



Mapping the Future of the Digital Economy: Key to Canada's Economic Success

Introduction

From the perspective of the Canadian Chamber of Commerce, a critically important issue is Canada's disappointing productivity performance which inhibits our ability to compete internationally and gain the economic advantage needed to be a global leader. As a result, Canada sits 16 percent behind the United States in standard of living (GDP per capita, 2007).¹ It is vital to the future success of Canadian business that this be addressed. In the global economy, you lead or you lose.

The Canadian Chamber has consistently advocated for government leadership in the area of e-commerce and information and communications technology (ICT), which is an important driver of productivity growth for the economy. As co-chair of the Canadian e-business Initiative (CeBI), the Canadian Chamber organized stakeholder meetings to discuss the future of information and communications technologies in Canada. The CeBI issued a number of reports to the government recommending that more needed to be done by all involved to ensure the future success of Canadian businesses in a globally connected environment.



In October 2007, the federal government hosted a meeting of stakeholders on the future of the internet economy. This meeting helped set the Canadian scene leading up to the 2008 Organisation for Economic Co-operation and Development (OECD) Ministerial conference in Korea on the future of the internet economy, where discussion surrounded global solutions to improve ICT engagement. Ten years after the first Ministerial meeting was held in Ottawa, strategies for ICT engagement were still being discussed.

Ten years of discussions have resulted in far too little action. It is time for Canada to regain a leadership role.

In 2006, the Telecommunications Policy Review Panel concluded that productivity growth is linked to ICT investment. Appointed by the federal government in 2005, the Panel's mandate was to review Canada's telecommunications policy framework and advise on how to modernize it to ensure that Canada has a strong, internationally competitive telecommunications industry that delivers world-class services for the economic and social benefit of all Canadians.

The Panel called for a National ICT adoption strategy that will strengthen ICT implementation by business, particularly small- and medium-sized enterprises across the country. Given the current economic climate, it is vital to our economic future that investment is made in innovation and information and ICT.² In the 2009 federal budget, the government committed to investing \$225 million over three years to broadband infrastructure. While this acknowledges that a connected country is a competitive country, clearly more is needed.

“Canadian businesses must measure up to the best in the world, not just those around the corner. The greatest risk to our future comes not from being too visionary, but from timidity; not from setting our sights too high, but by setting them too low.

Canada must be at the forefront of the next wave of innovation.”

*Perrin Beatty, President and CEO
The Canadian Chamber of Commerce*

We can do more. The public and private sectors must work cooperatively to successfully create an environment of innovation by trusting and empowering our citizens and stimulating their interests.

By having a solid strategy for the Internet economy, including only smart regulations, the government can provide the needed flexibility that will encourage the private sector to flourish, thereby driving growth, innovation and creating jobs in the Internet economy.

Information and Communications Technology Sector in Canada: A Significant & Strategic Contributor to Prosperity

The Canadian information and communications technology (ICT) sector is a significant contributor to the Canadian economy. In 2008, the ICT sector accounted for 4.8 percent of Canadian GDP. In 2007 (the most recent data available) the sector directly employed close to 600,000 Canadians, representing 3.5 percent of all Canadian employment. These jobs require highly skilled individuals. As a result, annual compensation in the sector is 47 percent higher than the economy's average (2007 figures: \$58,600 vs. \$40,000). The ICT sector is also a strategic contributor to the Canadian economy. It is the key driver of Canadian innovation, investing an estimated \$6 billion in research and development (R&D) in 2008, representing 38 percent of total Canadian private sector R&D investments. It is the largest private sector R&D performer in Canada.³

Most importantly, the ICT sector must be understood not only as a stand-alone industry (i.e. vertical industry), but also as a horizontal enabler for all other sectors. Acting as the nervous system to the economy, the application of ICT across all sectors of the economy – from agriculture, to manufacturing, to key services sectors like finance and transportation – is a primary driver of productivity and positively impacts the competitiveness of the Canadian economy.

The assertion that the ICT sector is both a significant and strategic sector for Canada is widely supported in numerous studies. For example, the Council of Canadian Academies, which convened a Committee on the State of Science and Technology on behalf of the federal Minister of Industry, concludes that it is “notable

that almost all the disciplines and technologies in which Canada has the opportunity to command a position of strength are associated with ICT and its applications.”⁴

Similarly, the Conference Board of Canada's *Canada Project* report clearly underscores the importance of ICT to improving productivity across the Canadian economy: “It is widely acknowledged that the large increases in investment in information and communications technologies in the U.S. during the second half of the 1990s fuelled American productivity growth. North of the border, some analysts point to Canada's long-standing problem of lower capital intensity (amount of machinery and equipment per worker) in comparison to the United States,”⁵ as the key reason for our current productivity gap.

