



## **Summary Report: Digital Futures 2015 (March)**

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## Introduction

While high speed broadband availability is universal in Canadian urban centres, rural Canadians continue to be at a distinct disadvantage with regard to broadband penetration, which leaves rural communities and individuals socially and economically disadvantaged. The most recent federal broadband program, *Connecting Canadians*, will still leave two percent of Canadians without access to broadband, and in many communities broadband access is still dependent on lower speed legacy connections such as fixed wireless access and satellite. At the same time, however, rural communities are increasingly developing their own solutions to the need to broadband. Olds, Alberta, with a population of less than 10,000 people now boasts an advanced fibre network that is comparable to the Google Fibre initiative being rolled out in American metropolises.

Building on The Van Horne Institute's Alberta Digital Futures Symposium from 2013, 40-plus representatives from government, rural communities, industry, academia, and local broadband providers met at the University of Alberta on March 26 and 27, 2015 to discuss the present challenges and future opportunities for advancing rural broadband in Canada. The symposium was divided in two streams, a community stream and a regulatory/policy stream, and included a keynote presentation from Dr. Rob McMahon as well as virtual attendance from participants by videoconferencing.

This report provides a summary of the plenary and breakout sessions that occurred over the two days. The report concludes with identifying future directions for community and industry broadband providers, government and researchers. Among the key themes that emerged over the two days were the importance of 'connectivity' as a means for framing and discussing broadband, the importance of personal stories in conveying the importance of connectivity, and the need for common language to encourage information exchanges between.

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## Community Stream Summary

A total of five Community Stream sessions were held. Each featured one or two presentations and subsequent discussion around those presentations. A summary of the presentations and key points from each of the discussions is contained below.

### First Session – Presenter Bob Dydra

The Community Stream began with a presentation from Bob Dydra from Alberta Southwest Regional Alliance. The presentation included a number of findings from Alberta Southwest's initiatives around broadband. It was suggested that speeds of at least 100 Mbps were needed to attract economic development. Key findings include: that internet connections bring economic and population growth, and encourages young people to stay in their communities; there is no single one size fits all broadband model, and projects should follow local needs; however, local communities need to work together on broadband.

The broader discussion of these findings raised a number of important promotional and technical considerations. There is a clear need to educate community councils and leaders on broadband technology, as communities that tend to express a lack of need for it, often don't understand much in relation to broadband technology and its benefits. A related issue and theme that emerged throughout the discussions over the two days was the challenges that the technical and policy language around broadband poses for citizens and community leaders. While reaching local government officials is important, discussions of broadband must also occur within the broader community as means of sustaining interest in improving connectivity after changes from local elections. There is a clear role for the provincial government, academics and the CRTC to play in fostering studies of local areas and providing connections to industry. The need for involvement from provincial and federal officials, and coordination among local communities underscores the importance of cooperation across jurisdictions.

In addition to promotional concerns there are also several important technical considerations that must be addressed to advance broadband in rural communities. To address problems of scale and infrastructure deployment there needs to be coordination between communities. One key element was the need for identifying people in communities with expertise in information technology and the need to establish connections between local government and community leaders.

### Second Session – Presenter Marita Moll

The second session of the morning began with a presentation by Marita Moll entitled "Internet in Canada: A Long and Winding Road" which provided an overview of broadband development in Canada. Ms. Moll underscored the difference in context between internet deployment in the 1990s and the current situation. In the 1990s, there was more pro-active interaction between society and government, which partly stems from the feeling or myth that civil society could influence the shaping of the internet. As a result numerous community networks were built, with just over 100 remaining to date. However, in the current context this sentiment has dissipated and now civil society groups reactively engages with government.



