriers point to greater need for collaborative approaches between large firms and their small suppliers and distributors, and with industry associations that can help increase awareness of the benefits of e-business among their memberships.

40 ITbusiness.ca, *Canada's IT associations give certifications an upgrade*, April 22, 2004.

CHAPTER 5: INVESTMENT ENVIRONMENT

As firms operate in a fast-paced global market, governments are under increased pressure to develop tax and regulatory policies that build a flexible and competitive economy. In Canada, a major focus will continue to be making up the "productivity gap" with the United States. That is, increasing our productivity levels to build a more prosperous economy. One of the keys to improving productivity is investment in new technologies. In fact, ICT use by firms contributed significantly to productivity growth in Canada after 1995, primarily by promoting change and innovation in business processes.[41]

5.1 TAX AND REGULATORY ENVIRONMENT

A competitive tax and regulatory environment is crucial to attract new investment to Canada and to promote investment and innovation at the firm level, where tax and regulatory policies have a large impact on business decisions. In addition, Canadian tax and regulatory policies can have an impact on SMEs' ability to expand e-business capabilities to compete internationally.

International trade via e-business increases the need for international, and specifically Canada-U.S., cooperation on regulation that expedites border transactions. Canada-U.S. cross-border trade exceeds $1 billion per day. While border issues have figured prominently in recent Canada-U.S. relations, in the long run, clarity on these issues will mean more predictable and certain cross-border trade, which will encourage investment.

Currently, Canada has a very low-cost business environment. With a nine percent cost advantage in comparison to the U.S., a recent KPMG study named Canada as the lowest-cost jurisdiction in which to do business.[42] Indeed, the high level of technology infrastructure, the low cost of telecommunications, and a highly educated population suggests Canada has the right mix of factors to become a destination for international investment and a technological leader. In terms of taxation policy, Canada has in recent years made good progress, with announcements in the last two federal budgets allowing for a phase out of the capital tax and decreasing significantly structural impediments to investment.

However, we neither do enough to communicate this advantage to our major trading partners nor do we seek out international partnerships and opportunities based on this advantage. In fact, international perceptions of Canada do not highlight our strengths but our weaknesses as a non-innovative, highly bureaucratic environment. International business executives perceive Canada as a jurisdiction with plenty of bureaucratic red tape and distorting regulations and subsidies.[43]

Indeed, while business costs in Canada are low, more work needs to be done to improve the regulatory sides of the business environment. As the OECD, in its *Economic Survey – Canada 2003*, has stated: "The fundamental challenge is to make Canada an even more attractive place to live, work and invest. While past reforms have begun to pay off, there is still unfinished business." Canada needs a strategic plan for long-term economic growth—a plan that must include a competitive tax system that encourages effort, saving, investment and risk taking by firms and individuals. Such a tax system will work to enhance productivity and promote sustainable long-term economic growth. A smart fiscal policy must also focus on further reducing government debt, as savings realized from lower interest payments would make room for budget initiatives that can improve the standard of living and contribute to the quality of life of all Canadians. On the spending side, governments must prioritise and focus on those areas that can directly affect Canadian productivity and competitiveness, and enhance the economy's ability to grow.

Decisions undertaken in the 2004 Federal Budget were important steps to improve the Canadian business climate (see Box 5). Capital cost allowance (CCA) rates can have important impacts on business investment decisions. As such, they represent one of the most important ways in which the corporate tax system affects productivity

41 Wulong Gu and Weiman Tang, "Information Technology and Productivity Growth: Evidence from Canadian Industries" in *Economic Growth in Canada and the United States in the Information Age*, Jorgensen, ed., May 2004.

42 KPMG, *Competitive Alternatives: KPMG Guide to International Business Costs*, February 2004.

43 World Economic Forum, *Global Competitiveness Report 2003-2004*, October 2003.

growth. The 2004 Federal Budget increased the CCA rate for computer equipment from 30 percent to 45 percent and the rate for broadband, Internet and other data network infrastructure equipment from 20 percent to 30 percent, making ICT equipment more affordable.

