

GETTING CONNECTED: Can Communication Technology Transform Rural Newfoundland and Labrador?

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The sixth in a series of articles developed from regular public forums sponsored by the Leslie Harris Centre of Regional Policy and Development. Memorial Presents features speakers from Memorial University who address issues of public concern in the province.

On April 22, 1993, a group of students at the University of Illinois released a piece of computer code that would fundamentally change everyday life – it was a web browser called Mosaic.

It allowed people to gather information from computers around the world and display it graphically on their personal computers. Little did these students know what power Mosaic would unleash. The world wide web was born and, from that day 14 years ago, people have been looking at ways to improve access to the expanding body of information stored on computers connected to the internet.

The impact of the web – in particular the way it changes human interactions – was the very stuff that led *TIME* magazine to break with tradition in December of this past year. Instead of naming a “solitary genius” as its Person of the Year, *TIME* named “you” as its 2006 Person of the Year. It recognized the power of the web in allowing individuals to communicate and collaborate on a scale never before witnessed. They awarded the prize “for seizing the reins of the global media, for founding and framing the new digital democracy, for working for nothing and beating the pros at their own game, *TIME*’s Person of the Year for 2006 is you.”

But, if you live in rural Newfoundland and Labrador, you probably don’t get to share in the glory of being named *TIME*’s Person of the Year.

The reality is that “you” are *TIME*’s 2006 Person of the Year only if you have access to

broadband technology. If you do not have broadband connectivity to the internet, you cannot fully take advantage of the internet and engage in the activities that *TIME* magazine lauded as the cornerstone of its rationale. You are not one of those people who, for example, “made Facebook profiles and Second Life avatars and reviewed books at Amazon and recorded podcasts (and) camcordered bombing runs and built open-source software.” You have not been one of those who contributed to “an explosion of productivity and innovation,” or got “backhauled into the global intellectual economy.”¹

Sorry.

But you are probably used to being told “sorry.” You have been told “sorry” by governments whose funding for pilot projects to connect communities ran out before your community got broadband. You have been told “sorry” by private utilities that can’t make a business case for connecting small communities to a robust backbone that would provide them with broadband connectivity. If you are not connected, you probably live in a rural area, and it is more likely that you live in Newfoundland and Labrador than in another Canadian province. This is the reality of the have-nots in an increasingly connected world.

Discussions about connectivity usually start

with questions such as “How much capacity is enough?” or “How fast is a broadband connection?” or “What exactly is broadband?” It is difficult to provide a precise definition of “broadband”. It has been said that defining “art” is difficult but, “you know it when you see it.” When defining “broadband,” it’s more the case that “you know it when you don’t have it.”

One of the problems with giving a precise definition for broadband is that it is relative. Although every computer connects to the internet and to the web, which is a part of the internet, it can connect using a variety of media, including copper wire, coaxial cable, fibre optic cable, or wireless media. Each medium can transmit a certain number of signals that carry data or information. The wider the bandwidth, the more information can be carried, in much the same way that a multilane highway can carry more cars than a single lane road. In radio, for example, a very narrowband signal will carry Morse code; a broader band will carry speech; a yet broader band is required to carry music without losing the high audio frequencies.

In data communications, a telephone line could transmit 64,000 bits per seconds while using a modem, but the same telephone line could transmit several million bits per second if it was a digital subscriber line (DSL). A fibre optic communications line could carry even more information, although both DSL and fibre optic are considered broadband technologies, as are wireless equivalents. Ascribing a single number to describe the capability of a broadband connection is not useful: media are evolving and what is regarded as ‘broadband’ today will most certainly be considered ‘narrow-band’ in a few years. Most people, including the Government of Canada, prefer a definition that captures the capabilities that broadband provides, recognizing that in addition to being “always on” (you don’t need to dial up), it is “a high-capacity, two-way link between an end user and access network suppliers capable of supporting full-motion, interactive video applications.”²

More important than the actual capacity of

broadband is what broadband can deliver. The reality is that if you don’t have broadband, you are missing out on much more than the ability to create movies and upload them to YouTube. Without broadband you cannot take advantage of the capabilities of the internet that *TIME* magazine said would contribute to “an explosion of productivity and innovation.”