Discussion stemming from Ms. Moll's presentation underscored the role of vision in capturing the public's interest in broadband. Vision is a key mechanism for connecting individuals' stories of how broadband benefits individuals and using it to create a framework for action for local governments. Related to the importance of vision is the need to capture and spread stories between communities. Participants noted that there is a greater need for government agencies and community leaders to circulate stories in rural communities. Young people are also crucial in this regard because they can both spread stories and encourage other youths to return to rural communities. In general participants felt there was a strong need to mobilize rural Canadians to get involved in promoting connectivity, and a key means of doing so was underscoring how broadband development facilitated community development. In this regard it was noted that O-Net (in Olds, Alberta), was originally marketed on technical aspects such as the speed facilitated by fibre connections; however, marketing was switched to focus on how broadband could improve quality of life.

### Third Session – Presenters Alan Bly and Chris Mitchell

The third session of the Community Stream began with a presentation from Alan Bly, president of ViTel. Mr. Bly noted that the approach to providing connectivity in rural communities should be technologically neutral. Communities should be able to pick the technology (wireless or fibre) that best suits it needs. While the technology should be neutral, there is a need for broadband infrastructure to be viewed along the lines of other infrastructure as an investment that must be sustained in the long term. With specific reference to Parkland County, open access towers were build that could be rented to private companies. Increasing availability of towers is resulting in increasing availability in speed, and future speed increases will be facilitated by the construction of an exchange point.

Christopher Mitchell also presented during the third session. He noted that cable connections tend to dominate in the United States, yet they are subject to slow speeds and often are accompanied with poor customer service. There has been a lack of leadership from state and federal leaders, though local government have been taking action in either the forms of building their own broadband networks or creating open access towers or dark fibre for private companies to operate over. Common motives for local governments include encouraging employment, supporting low income individuals, raising property prices, improving quality of life and overcoming the digital divide.

### Fourth Session – Presenters Wayne Kelly and Frank Odasz

The second day of the Community Stream discussions commenced with a presentation by Wayne Kelly, Project Communicator, Rural Development Institute at Brandon University. Mr. Kelly noted the importance of several strategic factors to developing broadband in rural communities. He underscored the importance of engaging and working with youth leaders. He also noted that for rural communities to thrive and grow there needs to be a deliberate focus on increasing quality of life.

The subsequent discussion raised a number of corollary points. In the case of Olds it was noted that significant work has been done to engage different demographics, and this has resulted in increased use including people from outlying areas coming to use the local library to use O-Net. The importance of engaging young people was reiterated during the discussion. Broadband was seen as a key means of encouraging youth to stay in rural communities. It was also noted that some rural communities have a



reluctance to change and that this attitude needs to be addressed and dealt with for broadband projects to succeed.

Mr. Kelly's presentation was followed by a discussion led by Frank Odasz from Lone-Eagle Consulting via Skype highlighting some trends in rural broadband in the United States. Mr. Odasz began by noting that only in Canada and the United States is there a resistance to rural broadband within rural communities. Part of this lack of uptake stems from a tradition of resisting change. Rural leaders are often intimidated by anything dealing with digital technology. Also, rural North Americans tend not to view broadband connectivity as a means for connecting with the global community. Despite this observation, rural connectivity can empower communities to market themselves globally through e-commerce and self-publishing. While the federal and some state governments have established subsidies for rural broadband there has been little uptake.

#### Fifth Session – Presenter James Van Leeuwen

The final session of the Community Stream featured a discussion led by James Van Leeuwen, President of Ventus Development Services. Mr. Van Leeuwen noted that broadband offers economic development communities for rural communities. While individual citizens do not often require the speeds facilitated through fibre, such feeds are required by businesses. He suggested that fibre had clear advantages over wireless for establishing broadband networks. Community engagement was identified as a key element of success in broadband projects with Mr. Van Leeuwen noting that engagement is where the majority of effort and emphasis needs to be placed as opposed to technical and financial considerations. He concluded his presentation by noting the trend of problems of scarcity become problems of abundance in general, and underscored the need to create an abundance of broadband capacity in rural communities to drive economic development.