BOX 5: BUDGET 2004

The 2004 Federal Budget sets out direct investments aimed at enhancing Canada's ability to succeed in an increasingly competitive global economy. These investments include:

- $250 million to the Business Development Bank of Canada (and $20 million to the Farm Credit Corporation) to provide venture capital for start-up technology companies and to leverage additional private-sector financing for investment in leading-edge technologies;
- additional funding of $90 million per year for Canada's three federal granting councils;
- $100 million to improve the commercialization of research conducted at Canada's universities, hospitals and other research facilities; and
- increases to the capital cost allowance rate for computer equipment to 45 percent and the rate for broadband, Internet and other data network infrastructure equipment to 30 percent.

Source: Budget 2004, *New Agenda for Achievement*, March 23, 2004.

To build an innovative economy, the federal government must also do more to facilitate commerce by removing regulatory impediments to using electronic commerce. Doing more means a commitment to regulatory review, as called for in the Innovation Strategy. The goal of such a review should be to look toward ensuring legislation is current, facilitates commerce throughout Canada, and builds a flexible economy. Some areas that could be included in a review are: a study of framework legislation; implementation of the Agreement on Internal Trade (AIT) to ensure a uniform commerce regime across Canada; setting sunset clauses or review periods in new legislation; and working with international trading partners on mutual-recognition agreements.

5.2 VENTURE CAPITAL

To build a strong e-economy in Canada, firms engaged in research and development, and innovative uses of technology must have access to risk-capital financing. Venture capital plays an important role in the financing mix available to small firms by supporting firms engaged in risk, a key aspect of innovation.

In 2003, venture-capital activity in Canada fell to $238 million, continuing a declining trend over the past several years. For the first time this year, ICT was the top investment destination, ahead of life sciences.

BOX 6: WHERE VC FUNDING WENT (July to September 2003)

- Software firms: $77 million
- Electronics, hardware and semiconductors: $66 million
- Communications and networking: $53 million
- Biopharmaceuticals and life sciences: $64 million

Source: MacDonald and Associates, 2004.

It is also noteworthy that capital in 2003 went to fewer firms than previously, and that a relatively higher proportion represented follow-on financing for companies that had already received some venture-capital funding, indicating that diminished availability of sources of investment for new firms may continue.

Continued work on Canada's regulatory environment is needed to ensure large institutional and corporate investors are encouraged to invest. In particular, participation of the Canadian pension-fund sector in the private-equity and venture-capital asset class continues at a much lower level than peer funds in the U.S. Some of the reasons frequently cited for these lower investment levels include various structural impediments within the Canadian tax system that discourage large institutions, such as pension funds, from making investments in the venture-capital sector. Similar impediments affect the ability of non-Canadian investors, such as the vast pools of U.S.-based institutional capital, to invest directly in Canadian venture-capital funds.

After consultations with the Canadian venture-capital community, the Canadian eBusiness Opportunities Roundtable, and CEBI, the Government of Canada announced its intention to address many of these issues in the 2003 Federal Budget. Since then, it has released draft legislation. CeBI strongly supports these measures. Once these impediments are removed, the Canadian venture-capital community should have a greater ability to attract new capital from major institutional investors in Canada and the U.S.

CHAPTER 6: PURSUING e-BUSINESS ACHIEVEMENT

"Canada must make it a priority for our businesses, large and small, to be leaders today developing the enabling, transformative technologies of tomorrow."

— Paul Martin, November 2003[44]

Throughout 2003, the Canadian economy experienced slow progress across all segments of the e-economy. Though increasingly online, consumers and business are still not taking full advantage of their connectivity. In addition, as the e-economy has matured, new challenges and opportunities require renewed energy to capitalize on Canada's technological advantages. Steady progress, marked by a lack of coordination, is not sufficient to pursue global excellence as a leader in technological use and adoption.

Reviewing the contribution Canadian businesses, governments at all levels and the educational community have made in 2003 to build the e-economy, it is clear that a strong, renewed and continuing commitment to build partnerships that promote e-business is necessary in 2004 and for the future.

