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The Challenges of Creating a Digital Society in Canada

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Let me begin with a story. Ten days before the 2010 Australian federal election, Opposition Leader Tony Abbott was interviewed on a current affairs show and asked about the opposition's plan to improve broadband access for Australians. This plan, released the day of the interview, was quite different to the government's plan, and the reporter asked Abbott for some details. It quickly became evident that Abbott was unable to answer these questions, repeating several times that he wasn't a "tech head." After continuing to press Abbott for details, without success, the reporter then concluded "because you're not a tech head, you can't explain your policy to us … how you will use towers, how much fibre you would need, what spectrum you would use when we're told there is none to actually deliver your wireless technology".[1]

These may sound like tech head details, and they are. But as the rest of this story shows, in this digital era politicians ignore technology at their peril.

Some of you know how this story ends. After the votes were counted, neither side had a clear majority, and negotiations to form a coalition began. More than two weeks passed while three independent MPs, all from rural Australia, consulted with their constituents as to which party to support.

Finally, two of the three announced their decision to side with the Labor party, allowing it to remain in power. These decisions were complex and involved many factors, but broadband was a central one. As MP Tony Windsor said in announcing his decision to support the government, "You do it once, you do it right, and you do it with fibre. That has been one of the major influences that I've had in terms of making a decision."[2] The "it" he was referring to was extending broadband connectivity to his constituents, and he chose to support the party with an ambitious broadband development plan already underway.

I will return to Australia's broadband plan later in this talk. But first I hope I have convinced you that politicians and policy makers need to understand today's technologies and their impact in shaping digital societies.

Broadband networks are often described as the utility of the 21st century, as important as water and electricity. Broadband connectivity can -- and I emphasize the word can -- foster social and economic development, in three main areas. First, broadband connectivity enables individual citizens to access an enormous range of services and content. Second, it allows service delivery to communities. And third, it supports and enables other infrastructures that are essential to our economy, for instance transportation systems or energy management, including smart grids.

I will focus on broadband use by individual citizens. I have deliberately chosen the word citizen here, not consumer, as the benefits of broadband should not be restricted to the commercial arena.

Canada was a leader in encouraging its citizens to use the internet and broadband technologies. In 1997, Canada was the only country in the OECD with a measurable uptake of broadband connectivity by its citizens. Canadians had the highest broadband uptake in the OECD until the year 2000. As of December 2009, Canada ranked 9th in the OECD in broadband uptake with 30.5 subscriptions per 100 inhabitants, up marginally from the 10th place we had occupied for the past couple of years.[3]

The OECD data can be somewhat confusing, as it measures broadband uptake in terms of subscribers per 100 inhabitants in a country. But the data is widely cited, and often used by governments to justify investment in broadband infrastructure, or to highlight increases in broadband uptake within a country.

Both the CRTC and Statistics Canada report broadband uptake rates in terms of percentage of households with broadband connections, a figure that is

much easier to make sense of. The most recent statistic comes from the CRTC's 2010 Communication Monitoring Report.

To this point, I haven't provided a definition of broadband. What we might call 'first generation broadband' can be thought of as internet connectivity that is faster than dial up. As anyone who has used dial up can attest, being 'faster than dial up' is not a terribly high hurdle to clear. The CRTC reports that 72% of Canadian households had 'faster than dial up' connections in 2009, but just over 60% were subscribing to broadband services at speeds greater than 1.5 Mbps (megabits per second).[4] This is the speed that the Federal Government has defined as being the minimum speed for broadband connections, and the projects it funds must offer at least this speed.[5]

I will discuss 'next generation' broadband speeds in more detail in a few minutes, but want to note here that 1.5 Megabits per second is not very fast. In some Canadian cities internet service providers have been offering speeds of up to 50 Mbps for some time, and now you can even get a connection offering up to 120 Mbps, potentially 80 times faster than the minimum speed.

Remember that broadband connectivity is thought to be central to encouraging the development of a digital society. My view of a digital society is one in which all Canadians have the necessary skills and technologies to use our broadband connections to access information, to engage with each other in debate and discussion, to access government, business and community services, and to connect with anyone, anywhere for whatever purposes we desire. Canadians will engage in a digital society if it offers benefits to them, and if they have the resources and capacity to do so.