Several submissions to the Telecommunications Policy Review Panel also documented the link between innovation, productivity and investment in ICT. One such study estimated that 70 percent of the productivity gains in Canada between 1995 and 2000 were attributed to ICT. Other studies, using International Monetary Fund (IMF) data, suggest that up to 80 percent of the huge productivity gains in the U.S. from 1996 to 2000 can be traced to their greater investment in and deployment of ICT.⁶ Leonard Waverman and Melvyn Fuss, two noted economists on the subject, have estimated that approximately 60 percent of Canada's gap in productivity growth relative to the U.S. results from the higher rate of adoption and use of ICT across the U.S. economy.⁷

The conclusions drawn by each of these studies clearly point to the need to increase ICT intensity and use across the Canadian economy to drive productivity, competitiveness, job creation and, ultimately, prosperity. Implementing targeted policies and making strategic investments to increase the application of ICT across the economy should be a core priority for Canada moving forward. Canada currently ranks 13th

among OECD countries in the contribution that ICT makes to productivity.⁸ Disturbingly, this is down from 3rd place in 2001. There is significant room for improvement. For as much as the industrial economy has been built upon essential physical infrastructure, like roads and railways, Canada's economy clearly has an additional pillar; the emerging digital infrastructure.

Building Canada's 21st Century Infrastructure: Investing in our Future Prosperity

While the recent economic and financial crisis has created numerous challenges, it has also produced an opportunity. To help mitigate the impact of the global recession, governments around the world have made and are making significant investments to stimulate their economies.

Traditionally, such stimulus packages focus on public works, for example: roads, bridges and schools, which have the potential to immediately stimulate both employment and spending. Moreover, investments in infrastructure would provide a return on investment well into the future by improving the overall productivity of the economy. Many countries have seized the opportunity to include significant cornerstone investments in the infrastructure that will underpin tomorrow's economy: digital infrastructure.



Arguably, U.S. President Obama has been the most vocal proponent of investing in 21st century infrastructure initiatives. In the President's initial public address outlining his economic action plan he stated: "It is not just another public works program. It's a plan that recognizes both the paradox and the promise of this moment – the fact that there are millions of Americans trying to find work, even as, all around the country, there is so much work to be done. That's why we'll invest in priorities like energy and education; health care and a new infrastructure that are necessary to keep us strong and competitive in the 21st century."⁹ Since this time, he has turned his words into action with significant investments (see sidebar).

President Obama is not alone. Australian Prime Minister Kevin Rudd announced a A\$43 billion (U.S. \$30.6 billion) project to create a nationwide high speed broadband network as part of his government's stimulus package. The goal of the initiative is to get 90 percent of homes and business up to 100Mbps speeds with fiber optic connection, with 12Mbps wireless / satellite for the remaining 10 percent. Prime Minister Rudd has characterized the initiative as "the single biggest infrastructure decision" in the country's history.¹⁰

U.S. Stimulus Package

Smart Grid: \$4.5 billion is for implementing "smart grid" technologies, which would sense, collect, and monitor data from an electricity grid, provide real-time, two-way communication to help monitor or manage the grid, and provide real-time analysis and event prediction based on data that would be used to improve the reliability, quality, and performance of the electricity grid.

Source:

http://sestak.house.gov/list/press/pa07_sestak/PR_090420_HumanVeh.shtml

Health IT: \$19 billion to increase the use of IT in the health care system to increase efficiency and improve patient outcomes.

Source:

<http://www.healthcareitnews.com/news/congress-passes-stimulus-package-19b-healthcare-it>

There were a few forward-leaning initiatives and investments in the Canadian stimulus package announced in January 2009 (e.g. Green Infrastructure Fund, Electronic Health Records) but more still needs to be done. There are currently no bold or significant initiatives underway that will truly accelerate the development of Canada's digital infrastructure.

The United States, Australia and Denmark continue to make significant investments in their ICT and e-commerce networks. For example, Australia, seeing that greater investment must be made in ICT, has a standalone Minister for Broadband, Communications and the Digital Economy. In Denmark, the government has established the Department of Science, Technology and Innovation and annually produces a report card on ICT engagement.