6.1 GOVERNMENTS

Governments have played an important role in building the Canadian e-economy. Through its commitment to connecting all Canadians, the federal government worked effectively with various partners to provide basic Internet connectivity to schools, libraries and public-access sites across the country. Industry-led broadband infrastructure provided 80 percent of Canadians with access to high-speed Internet. Working with industry and communities, the Government of Canada has allocated $105 million for building broadband infrastructure in rural and remote areas to extend services to under-served communities.[45] A further $155 million has been earmarked, through the National Satellite Initiative, to improve connectivity to remote communities that can only be served by satellite communications.

Provincial governments, as well, have been active in increasing connectivity. The Alberta SuperNet,[46] for example, is one province's attempt to create a province-wide, high-speed telecommunications backbone. When it is completed, it will tie together 4,700 schools, hospitals, libraries and other government facilities in almost every community in Alberta—422 in all. SuperNet will bridge the urban-rural digital divide, providing broadband connectivity to schools and hospitals, and aims to facilitate entry for Internet service providers to even the smallest of communities.

But connectivity is not enough. The federal government has not done enough to communicate the success of these connectivity and infrastructure development programs to the public. It must also move the agenda beyond connectedness and determine the next new and ambitious step. To enable Canada to grow aggressively as a global leader and innovator in ICT development and use, governments must lead by example, becoming model users of ICTs for improved delivery of services through initiatives such as Government Online (GOL). The number one ranking given to Canada by Accenture's latest international e-government study[47] indicates that, at the federal level, the Government of Canada has succeeded in focusing on key areas where electronic service delivery would provide value to Canadians, and is moving to integrate GOL into a general strategy to transform government service provision.[48] In addition to the *BusinessGateway* portal and various business-intelligence products, transactional services of interest to SMEs include online incorporation and business registration, a variety of business-and payroll tax-related services, and the pilot Record of Employment (ROE) on the Internet.

44 Paul Martin, *Making History, the Politics of Achievement*, November 2003.

45 *Stronger Communities for a Stronger Canada: The Promise of Broadband*, Report of the BRAND National Selection Committee, March 2004.

46 *Across the Great Divide: The Alberta SuperNet is a model for the broadband future-everywhere*, IEEE Spectrum, January 1, 2004.

47 Accenture, *eGovernment Leadership: Engaging the Customer*, The Government Executive Series, April 2004.

48 *Connecting with Canadians: Pursuing Service Transformation*, Final Report of the Government On-Line Advisory Panel, December 2003.

However, results of the move into "service transformation" are as yet undetermined. From a citizen's point of view, the GOL agenda is not visible; while the opportunity for some service provision exists, there is little imperative to interact electronically with the federal government except for the annual filing of income tax returns. Transactional services like the ROE and business tax filings can provide a "pull-through" impetus for SMEs, bringing them online and demonstrating the value of electronic transactions. In addition to underutilised services, the latest Auditor General's report noted that the federal government lacks a comprehensive strategic plan to achieve its ambitious outcomes, and raised severe doubt regarding the achievement of the program's goals by the 2005 deadline.[49] Furthermore, central funding for the GOL initiative will end in fiscal year 2005-06. The federal government needs to provide a strong and visible commitment that it will continue to build on the achievements of the GOL initiative and carry through its longer-term goal of service transformation across departments and jurisdictions.

To continue its role, the federal government should capitalise on its ability to disseminate knowledge and information throughout Canada. It must enhance its communications strategy and engage Canadians directly on the advantages of technology adoption. Communications efforts must be more concerted and visible, and these efforts must inform SMEs of government programs and services, and continue to facilitate accessibility. In addition, this work points to the importance of partnerships. To best address different sectors, government can look to build coalitions with sector associations to better address firms in those sectors that are not adopting e-business, with industry leaders to better disseminate knowledge to SMEs, and with the education sector to better address the "e-talent" gap.

6.2 HEALTH AND EDUCATIONAL SECTORS

In addition to the challenges Canadian governments face in transforming their overall operations, the public sector faces special and particularly acute challenges in transforming the delivery of two key services—education and healthcare—which together account for some 15 percent of the Gross Domestic Product (GDP) and the largest share of provincial government expenditures. Healthcare faces major, long-term funding pressures. As such, this system needs to use available resources more efficiently and effectively. In addition, these sectors face significant shortages of qualified professional personnel, such as nurses, teachers and professors.