The subsequent discussion of Mr. Van Leeuwen's presentation led to several insights. The role of community champions for broadband was once again emphasized as a key requirement for success, particularly at the early stages of the process. With regard to the importance of youth and engaging local champions it was noted that local library officials and high school principals could be particularly valuable partners. During the discussion it was suggested that communities consider a regional digital commons – a space that is open 24/7 and provides youth with digital literacy instruction as a means for promoting connectivity. Another strategy that was noted as particularly effective was to frame broadband as benefiting the whole community rather than focusing on technical elements such as the benefits of a fibre network. Another approach was to encourage businesses to start thinking digitally as this encourages demand for broadband.

Some regulatory and policy factors were also discussed as means for encouraging broadband deployment. One factor that was also noted as a means of facilitating broadband deployment was for communities to pass bylaws requiring developers to include conduits for fibre in new communities. Such a requirement costs builders virtually nothing, while allowing future broadband development. While engagement is very important, it was also noted that broadband projects are extremely capital intensive in the start-up phase. It was noted that locally, in Alberta, too much emphasis had been given to the energy sector, and there was a greater need to include broadband as part of the infrastructure focus of the provincial government. Participants expressed the desire for a national broadband plan.



## Regulatory Stream Summary

Five Regulatory stream discussions were also held. The discussions were divided thematically over the two days with the first three sessions discussing the Canadian Radio-television and Telecommunications Commission's (CRTC) upcoming review of basic telecommunication services, and the latter two discussions focusing on wireless broadband issues and strategies for moving considering wireline and wireless policies holistically.

### Basic Telecommunication Services and the CRTC

The Regulatory Stream discussions began with a summary of the Canadian Radio-television and Telecommunications Commission's (CRTC) Telecom Regulatory Policy CRTC 2011-291 (<http://www.crtc.gc.ca/eng/archive/2011/2011-291.htm>) by Dr. Dinesh Rathi, Associate Professor at the University of Alberta. This policy established the goal of having universal access to broadband (at speeds of 5 Mbps download and 1 Mbps upload) by the end of 2015. The CRTC's speed target led to the first discussion question of the day:

- What role should speed targets play in defining basic/universal broadband targets?

It was noted that the Federal Communication Commission in the United States had recently (Jan. 2015) adopted a considerably more substantive definition of broadband (25 Mbps download speed and 3 Mbps upload speed). Discussions around speed targets led to the suggestion that mandating minimum speeds was an ineffective means of encouraging universal access. Technological innovation ensures that future speeds are often incomprehensible now as realistic targets. Internet Service Providers capability to provide speeds to end users is influenced by backhaul/backbone capacity and prices for connections to internet exchanges.

As opposed to conceptualizing broadband around minimum speeds, participants discussed the importance of defining it in terms of service. A focus on determining the types of services that could or should be provided (e.g. voice over IP, HD videoconferencing, remote video monitoring) would provide a more effective means of mandating minimum service thresholds. Participants also questioned whether service thresholds should be established for different types of end users (communities and intuitions versus individuals). Another approach suggested was to have incremental and evolving targets for speed rather than a simple minimum threshold.

### Mode of Connection (Fibre and/or Wireless)

Significant discussion also centred on the desirability and appropriateness of different broadband connection types. Participants generally agreed that broadband deployment should not focus on legacy connection types (copper/(A)DSL and co-axial cable); however, there was some disagreement between the role of fibre and wireless connections. Fibre networks had advantages in scalability. Conversely, wireless was critiqued as being less scalable. It was noted that it is crucial to provide fibre nodes in communities. However, connecting end users to the nodes could take two forms – build towers, connect users wirelessly and have the towers connected the fibre node, or provide fibre connection from users homes to the node. Participants also noted that regardless of end user connection type, there was a strong need for backbone and backhaul infrastructure.