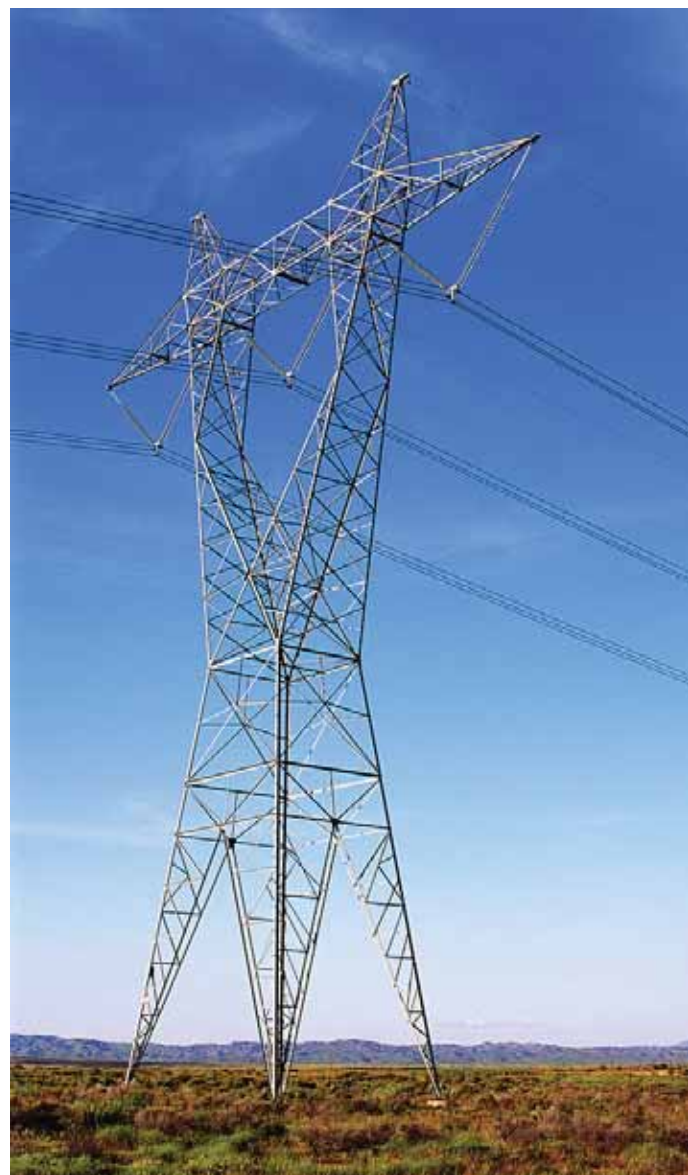
While other countries are taking aggressive actions to weather the economic storm, Canada has yet to do the same when it comes to ICT investments. These investments are key to ensuring that when the recession ends we will have advanced our competitive position relative to other countries.

Canada should also improve the conditions for future investment in technology development by better protecting intellectual property rights so that Canada remains a destination of choice for businesses. Having the proper framework in place to better protect intellectual property rights goes hand in hand with ICT development and commercialization.

If we take a closer look at the traditional electricity grid, the technology that manages the transmission, distribution and delivery of electricity has not changed much over the decades. It did not need to, as electricity was cheap, plentiful and its generation and use was not connected to concerns about potential environmental impacts. This is no longer the case. Electricity supply struggles to keep up with surging demand and, in many cases, it is the source of supply that creates environmental challenges.¹¹ At the same time, Canada faces the need to replace a significant amount of its aging electricity infrastructure. According to the International Energy Agency, Canada will need to invest in excess of \$185 billion by 2030 to replace and build new generation, transmission and distribution infrastructure.¹²

This offers a significant opportunity to modernize the nation's electricity infrastructure by using ICT to build intelligence into our grid system. A "smart" grid would sense, collect and monitor grid data to optimize the management of the grid, provide real-time analysis and enable event prediction capabilities and mitigation strategies. This would drive a significant increase in energy efficiency, a lowering of peak demand, and is needed to enable the greater use of clean energy sources, accelerate the integration of renewable resources, enhance grid reliability and improve our environmental stewardship. Achieving a mere 5 percent improvement in grid efficiency would have the equivalent impact of eliminating the fuel and greenhouse gas emissions from four million cars. Many estimate actual grid inefficiency runs at approximately 40 percent (i.e. the electricity produced that never gets used).¹³

Investing in smart grid infrastructure would also produce significant near-term job creation. The Information Technology and Innovation Foundation (ITIF), a U.S. think-tank, studied the employment impacts of investing in digital infrastructure. In the case of smart grids, the ITIF concluded that 23,000 jobs would be created in the U.S. for every US \$1 billion invested, the great majority of which are outside of the ICT sector.¹⁴ Similar investments in Canada would also result in significant job creation.