It is up to policy makers to ensure that our digital society is accessible by all, and that no one is excluded. There is still a digital divide in Canada, that is a gap between those who are already engaging in our digital society in some way, and those who are not. Among those who are not engaged are older Canadians, those in lower income brackets, and those with less formal education or low literacy levels.[6] These basic demographic characteristics are well-understood, and need to be addressed by policy makers if all Canadians are to experience the benefits of a digital society.

There are very real problems in getting access to broadband connectivity in rural and remote areas. On this point, some of you will remember the outcry in March of this year when funding was cut to the Community Access Program, a program that provides much needed connectivity in underserved

sites across the country. Fortunately, funding has been restored, at least temporarily.

Approximately 95% of Canadian households are served by at least one broadband provider.[7] As noted though, fewer than two-thirds of Canadian households actually have a broadband subscription, meaning that many households that could get a broadband connection choose not to do so. Statistics Canada's 2009 Canadian Internet Use Survey offers some insights on this point. It notes that 80% of adult Canadians have used the internet for personal purposes in the past year. Of the non-users, 37% say that they have no interest in the internet, and only 7% of note cost as a reason for not being online.[8]

There is certainly a challenge in encouraging non-users to join us online, and no one should be coerced to participate in a digital society. A real concern however is that by not participating in a digital society, individuals may become disenfranchised. Think of the migration of government information, of services, and forms onto the internet. What are your departments, your constituency offices doing to ensure that this information remains accessible to all Canadians, even those who are uncertain about going online, or unable to do so?

I'm guessing that there are people in this audience who have at least three devices with them, right now, that they could use to access the internet. But I'm guessing that there are also people in this audience who are like Australian opposition leader Tony Abbott -- not tech heads. Some of you act as the tech support person for your extended family and circle of friends. Others call on children or younger colleagues for assistance in figuring out things like how to get music onto an MP3 player, how to find that photo that someone posted on Facebook, or how to check whether someone is talking about you on Twitter.

We don't have good measures of what it takes for individuals to be truly at ease in a digital society. My research has been exploring this issue, trying to figure out how engaged Canadians really are with the internet as a way of understanding our progress toward a digital society. Let me share some of the findings.

We know that 80% of Canadians have used the internet in the past year. This is certainly a good indicator that many Canadians have embraced the online environment. 96% of these Canadians used the internet from home, and of these about three-quarters use the internet daily. To keep the math simple, I will present data in terms of the overall adult Canadian population.

Doing this, we find that about 60% of all adult Canadians go online daily, meaning of course that 40% don't. This is quite a large number, and one that must be kept in mind when developing online services.

Additionally, only 42% of adult Canadians spend 5 or more hours online per week. This data is from a year ago, and the Statistics Canada survey that is underway now will likely show an increase in this number. But it does suggest that although Canadians are using the internet, not everyone is a heavy user.

Looking at what Canadians do online, we find that more than 70% of adult Canadians have used email from home in the past year. This is the most popular online activity. About 60% of Canadians use the internet for general browsing for fun or leisure. More than half of us have paid a bill or done some banking online in the past year. About a quarter of us watched some TV or downloaded movies online. But only 20% reported that they had used the internet to communicate with government, the same number that reported contributing content (for instance uploading photos or writing a blog).

What can we conclude from this information? Are Canadians well-prepared to engage with each other online, to conduct business transactions and to access government services? The answer, unfortunately, is that we don't really know. What I believe the Statistics Canada data suggests though is that while Canadians are enthusiastic internet users, many of us are not yet particularly sophisticated in what we do online.

There are of course demographic differences in our internet usage patterns. I won't go into these other than to say that younger users spend more time -- and do more things -- online. Some observers note that we don't really have to worry about the fact that many Canadians don't use the internet extensively because they're old and they'll die soon and the problem will go away. The net generation will know how to do everything online, and they'll just cruise into digital society. But as someone who is not a member of the net generation, let me remind everyone that it will be a long time before we all die off. And by the time we do, today's net generation will be the older members of our digital society, facing tomorrow's equivalent of trying to figure out exactly how Facebook works or how to connect the computer to the TV to watch movies, while their digitally savvy kids look on in dismay.