## Role of Subsidies and Regulation

While many people agreed that subsidies at some level were needed, the questions of whom to provide subsidies to and for what generated a range of responses. While there was a lack of consensus around which subsidy regime would be ideal numerous factors points for subsidization were raised. Participants debated:

- Whether subsidies for rural internet were better aimed at capital costs or operating costs
- Whether ISPs should be subsidized or end users be subsidized
- What access large business should have to subsidies versus small business (both for ISPs and as consumers)

## International Comparators

Several international examples were highlighted during the discussion outlining the strengths and weaknesses of each approach. International examples discussed included:

*Dunkirk, France:* Structural separation and public ownership of infrastructure has allowed regions in Dunkirk to deploy a publically owned FTTP network, which includes fibre for even the most remote users. Competition among private companies to provide services (VOIP, OTT television and 100 Mbps internet access) has resulted in prices as low as €30. However, the plan is also part of a larger French national initiative that is priced at €40 billion. Furthermore, the Dunkirk initiative was only successful because it grew out of municipal elections where broadband was the primary issue and installation of the fibre network was premised on the mandated removal of co-axial cable connections to homes.

*Australia:* The National Broadband Plan had identified very specific formula for determining connection type. 90% of the country would be served by FTTP, 7% of the population by LTE mobile wireless and the final, most rural 3% of the population would be connected by satellite. However, the \$45 billion (AUD) plan has been significantly reduced with now only 25% of the population being connected by FTTP.

## Regulatory Approaches

Significant discussion occurred around how best to regulate broadband. Several participants suggested that the ideal model would be for government ownership of the infrastructure (i.e. fibre network) with competition for services over network. There was considerable discussion of the similarities and differences between broadband and other utilities. Some participants felt that the utility model was useful because pricing is based on consumption rather than capacity (i.e. speed). Critics of the utility model suggested that a 20<sup>th</sup> century model of infrastructure regulation was ill suited to the 21<sup>st</sup> century issue of broadband. It was also suggested that the utility approach may encounter jurisdictional problems in Canada because of the division of powers between the federal and provincial governments.

## Wireless Spectrum Policy

There was also considerable debate around the issue of wireless spectrum policy. Participants noted the general lack of open/unlicensed spectrum frequencies and suggested that greater availability of open spectrum could be utilized to improve rural broadband. It was noted that Industry Canada's Spectrum Policy Framework provides a lack of substantive measures or enabling guidelines for ensuring that





spectrum is used to benefit rural Canadians. The federal government's efforts in creating a fourth national wireless company has come at the cost of a decreased emphasis on utilizing spectrum for serving rural Canadians.

### Encouraging Cooperation and Coordination

A key theme from the discussions in the Regulatory Stream, particularly on the second day was the need for greater coordination and cooperation in all sectors for promoting broadband connectivity. Several participants noted the importance of engaging the public. With regards to strategy, it was suggested that the process of engagement and coordination should be local and regional at first, then move on to provincial and national governments. Key audiences to engage included regional economic development agencies as well as the Federation of Canadian Municipalities. Participants agreed that a common discourse and narrative needs to be established which would explain key concepts in lay terms. For example connectivity would have to be explained in terms of tangible needs and benefits such as access to online education and e-health and increased business opportunities. In addition it is necessary to bring together both personal stories on the benefits of broadband along with examples of business cases to reach a multitude of audiences.



## First Plenary Session Summary

The first plenary began with synopses of the discussions including questions and conclusions from each of the stream.

### *Regulatory Stream Synopsis:*

- Connectivity should be viewed as the framework for discussing how internet access should be provided
- Minimum download and upload speed targets are not an effective focus for broadband policy and regulation
- Need for broader policy debates about the benefits of broadband and universal access
- Greater need to account for the role of both capital and operating costs and how those cost varies between communities and technologies (wireless and fibre)
- Some lingering questions:
  - The question of infrastructure ownership and which business and regulatory models were most well suited?
  - Should there be a focus on delivering fibre-to-the-home (FTTP)?
  - What role should government subsidies play and who should receive them?

### *Community Stream Synopsis:*

- Need to focus on the human aspects of connectivity
- One size fit all solutions will not work for expanding broadband connectivity
- Collecting and sharing personal stories is critical, and should form part of a larger communication strategy that includes story and narrative components
- Passion and vision for broadband technology tend to be lacking
- Solutions based strategies are needed as are advocacy groups for such approaches

Building on these points participants noted several common themes between the two sets of discussions. There was general agreement on the need for greater sensitivity to local contexts whether it be administrative and infrastructure issues or identifying, collecting and sharing personal experiences with broadband.