Over the long term, the employment impact of such investment is even more attractive, as smart grid infrastructure represents the catalyst for the creation of a host of new, innovative industries and jobs. The smart grid will facilitate the widespread roll-out of commercial plug-in hybrid vehicles, smart appliances, smart homes and distributed electricity generation: the industries and jobs of tomorrow's economy. Again, most of this employment would be created across industries outside the ICT sector.

The ICT sector is a significant and strategic contributor to today's economy and is a fundamental ingredient in the building of tomorrow's economy. It is incumbent on government, business and academia to develop and execute a national ICT strategy.

RECOMMENDATION 1:

The federal government, in collaboration with business and academia, develop and execute a National ICT strategy clearly commits to accelerate Canada's economic leadership in the 21st century by investing in the requisite infrastructure, skills and enabling policy environment.

Building a National ICT Strategy

As discussed, a National ICT Strategy would drive productivity, competitiveness and job creation across the entire economy. Such a strategy would sow the seeds, in terms of infrastructure, skills and an enabling policy environment, that are necessary to secure future economic prosperity.

The following sections outline each of these three areas and provide specific recommendations that the Canadian Chamber of Commerce believes can form the basis for a National ICT Strategy.

A) ICT Infrastructure: Regaining Canada's broadband leadership

Canadians are justifiably proud of our prosperity and quality of life. We must also aim to improve our environmental stewardship, including the consumption of resources like water and energy, improve our health care system for better patient

outcomes, enhance the way our cities function, and provide integrated government services to improve the lives of every citizen. These are admirable goals; ones that all Canadians can support. Achieving them will take much effort, but they are reachable.

In each case, ICT will play a valuable role. As mentioned above, the application of ICT to our electricity grid can substantially help improve our environmental stewardship through energy efficiency, while also being the catalyst for the creation of new industries and jobs. ICT can similarly improve our health care system, the functioning of our cities and government service delivery.

The application of ICT to help achieve Canada's social and economic objectives is, of course, predicated on having a robust, world-class ICT infrastructure in place. Applications such

as remote diagnosis, smart appliances and intelligent traffic systems, for example, all rely on the availability of broadband: the underpinning of 21st century infrastructure.

“Because broadband exhibits positive network externalities – the benefits from broadband adoption accrue not just to individual consumers, but to other broadband users and society as a whole – the social returns from investing in faster broadband exceed the private return to companies and consumers...”

“Next-generation broadband represents a core infrastructure that will be increasingly woven into the fabric of life for all citizens...”

Source: *The Need for Speed: The Importance of Next-Generation Broadband Networks*, The Information Technology & Innovation Foundation, March 2009

Canada – an early global leader in broadband

Information and knowledge represent the currency of the global digital economy. Citizens and businesses of all sizes are using new technologies, including the internet, to gather information and knowledge to communicate and conduct business. Ten years ago, Canada was at the forefront of this new economy. Past international reports rated Canada well, pointing to a highly “connected” population, a well-educated workforce, a strong information and telecommunications industry and a history of strategic public policy frameworks aimed at leveraging the potential of communications technologies and services.

Canada also ranked well in the past in terms of broadband deployment and availability. The country’s early leadership in broadband deployment was based on Canada’s strong telecommunications and cable-TV network infrastructures. With large incremental network

investments, the existing ubiquitous telephone and cable lines were transformed into near-ubiquitous broadband platforms. As a result, 93 percent of Canadian households have access to broadband services using landline facilities.¹⁵ There are two competing wired broadband network technologies: cable and telecommunications service providers. A third, wireless option is becoming increasingly competitive and available. Satellite data options remain a solution for the most remote communities.