Coming back to the question of a digital society for Canadians, there is much to be done before we will all be comfortable in an online environment. There

is no point in encouraging citizens to go online simply because it satisfies a policy goal of expanding broadband uptake. Instead, citizens should be motivated to join the digital society because of real benefits that it can offer to them, improving their quality of life, and making it easier, more effective or simply better to engage with government, business and other citizens.

Digital society and the development and usage of broadband networks are tightly linked. Broadband is the enabler of digital societies, but networks alone are not enough. In order for citizens -- and countries -- to truly benefit from investment in broadband infrastructure, attention must be paid to the development of services that take advantage of this broadband connectivity. Public sector investment in broadband networks is frequently justified by statements about the benefits that can accrue from wide scale adoption of e-health, e-learning, e-commerce, and e-government services. This is likely the case, but to date, here in Canada and elsewhere around the world, very few of these applications are actually in use. There is a big gap between the rhetoric of the benefits of broadband connectivity, and the availability of applications that would actually enable ordinary citizens to fully engage in the digital society in ways that have a meaningful impact.

Discussions of broadband-enabled digital societies assume that high quality, affordable broadband connectivity is available to all. In 2001, Canada's National Broadband Taskforce[9] concluded that "Canada must seize the opportunities presented by the broadband revolution and that all Canadians should reap the benefits of high-speed Internet access." The taskforce, which was chaired by our new Governor General, David Johnston, noted that broadband speeds should be sufficient to support real-time video interaction, and recommended that a minimum speed of 1.5 Mbps -- symmetrical -- would be required. Almost ten years later, the same minimum speed is being applied to define broadband connectivity in Canada, and the recommendation for symmetrical speed -- that is equal capacity to upload information as well as download it -- is no longer in place.[10]

The rest of the world has not stood still. In Hong Kong, Japan, Singapore and assorted other locations, including Chattanooga, Tennessee, gigabit broadband connectivity (1000 Mbps) is available, offering network speeds more than 600 times faster than our current broadband standard. Broadband networks being built in Australia and Korea will offer gigabit capacity in the next couple of years. The US has a slightly less ambitious target, aiming to connect at least 100 million American homes to 100 megabit per second service over the next ten years.[11]

While there are few applications that can take advantage of these speeds right now, and very limited demand for the service, gigabit connectivity signals the future direction of digital societies. Gigabit connectivity is bold and ambitious, and significant network innovation and investment is needed to make it happen. There are certainly serious debates as to whether this sort of network capacity and speed are really needed.

Believers in what might be called 'big broadband', broadband that can have a transformative impact, argue that this is the way of the future. A 2009 OECD report[12] estimated that investment in this sort of broadband connectivity, delivered using fibre to the home, could pay for itself in ten years. This conclusion was based on achieving savings in the electricity, health, transportation and education sectors, as a result of using the broadband network for service provision.

So the challenge facing Canada, and other countries, is how to transition from 'first generation' broadband connectivity to the 'next generation' broadband that will enable social and economic benefits. There are lessons to be learned from other countries, but each country is unique and plans are not entirely replicable.

What is common to many broadband plans however is a vision of a national broadband network, or networks, accessible to all service providers and offering a common platform for innovation and service delivery. The Alberta SuperNet is a working model of this approach. Although it does not provide connectivity directly to citizens in their homes, the SuperNet connects thousands of government offices, and provides services to 429 communities. Any agency or service provider can contract with the network operator to provide services to anyone on the network, for a uniform price across the province.[13]

In Singapore, the government has invested in a public-private partnership that is bringing gigabit broadband to all premises in the country.[14] As with the Alberta SuperNet, any service provider can use this network to reach any premise. Singapore is a very small country, but a similar approach is also underway in Australia, a country far more comparable to Canada in terms of geography and population density. The Australian National Broadband Network, initiated by the Kevin Rudd Labor government and continued by Julia Gillard's recently elected government, will build a single wired broadband network to serve 93% of premises. The remaining 7% of premises will have access to wireless or satellite broadband.[15]

These networks are still works in progress, and there are many challenges inherent in building them. What we do see internationally though is a strong commitment to building broadband infrastructure that will meet the needs of citizens, offering affordable, high quality network access that can be used by all. Governments, businesses and communities are becoming engaged in developing applications and services that really will make a difference for citizens, realizing the promise of a digital society.