In 2004 a report of the Conference Board of Canada stated that “the power of connectedness is just starting to be tapped.” The report goes on to say that “our capacity to connect people is beginning to provide value – bringing tangible benefits to our competitiveness and our quality of life. ... Connectedness is improving the performance of our health, educational, government and business systems.”³ The benefits of connectedness are supported by agencies such as the Organization for Economic Co-operation and Development, which recognizes that “The Internet is rapidly becoming a key ingredient in our economic infrastructure – akin to electricity and roads – as well as our social structures.”⁴

The internet and, in particular, broadband have the potential to transform economies and increase productivity. People and firms are increasingly using the internet to find jobs or recruit. More and more training is provided via the internet. Those who work in information and communications account for 5% of employed people and an additional 20% of people use technology intensively in their jobs. The industry sector for creating content for internet users is another burgeoning market – although there are 700,000,000 people online worldwide, that is nothing compared to the 2,100,000,000 people with cellphones, representing a potential clientele for mobile internet content and resources.

However, we have a serious connectedness gap in Canada between rural and urban communities that impacts our ability to compete nationally and globally. Although approximately 75% of Canadians have access to broadband, 72% of Canadian communities, most of them rural, have no access to broadband. And, while it is true that residents

of rural areas suffer from low connectivity more than urban residents, there are also differences between urban centres and between provinces. For example, Newfoundland and Labrador has less connectivity than other provinces in Canada because of bottlenecks in the infrastructure. We also know that connectivity and associated services are skewed in favour of those individuals who are economically well off and more educated. One could make the argument that access to broadband supports economic and social well-being; is this another case of the rich getting richer?

And, the gap between the connected and the less connected continues to grow as both the public and private sectors target their investments in broadband most significantly at urban areas. Some governments, especially those with large rural constituencies, attempt to drive the broadband agenda by making investments in technology so that individuals and companies will be able to conduct business over high-speed connections to the internet.

One example of a government initiative comes from south of the border: On March 5, 2007, Vermont governor Jim Douglas highlighted his government's new "e-state" initiative, making Vermont the first state in the U.S. where broadband internet access would be available to every household in Vermont by 2010. He described how universal access to broadband will form the platform for economic growth and job creation. He went on to point out how Vermont "has an opportunity to leap over existing technology and ahead of the leading telecommunications systems available today. This next generation infrastructure will have an extraordinary influence on our ability to create jobs, inject more 21st Century innovation into our education systems and



improve the quality of life in Vermont.” Vermont will be the first state “where every community redefines civic involvement with local blogs, online forums and real local content. The first state where every classroom has its own wiki and every student can access the library at Oxford, tour the Louvre or converse with a peer halfway around the world—all from their rural home in the mountains of Vermont. And where entrepreneurs can experience our exceptional quality of life and our amazing landscape, all the while being constantly connected to customers and markets across the globe.”⁵

In essence, Governor Douglas recognizes that access to broadband is no longer about obtaining a competitive advantage; instead, the adoption of it is becoming a necessity in every area of everyday living, from education to health to entertainment to conducting commerce and accessing government services. Rural and remote areas will be left behind if they do not have access to broadband, just as surely as if they did not have access to transportation routes.

Without access to broadband, rural areas will not be sustainable. Consider healthcare. The lack of broadband will only exacerbate the challenges of attracting physicians to rural Newfoundland. It is not only the lack of access to health information, pharmacy data, and

diagnostics that will deter physicians from practicing in rural areas if there is no broadband; physicians will resist subjecting their children to inferior educational resources. The benefits of rural life will not be enough to attract people to live in these areas if they will suffer from a lack of essential services, and broadband access is becoming an essential service.

Citizens in rural areas without broadband connections to their hospitals and clinics will have health care inferior to that provided in urban areas. Take, for example, the ability to send a mammogram between sites for consultation by a specialist. It would take almost six hours over a dial-up line (if it could be done at all without loss of resolution); it takes less than three minutes on a broadband connection. Graduates of medical and nursing schools expect to have broadband access to provide the best possible care. Patients will suffer if their communities do not have access to diagnostics that are available at large centres. Governments will suffer financially if they choose to provide expensive diagnostic machines and specialists in rural areas (assuming they are available) rather than connecting to these resources using broadband.