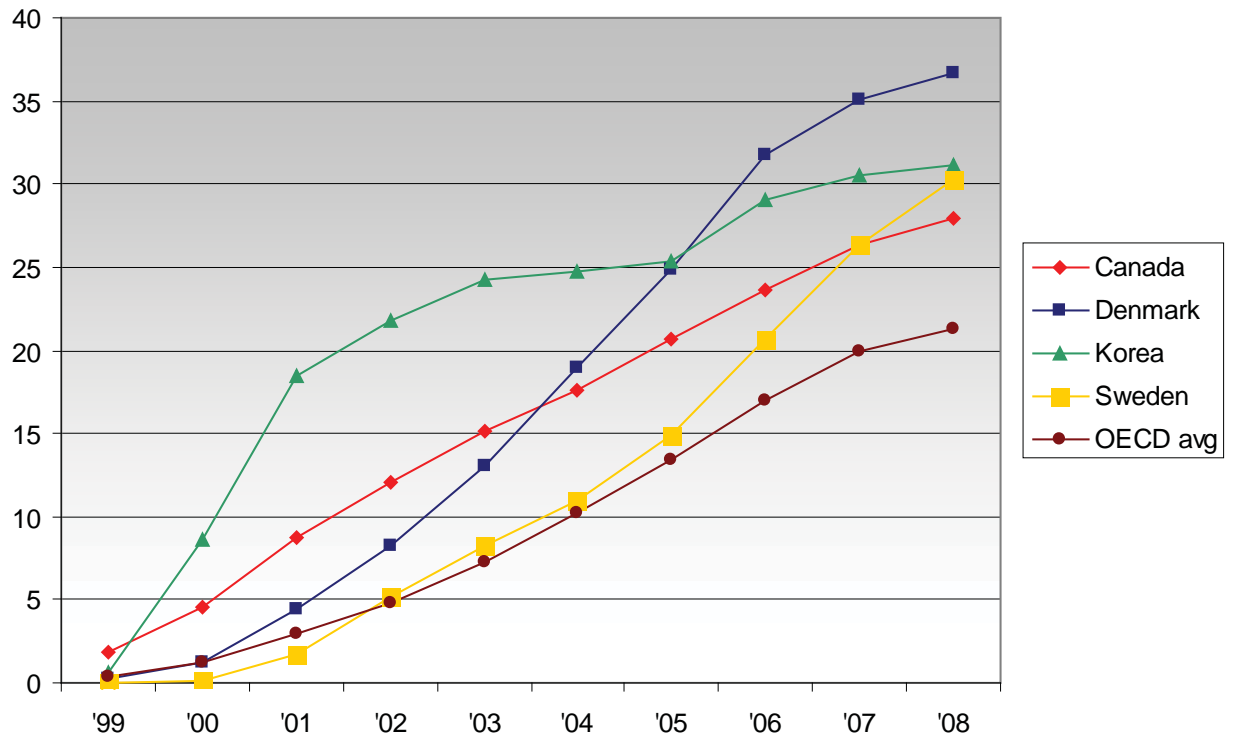
With an estimated 7 percent gap in broadband coverage, the government’s policy has been focused on public funding to encourage the completion of the broadband build-out to the unserved households where the business case has not yet become viable for network deployment. Canada has some of the most affordable broadband service, second only to the U.S. in a global ranking



of 150 countries by the International Telecommunications Union.¹⁶ However, Canada is losing ground on its broadband status relative to its international peers on other measures. Over the last 10 years, in OECD's rankings based on broadband penetration rates, Canada has fallen from first to 10th place, surpassed by other countries such as Korea, Denmark, and Sweden.

10 year Broadband Penetration Trend *

Broadband subscribers/100 inhabitants



Canada's rank 1st

10th

Source: Broadband Growth and Policies in OECD Countries (2008)