In both of these areas, Canada faces a rising demand for services and increasing costs. An aging population increases demand for healthcare services, while requirements of the e-economy increase demands for education, skills-development and lifelong-learning services. As well as increasing demand and costs, these trends reduce our ability to pay for these services. Both the aging population and the requirement to attain higher levels of education and skills development mean that relatively fewer Canadians will be active in the work force. Contributions to government revenues through the income tax system, therefore, will tend to decline in relation to rising expenditure requirements.

There is a consensus that ICTs can be applied to improve service and contain costs in our healthcare, education and skills-development systems, as well as deliver these services quickly and effectively to rural and remote regions. Healthcare expenditures in Canada were $106 billion in 2001 or 9.6 percent of GDP; for 2003, they were estimated at $121.4 billion or 10 percent of GDP.[50] If, for example, healthcare expenditures could be reduced by one percent through the intelligent application of ICTs, annual costs would fall by more than $1 billion.

ICTs and Internet-based services are already being used to assist in delivering healthcare and education services. However, these applications have just begun to scratch the surface of what is possible, particularly with the use of broadband networks. Much more needs to be done, both in urban areas and in rural and northern communities.

In the area of healthcare, the federal government has devoted considerable resources to the development of health information systems. Both the Kirby and Romanow Commissions recommended that the federal government should invest in development of tele-health and tele-medicine services. The Canada Health Infoway,[51] a public- and private-sector partnership, has received significant federal and provincial government funding to lead in the development of

49 Auditor General of Canada, *2003 Report of the Auditor General of Canada to the House of Commons*, November 2003.

50 Canadian Institute for Health Information, *National Health Expenditure Trends, 1975-2003*.

51 Canada Health Infoway, Tele-health Program, **www.infoway-inforoute.ca**.

portable Electronic Health Record systems that can be used across the whole range of healthcare providers and for essential outcomes-based research to improve therapies. A recent report,[52] prepared for the U.S. Department of Health and Human Services by the National Coordinator for Health Information Technology, describes in some detail the efficiencies and savings that could be made possible by a nationwide system of electronic health records.

The role of ICTs and the Internet in education has also been the subject of considerable discussion and debate over the past decade. Competitiveness in the global economy necessitates a well-educated workforce, which, in the environment of today, is made up of individuals who can understand and use e-business technology in their daily lives. The educational sector makes important contributions to raising the level of technological literacy of Canadians. This literacy, in turn, enhances Canada's national competitiveness by offering the ability to enhance the Canadian environment and attract and retain both investment and people.

Canada was the first country in the world to connect all of its public schools and libraries to the Internet. A logical next step might be to upgrade these connections to full broadband capability, as is being done in Alberta via the SuperNet, and to develop educational services and applications that take full advantage of broadband communications. This upgrade would give all children equal opportunities to learn. In the university sector, the challenge remains to continue to focus on technology training as a core education competency for students in all programs.

There is a consensus that ICTs can be applied to improve services and contain costs in our healthcare, education and skills-development systems. Beyond making incremental improvements of these kinds, the real challenge facing providers of healthcare, education and other public services is to re-think their service models in light of the possibilities that are opened up by ICTs and the Internet, and to re-design their delivery systems and organizational structures to fit these new service models.

6.3 PRIVATE SECTOR

In Canada, sound market principles have resulted in the private sector being the main creator of new technology and main builder of infrastructure. To continue promoting SME adoption of ICT, large users of e-business within the private sector must play a greater role in addressing their SME partners on this issue. In today's highly competitive, fast-paced market, the strength of small businesses lies often in their ability to react and adapt quickly to market trends and competitive pressures. In a recent CeBI focus group, respondents indicated that emulating successful competitors, as well as the need to respond to industry-wide use of e-business technology, were two important considerations that drove their adoption decision.[53] SMEs indicated that gathering knowledge about e-business solutions was challenging; despite a wide range of available information, SMEs believed that governments, large institutions, consultants and service providers might not be credible sources of information.[54] Rather, SMEs looked first to their immediate colleagues and competitors. Word of mouth and personal references from other small businesses in their sector, as well as trade publications, were the best ways to communicate with them; and keeping up with competitors was an important motivation for e-business adoption.[55]

As sectoral initiatives such as ECCNet (see section 4.1) show, large businesses can drive adoption by focusing more on mentorship or leaseholder-type agreements with their SME suppliers and distributors. This type of adoption can occur in partnership with associations, which can aid the industry in identifying how and where the businesses can associate to become successfully e-enabled. The private sector must also continue to build such coalitions, whether with governments at all levels or other partners, to provide education and information for SMEs and to facilitate adoption.