Education will suffer without broadband access. For example, library resources are becoming more and more digitized and many school and university courses depend upon broadband to deliver the breadth of their content. Broadband removes constraints of time and distance for students and teachers. Students and scholars from rural areas can access the British Library (www.bl.uk), and actually turn the pages of Leonardo's sketch book or Mozart's musical diary, while listening to excerpts of Mozart's music or to an expert explaining the significance of Leonardo's personal notes. Looking at the original works can take your breath away. But only if you have broadband.

The inability to access this type of resource is most disconcerting. Although it is possible to quantify the lost sales by not providing a virtual online tour to potential visitors to your bed and breakfast, it is impossible to imagine

what opportunities are missed because a young woman interested in Mozart (or musical manuscripts, or libraries, or geography, or architecture) didn't even know that such a resource as the British Library existed. We won't know the great ideas, the inventions, the music, that are not created because a child wasn't engaged or educated as much as she would have been had broadband been available.

In higher education, the lack of a broadband connectivity affects the ability of learners to access all the aspects of course material provided by the College of the North Atlantic and Memorial University. Courses are using more and more digital resources that require broadband. In addition, researchers at Memorial and its campuses and other research sites across the province use a connection that is a generation behind what universities on the mainland use. This impacts not only access to data, but can be a competitive disadvantage in attracting new researchers (and the wealth they generate) to the province.

It is for these reasons that broadband strategies are emerging as important parts of economic plans of governments at many levels. These governments recognize that access to broadband is a necessity for its businesses and its citizens, and critical for the sustainability of rural areas. They realize that the private sector is unlikely to provide universal access on its own. The Government of Newfoundland and Labrador has stated: "The future of communications infrastructure in Newfoundland and Labrador lies with broadband and its ability to bridge the urban-rural connectivity divide. This technology will help drive advances in the social, cultural and economic aspects of life in our province and be an example to other jurisdictions for people helping people to succeed..."⁶ The communities on the island portion of the province that are proposed for broadband connections are shown on the map on page 11.

There have been a number of provincial, territorial and municipal government programs launched with similar goals. The largest individual program was Alberta's "Supernet" initiative, which aimed to connect 422

communities, with funding of \$139,000,000 (all figures in US dollars). A similar initiative in Saskatchewan to connect 366 communities cost \$51,000,000.

Success in providing the necessary connectivity will require partnerships between key players, such as the public sector (local, provincial and federal governments) and the private sector (organizations wanting to expand their markets; telecommunication providers). Governments may be able to play a role by establishing incentives for broadband connectivity in remote communities or by launching municipal wireless initiatives. In addition, the “informal” sector, such as advocacy groups, thinktanks, and community boards must work together to create consistent and persistent messages that the need for broadband is not a matter of choice, but just as roads, railroads and airports formed the infrastructure for the industrial society, broadband connectivity is the infrastructure for the 21st century’s knowledge society and economy.

Our competitiveness in the province, indeed the very sustainability of rural Newfoundland and Labrador, is contingent on our ability to keep pace with the rest of the world in attracting new investment, particularly in the highly competitive value-added goods, service, and technology industries that are driving economic growth around the globe. The core of this is a backbone of broadband connectivity that links every corner of our province. 

¹ *TIME* Magazine, December 25, 2006 – January 01, 2007.

² <http://www.broadband.ic.gc.ca/pub/index.html?iin.lang=en>

³ Gagnon, Natalie and Brian Guthrie, “Cashing in on Canadian Connectedness: The Move to Demonstrating Value.” Conference Board of Canada Report, March 2004.

⁴ Introduction to the OECD Workshop, “The Future of the Internet,” Paris, 8 March 2006.

⁵ Press release, March 5, 2007: “Gov. Douglas highlights e-state initiative at national internet connectivity conference.”

⁶ Government of Newfoundland and Labrador, “Setting the Context for a Federal-Provincial Broadband Strategy.” February 2005.