Providing the right infrastructure for broadband

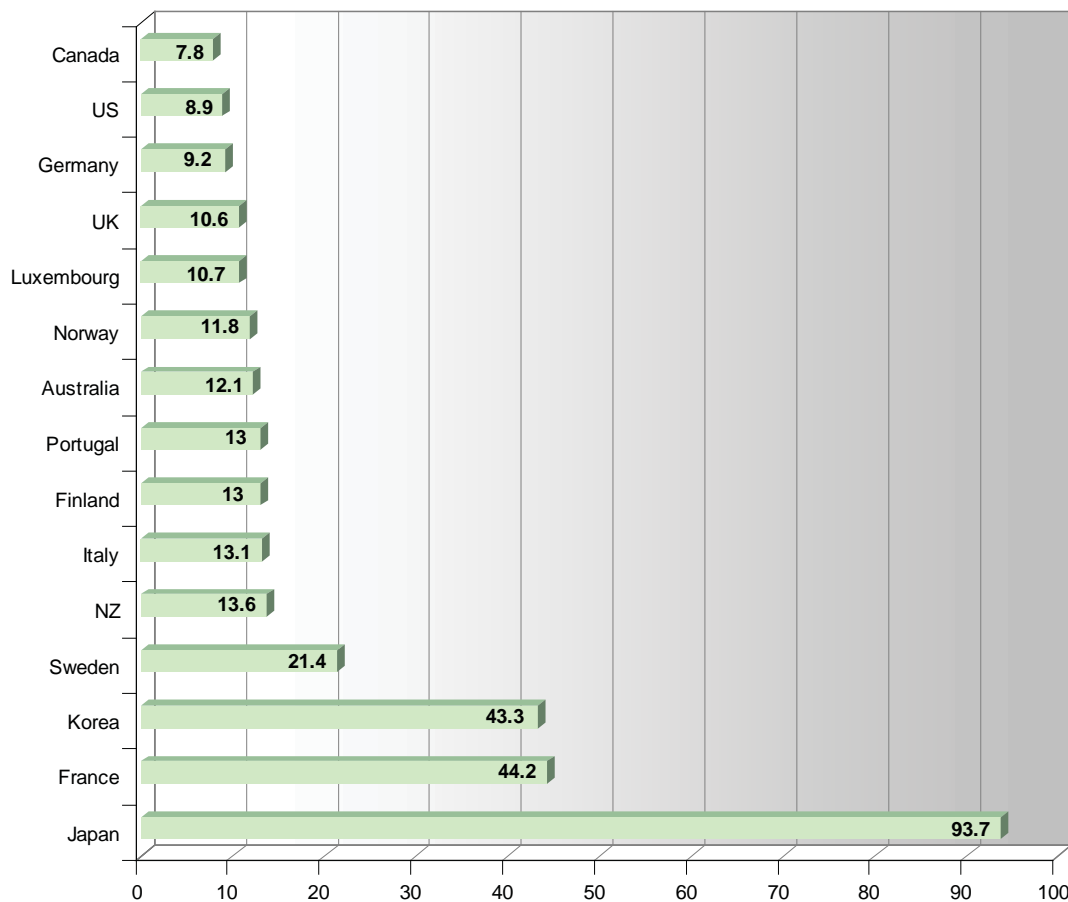
Canada was ranked 15th out of 30 countries in terms of average broadband speeds among OECD countries in 2006.¹⁷ At average speeds of 7 to 8 Mbps, Canada ranks at a fraction of the average speeds offered in Japan, France, Korea and Sweden. Higher speeds are a measure of the availability of next-generation broadband infrastructure in each country. We can do better than middle-of-the-road.

Broadband speed is an important driver for “useful connectivity” since it:

- Facilitates the flow of information
- Stimulates innovation
- Encourages education
- Increases productivity and economic prosperity

According to another recent international study, Canada only ranks seventh in “useful connectivity,” reflecting its deficiencies in the adoption, usage, penetration, speed and performance of its broadband.

Average Advertised Download Broadband Speed*



Source: Broadband Growth and Policies in OECD Countries (2008)

It is worth noting that the U.S. and Australia have both focused on the need for higher speeds for broadband in their new investment/stimulus programs, as discussed later in this paper. Our global competitiveness requires Canada to develop its own “Made in Canada” investment strategy to rejoin the lead in stimulating and accelerating competitive deployment of network facilities.

Building Demand

Across the economy and as a major user of information technology, the government can play a large role by mandating online interactions

for its partners, for citizens, and for suppliers. Already, tax returns can be filed online. Like any large user, by undertaking a commitment to online commerce and the related technology, governments can defray costs for suppliers and provide valuable incentive to adopt technology.

The government should design initiatives to drive demand and adoption among key user groups, such as small and medium enterprises. As the Competition Policy Review Panel noted in its June 2008 final report, the Internet is “a force for productivity growth because it promotes the more efficient use of business resources.”¹⁸

RECOMMENDATION 2:

The federal government should accelerate investments in next-generation networks by:

- *Amending tax policies to stimulate investments on a geographically and technologically neutral basis. Having an accelerated capital cost allowance (CCA) in the class of assets most closely associated with broadband networks would be an excellent temporary incentive (for 24 to 36 months) to speed up next-generation network investments.*
- *Removing regulatory disincentives to capital investments.*
- *Leveraging government’s role in delivering more government services electronically or by means of ICTs.*

B) Skills & Talent

Today, the successful deployment of information and communications technology (ICT) in any country is inextricably linked to the productivity of the country’s workers and the strength and resilience of its economy.