There is much work to be done in Canada. We have high broadband adoption rates, but usage data suggests that the internet is not yet central to the daily lives of many Canadians. However, any efforts to encourage more extensive uptake of broadband networks must be built on an understanding of real benefits that broadband can provide. There are many successful programs that help individuals gain confidence in the use of computers and broadband networks, and these should be continued. We must also continue to measure our broadband usage, and the impacts of broadband use, with stable funding provided to Statistics Canada for the Canadian Internet Use Survey.

Efforts must be made to develop applications that do make good use of broadband connectivity. The objective is not to develop applications to justify broadband deployment, but to take advantage of the convenience, speed, and communication possibilities offered by broadband to provide better services to citizens. Innovation should be fostered across society, with all interested parties encouraged to develop new broadband applications and services to meet the needs of Canadians.

A bold vision is required to enable the transition from first generation to next generation broadband networks. It is unlikely that a single national broadband network will be proposed for Canada, so the challenge for the Federal Government, the provinces, the CRTC and service providers is to develop models that will result in affordable, high quality, next generation broadband services that are accessible to all. This model must be developed in consultation with the network's users, us, the citizens of Canada.

To realize a broadband-enabled digital society in Canada we need engaged, informed and digitally literate citizens; useful applications and services that offer real value, providing services in more innovative, more convenient, more affordable and more accessible ways; and a world-class broadband network infrastructure that connects all Canadians and allows any interested party to provide service to any other.

Achieving these outcomes requires vision, commitment and planning. The potential benefits of a broadband-enabled digital society are enormous, and it is up to Canadians to ensure that we have what is needed for us to become digital citizens.

Thank you.

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[1] Tony Abbott interview with journalist Kerry O'Brien on ABC's *The 7:30 Report*, 10 August 2010. Transcript available at http://www.abc.net.au/7.30/content/2010/s2979381.htm.

[2] Quoted in the *Sydney Morning Herald*, 7 September 2010. http://www.smh.com.au/technology/technology-news/broadband-major-influence-to-windsors-labor-backing-20100907-14z3s.html.

[3] See http://www.oecd.org/sti/ict/broadband for OECD broadband statistics.

[4] Canadian Radio-television and Telecommunications Commission (2010). *Communications Monitoring Report*. Ottawa: Canadian Radio-television and Telecommunications Commission. http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2010/cmr2010.pdf.

[5] Industry Canada (2009). *Broadband Canada: Connecting Rural Canadians – Application Guide*. Ottawa: Industry Canada. http://www.ic.gc.ca/eic/site/719.nsf/vwapj/Application_Guide_September2009.pdf/$file/Application_Guide_September2009.pdf.

[6] Statistics Canada (2010). *Canadian Internet Use Survey, 2009*. http://www.statcan.gc.ca/daily-quotidien/100510/dq100510a-eng.htm.

[7] Canadian Radio-television and Telecommunications Commission (2010). *Communications Monitoring Report*. Ottawa: Canadian Radio-television and Telecommunications Commission.

[8] Statistics Canada (2010). *Canadian Internet Use Survey, 2009*. All internet usage statistics included in this speech are derived from this study.

[9] National Broadband Task Force (2001). *The New National Dream: Networking the Nation for Broadband Access*. Ottawa: Industry Canada.

[10] The 2009 *Broadband Canada* program cites a "a target minimum upload speed of 384 kbps" in its definition of broadband.

[11] Federal Communications Commission (2010). *Connecting America: The National Broadband Plan*. Washington, DC: FCC. http://download.broadband.gov/plan/national-broadband-plan.pdf.

[12] OECD Directorate for Science Technology and Industry (2009). *Network Developments in Support of Innovation and User Needs*. Paris: OECD Working Party on Communication Infrastructures and Services Policy. http://www.olis.oecd.org/olis/2009doc.nsf/LinkTo/NT0000889E/$FILE/JT03275973.PDF.

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