Education was also emphasized as a key means of furthering rural broadband. In this regard local leaders need to become better informed on broadband, which requires government leaders and policymakers going to conferences where municipal leaders gather. The other facet involves exposing citizens to the benefits of broadband. A key demand side element is allowing people to experience faster internet connections so they can understand the benefits.

One key challenge that was identified was where to bring in expertise, particularly in regard to infrastructure regulation. While participants shared the view that broadband is a critical form of infrastructure, no single level of government appears able to take on the costs and policymaking capacity.



## Final Plenary Session Summary

The final plenary session reinforced several common themes as well as identified some actions going forwards. Participants again reiterated the need for vision and narrative. To facilitate this it was suggested that a central repository is needed for capturing and curating success stories. The need to find champions was also noted as a key element for facilitating a successful narrative around connectivity.

Participants also discussed the importance of reaching different age demographics. An environment must be created where youth can note the empowering nature of broadband. At the same time there is a crucial need to engage older individuals on the benefits of broadband.

With regard to broadband solutions on a community level, participants agreed that connectivity must suite the need of the community. Furthermore, the narrative about the benefits of broadband to the community cannot be focused solely on economic development, and the idea of community development should be central. Broadband provides rural communities the opportunity to create an environment of abundance instead of scarcity and loss. At the same time urban communities benefit when people want to remain in rural communities as it results in decreased demand for services in sprawling urban centres.

Education about broadband and connectivity also emerged as an important point of consensus. Participants suggested that in addition to digital literacy training for seniors and small children, there was a need attempt to influence school curriculum on the importance of broadband.

The discussion concluded by highlighting several immediate needs:

- Need for a portal to collection personal stories, business cases and data/statistics
- Need for a document to establish common language/terminology on broadband that is broadly accessible and can be used to discuss connectivity with local government leaders/officials



## Overall Symposium Summary

Over the course of the two days several key themes emerged. These themes are summarized below.

### Connectivity

‘Connectivity’ emerged as the single term and concept for unifying discussion. Discursively, the term connectivity contains a direct connection with the fundamental human concept of communication. Furthermore, connectivity more than other terms such as broadband or high-speed internet, directly emphasises the benefits of broadband. The term is technologically neutral reflecting that for some communities connectivity will be achieved via fibre and in other cases wireless or a mix of wired and wireless technologies. Finally, framing broadband in terms of connectivity rather than speed (e.g. 100 Mbps) eliminates the technical jargon that may create barriers to engaging people on the importance and need for connectivity.

### Importance of Stories

Throughout both streams participants regularly discussed the importance collecting and curating stories. Personal stories have a profound power for communicating the importance of connectivity. They can convey the benefit of broadband to the average citizen, while also capturing the attention and interest of policymakers and government leaders. Participants identified an acute need to have a mechanism/portal through which stories can be deposited and made available. As a corollary to collecting personal stories, there is also a need to capture the diversity of business cases being used to facilitate connectivity in rural communities.

### Need for Knowledge Translation and Common Language

A third key theme was the need for knowledge translation and common language around connectivity. Particularly for community leaders and local government officials there is a strong need to have a short, straightforward document that explains connectivity without requiring the reader to have a strong background in technical and policy issues.

Ultimately the Digital Future 2015 Symposium was a successful venue to bring together diverse stakeholders aimed at encouraging and strengthening rural connectivity in Alberta, across Canada and throughout North America. The forum provides a valuable mechanism to draw together participants from various sectors and overcome silos. It continues on the strength of the previous Alberta Digital Futures Symposium (2013) and the discussion over the two days will contribute to developments at future symposiums.

On behalf of the Organizing Committee (Bryndis Whitson, Gordon Gow, Dinesh Rathi, Mark Wolfe and Michael B. McNally) we wish to thank the graduate student volunteers, symposium participants, and generous donations from the Masters of Arts in Communications Technology Program and School of Library and Information Studies at the University of Alberta and the Kule Institute for Advanced Study for making the event a marked success.