“Two-thirds of Canadian productivity gains from 1990 to 2000 were from industries that use ICTs intensively.”

Source: Government of Canada’s Science & Technology Strategy, May 2007

But in order to realize these economic benefits, a comprehensive national ICT strategy requires more than capital investment in software and hardware. The innovative employment of ICT requires visionary leaders and skilled end users. In short, people must be at the centre of any national ICT solution. Canada’s ICT strategy requires comprehensive support programs and policies that will provide a sufficient supply of technologically literate workers and citizens to keep Canada’s economy globally competitive.

The Knowledge to Participate

The ability to effectively use ICT has emerged as a form of literacy that is as critical to worker productivity as reading or math. Canada's education system should raise the priority of workforce development in ICT at all levels. For example, ICT fundamentals should be integrated into all areas of education, from elementary through high school, community colleges and universities to new immigrant learning programs (using ICT as an economic literacy tool) and for workers who are facing new challenges due to economic uncertainty.

Investing in Soft Infrastructure

Canada's national ICT strategy will necessarily include public and private investment in technology products including broadband and wireless networks as well as computer hardware and software. It is critical to complement this "hard" infrastructure with a broad-based set of policies and programs.

For example, the Competition Policy Review Panel noted that in the knowledge economy "intellectual property frameworks play a central role in rewarding and encouraging innovation by granting creators the rights that enable them to monetize the products of their innovation." The Panel also found that modernizing our IP framework in the online environment was especially critical because of the ever-increasing importance of the economic activity associated with the digital economy. As such, the Panel concluded that it was urgent that Canada's patent and copyright frameworks be updated in the "Internet Age" so that we "develop strong IP capacity and demonstrate to the world how competition and productivity can be furthered by a modern IP regime."¹⁹

Well-funded educational institutions are critical to integrate people and technology. Additionally, taxation and regulatory policies should support the implementation of ICT in existing businesses, and help people build new ones around it. This should also include a more robust intellectual property

rights framework to stimulate ICT investment and to enhance Canada's competitiveness and productivity. Having a more connected nation is essential because in a global labour market, quality of life is critical to retaining skilled workers.

A Culture of Excellence

Enrolment in science, technology, engineering, and mathematics programs are declining²⁰ while employment opportunities in these fields continue to grow. The choice to pursue a program of post-secondary education related to ICT would seem like a practical one, but it is a choice that Canadian students are making less frequently. The role that our culture plays in these choices should not be underestimated.

Across Canada, we should encourage youth to career paths that will lead to greater economic prosperity for all of us. We need to instill the excitement of discovery and invention in today's youth, by celebrating entrepreneurship in all its forms, and sharing the real-life success stories of Canada's technology innovators. This could be attained by:

- Business visitation, innovator lectures and tours for teachers
- Hands-on exploration of ICT
- Integration of information of ICT industry trends
- Connect curriculum to required ICT skill sets
- Encourage students to explore ICT career opportunities
- Connect classroom learning to ICT-related programs and career opportunities

RECOMMENDATION 3:

That the federal government promote a culture of excellence in Canada and take an active role in encouraging youth to get engaged in ICT and entrepreneurship in innovative technologies.

C) ICT Adoption & Application

The use of advanced ICT by small firms makes a strong contribution to their productivity and profitability. E-business is more than simply selling products over the Internet. While the Internet does represent an important sales channel, this area is a relatively minor aspect of overall e-business capabilities. 80 to 90 percent of the benefits attributed to e-business come from business-to-business transactions and from real savings by making internal business processes more productive.

E-business is about making traditional business relationships and processes such as recruitment, procurement, administration, marketing/selling and customer support (taken together these processes can be loosely termed “overhead”), more efficient through innovative applications and technologies. By adopting and applying information technology and the e-business applications that run over networked technologies, businesses can reduce costs, increase profit and improve customer satisfaction. The government needs to place a greater emphasis on ICT usage to ensure Canada’s continued productivity and competitiveness in a global economy.

Small- and medium-sized enterprises (SMEs) represent a significant percentage of economic participation in Canada. Of the 1,085,719 employer businesses in Canada in mid 2008, 2,940 or about 0.3 percent had 500 employees or more. The vast majority (almost 98 percent) had fewer than 100 employees; 75 percent had fewer than 10 employees and 55 percent had one to four employees.²¹

In addition to the economic importance of SMEs, this community must not be overlooked as a key social institution. With the majority of Canadians employed by SMEs, this is where they are most often introduced to, exposed to and trained in new processes and technology. While promoting innovation and e-business adoption among SMEs is important to enhancing Canada’s productivity, it also represents a way to increase social goals such as technical literacy.