52 U.S. Department of Health and Human Services, *The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care*, July 21, 2004.

53 CeBI, *Net Impact II*, October 2003.

54 Ibid.

55 Ibid.

6.4 MOVING FROM e-COMMERCE TO THE e-ECONOMY

The Canadian economy started 2004 on a strong note, with a stronger dollar, recognition of our competitive advantages and relatively low business costs. However, building a strong economy necessitates a focus on growth and productivity, as well as the policy momentum to enable Canadians to use and capitalize on the significant productivity-enhancing potential of e-business technologies. This goal necessitates a strategic focus that brings the disparate strengths of our current e-economy together under a concerted long-term economic strategy. Governments and businesses have worked well together to date, building the necessary infrastructure to enable businesses and Canadians to use all manner of technology. Today, both face the challenge to extend these networks to new programs, such as healthcare and education, and the imperative to involve new partners, specifically SME suppliers and distributors, to make the e-economy a greater part of the overall economy.

Canada's technological infrastructure is strong. Canadian consumers have access and are increasingly connected to Internet technology, which enables their participation in electronic transactions. Yet, consumers continue to cite concerns about the privacy and security of their online information as deterrents to engaging in online transactions. Large businesses, meanwhile, with the implementation of federal and provincial privacy legislation, are increasingly recognising the importance of planning in this important area. However, small businesses with limited resources will continue to require assistance in interpreting and implementing legislative requirements. In addition, new and increasingly complex security threats, such as spam and identity theft, require collaborative action and flexible solutions.

SMEs have made significant progress in basic technology use, with 74 percent using email and 78 percent with Internet connections. While small businesses lead in customer-focused applications, they are reticent about adopting many of the more advanced e-business solutions. Although these solutions, such as e-procurement, supply-chain management and human-resource management, offer substantial potential for cost savings and profit enhancement, the majority of small firms do not utilize them. Factors such as cost, an inability to connect with the necessary skilled professionals, and questions regarding where and how to find good impartial information continue to be identified as stumbling blocks. SMEs also identify their needs as very specific to their sector, sub-sector and even the firm. Yet, firms report that they adopt technology based on the technology use of their competitors and large partners, indicating potential for the use of sector-specific approaches to build awareness and adoption of e-business.

While the overall business environment has improved, specifically with announcements and implementation of commitments made in the last federal budget, continued work to build the right environment is necessary. Governments should strive to ensure the commitment to "smart regulation" made in the Innovation Agenda is maintained. Smart regulation will help build a marketplace with clear and uniform rules that facilitate commerce through e-business channels. At the same time, we cannot neglect to trumpet our strengths, using international opportunities to tell our partners and investors about the Canadian technology story.

To move from considering electronic commerce as distinct to incorporating it in the overall economy, CeBI believes Canada can achieve its potential with a commitment from all partners to work together to reach the next level. By putting our success in infrastructure to use, by building the trust, and with it the demand, among both businesses and consumers to use electronic commerce, we offer the following imperatives for action:

1. The Government of Canada needs to pursue a strategic plan to build an innovative 21st-century economy based on the recognition of the role and importance of ICTs in that economy. This plan must include efforts to clarify and review, as appropriate, marketplace rules to facilitate long-term economic growth. We must also take all opportunities to support and communicate our technological strength to key investors and trading partners.
2. Given the potential for sectoral approaches to build e-business adoption, the private sector, especially large businesses, must do more to create an imperative, with appropriate support, to drive e-business use among their SME partners, suppliers and distributors.
3. All stakeholders should work to address security concerns in the online environment, maintain consumer and business trust and confidence, and facilitate use of Internet transactions and purchasing.

The Canadian e-Business Initiative

www.cebi.ca