When Canada examines the application of innovation throughout the economy, SMEs represent the critical mass of businesses that must be targeted. Most Canadian SMEs claimed financial benefits from e-business adoption; including an increase in revenue and decrease in the cost of goods sold, and in sales, general and administrative expenses.²² SMEs are increasingly aware of this trend, and look for the bottom-line benefits of technology adoption. However, adoption rates are 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. The government should take steps to develop a national ICT strategy and establish a National Council on the internet economy to advance ICT in Canada, as was recommended in the 2006 Telecommunications Policy Review Panel’s final report.



This National Council would continue the good work that was done by the Canadian e-Business Initiative (CeBi). CeBi was an important step forward for advancing Canada's ICT awareness and it encouraged increased productivity, leadership and innovation in SMEs. The implementation of the National Council would lead to a national effort to provide benchmarking, insight and recommendations for Canadian e-business.

In order to get a current picture of business views related to e-commerce and the use of information and communications technologies, the Canadian Chamber conducted a national survey of its membership through our local chamber network in March 2009. The survey was designed to provide a snapshot on what Canadian business was using the internet for, if business-to-business transactions were taking place on a regular basis, and what online security measures were being used by business.

959 businesses of all sizes responded to the survey, an excellent response. 66 percent of businesses that replied employed between 1-10 people and 24 percent of respondents employed between 11-100 people. The vast majority of respondents were small businesses.

Not surprisingly, 96 percent of businesses that responded to the survey are using the internet for business purposes. When it comes to looking at how these businesses are using their websites, 73 percent accept online payments and 69 percent of businesses provided the ability for online ordering and tracking of goods. 87 percent provided product information on their websites.

When it comes to the adoption of e-business solutions for business-to-business online transactions, the results were mixed. 42 percent of businesses surveyed stated that they did use an automated electronic data exchange system to send orders to suppliers, 51 percent are receiving

and sending electronic invoices, 46 percent are able to receive orders from customers, 65 percent send or receive product information, 46 percent send payment instructions to financial institutions and 45 percent send and receive data to/from governments (such as tax information).

This illustrates that more work needs to be done to get business to use business-to-business e-commerce solutions to make their businesses more globally competitive. The key is to keep it simple; with the majority of businesses employing fewer than 10 people, they simply don't have the time to implement and monitor complicated and costly e-business solutions.

SMEs report a number of reasons for variable adoption; reasons that often include qualitative judgments such as perceptions regarding the inapplicability of e-business solutions to their sector. Most significantly, the high cost of the solution figures as a real barrier for firms across sectors. The Canadian Chamber recommends that, given that high effective tax rates on capital for corporate investments affects capital investment decisions, building a competitive taxation system and accelerating the elimination of capital taxes, could aid firms in deciding to make greater ICT investments.

RECOMMENDATION 4:

That the federal government increases its work with the private sector to accelerate e-business adoption among SMEs, recognizing the growth rate in this sector. The federal government should also create a more favourable investment climate (including improved intellectual property protection) that encourages foreign and domestic investment in Canadian e-business opportunities, e-business transformation and the creation of new e-business ventures.

Summary

Canada is a world leader in many areas: energy, natural resources and the financial services sector to name a few. While the availability of broadband internet across the country remains high, we have slipped internationally in ensuring that our digital infrastructure is world class and, as a result, we risk being able to attract and keep jobs in the knowledge-based economy. ICT infrastructure is now a 21st century pillar and must be treated as importantly as traditional infrastructure. As the world begins to focus more on the knowledge-based economy, we cannot afford to be left behind.

Canada should create a true national ICT strategy in collaboration with business and academia. The federal government should accelerate investment in next-generation networks and take an active role in encouraging youth to get engaged in ICT and entrepreneurship in innovative technologies. We are also recommending that the federal government continue to work with the private sector, to accelerate e-business adoption among SMEs and that the federal government creates a favourable investment climate that encourages foreign and domestic investment in Canadian e-business opportunities.

Without proper investment and dedication to ICT, innovation and protecting intellectual property rights, Canada's productivity will be limited and other nations will continue to surpass us as a destination for both domestic and international business investment. Canada must take back its proper place as a world leader in innovation and invest in our future economic growth immediately.

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