In March 2018, the First Nations Innovation (FNI) research project at the University of New Brunswick concluded after more than twelve years partnering with Indigenous regional intermediary organizations across Canada. The Social Sciences and Humanities Research Canada (SSHRC) funded FNI project involved researching, publishing and sharing innovative digital technology developments and applications with local, regional, national and international audiences.

As a final task of the FNI research project, the partners collaborated in the production and distribution of a community-focused research and advocacy book titled, “Stories from the First Mile” (2018). This First Mile Connectivity Consortium book celebrates innovations in local and regional Indigenous digital infrastructure and digital applications undertaken over the years. This article introduces the history and context of this new publication.

The beginning of the journey
The research project that eventually became the First Nations Innovation (FNI) initiative began in 2004 with two partners: the University of New Brunswick and the Keewatinook Okimakanak (KO) First Nations Council. In that year, remote First Nations across Northern Ontario were heavily engaged in building and operating their locally owned digital networks serving their residents, businesses, and organizations. KO was selected as Industry Canada’s SMART Communities Aboriginal Demonstration project. With the feder-
partnered with academic researchers and graduate students to explore and document the innovative uses of digital technologies and networks.

Keewaytinook Okimakanak (KO) is a relatively small First Nations council. It delivers local and regional services in partnership with its remote First Nation members (Deer Lake, Fort Severn, Keewaywin, McDowell Lake, North Spirit Lake and Poplar Hill First Nations). The SMART demonstration project involved building and operating a broadband regional network to support a number of local digital applications including: telehealth; e-learning; local cable networks supporting Internet, television and telephone services; e-centre facilities; web portals; and other local digital initiatives.

A number of earlier steps created the conditions for KO’s successful multi-year demonstration project. KO established the Kuhkenah Network (KNET) in 1994 to support effective communication among the local schools in each member KO First Nation. From its humble beginning as a small regional online bulletin board system, KNET grew to become a regional telecommunication service and advocate for digital infrastructure development across the region. Today, the KNET team continues to operate its broadband network employing a combination of satellite, fibre, wireless and microwave digital solutions out of its rural Sioux Lookout headquarters in Northwestern Ontario (see http://knet.ca).

Partnering with academic researchers became one KNET strategy for gathering and publishing the stories of the people and their innovative initiatives to build healthy, safe environments for their children. Early KNET research work involved examining how online distance education and local digital infrastructure using the broadband network make a positive social and economic contribution in remote First Nations for local citizens (Beaton, 1998; Fiddler, 1992, & Ramirez, 2001). Other Indigenous organizations and academic researchers began working with the KNET team to build on the KNET experience by creating their own stories of building and creating the digital networks and services required in their regions and communities. Some examples of these publications describing digital innovations include Ferreira, Ramirez and Walmark (2004), Fiser (2010), and Gurstein, Beaton and Sherlock (2009). All the publications produced with FNI partners are listed in this new book and are available online at the FirstMile.ca website.

Industry Canada’s First Nations SchoolNet program brought together a team of Indigenous organizations working together in the development and operation of digital networks and support services serving First Nations schools across Canada. As a member of this group, KO’s KNET team provided digital support services for First Nation schools beginning in the fall of 1995. Shortly after this, Atlantic Canada’s First Nation Helpdesk, established by the Mi’kmaw Kina’matnewey (MK) educational organization, began delivering similar services for the First Nations schools across that part of the country. By 1999, the First Nations Education Council (FNEC) in Quebec had taken on a similar responsibility under an annual contract with Industry Canada.

In 2004 the project that became the First Nations Innovation (FNI) research initiative was proposed by Dr. Susan O’Donnell, researcher and adjunct professor in the department of Sociology at the University of New Brunswick, and Brian Walmark, Director at the Keewaytinook Okimakanak Research Institute (KORI). In 2006, KORI and UNB researchers began collaborating with Atlantic Canada’s First Nation Helpdesk and then with FNEC and the Quebec First Nations in 2008. The FNI research has been funded continuously since 2005 by SSHRC with in-kind contributions from the partners.

Working with their First Nation partners, FNI researchers and graduate students travelled to the participating First Nations to learn and gather information and analyze the use of digital technologies by community members and community organizations. Together they produced articles and presentations highlighting various innovations occurring in the First Nations across these three regions. These publications helped shape policies and programs used by the First Nations and their organizations as well as those being developed and supported by federal and provincial governments. Canada’s strategic investments in developing digital broadband connections in remote and rural Indigenous communities consisted of various funding programs making it possible for Indigenous communities and their partners to construct and operate their digital networks and associated digital services.

**The First Mile approach**

The FNI research team joined with Simon Fraser University in a new project in 2010. Together
they produced an analysis and stories of digital innovation in remote and rural Indigenous communities across the country (McMahon, O’Donnell, Smith, Woodman Simmonds & Walmark, 2010). “First mile” development challenges contemporary stories describing the work involved in providing digital connections including the Internet. In urban spaces, the different Internet providers often describe connecting their digital networks to homes and businesses as “serving the last mile” of connectivity. The same “last mile” language is used by telecommunication corporations to describe connecting their digital network infrastructure to remote and rural communities. The “last mile” presentation works well for these corporations and service providers, creating the impression that they are the only ones available to deliver these connections and services.

The “first mile” presentation used by the First Mile team and the FNI research project creates the understanding that it is the local community, its residents and their regional partners, including neighbouring partners, that are driving these developments. Within the “first mile” framework, First Nations demonstrate their capacity and desire to build, manage and employ local residents to operate and sustain their own digital networks.

The “first mile” narrative ensures investments, developments and operations involve and benefit local and regional organizations and the communities they serve.

The First Mile stories highlighted in the new FNI publication provide a glimpse of digital development work undertaken in remote and rural First Nations across the country. Collecting and sharing these stories of Indigenous digital innovation on the FirstMile.ca website began in earnest with the 2010 report. Over the previous 10 years under the First Nation SchoolNet program, the Indigenous organizations providing the digital connections to the First Nation schools shared many videos and stories online describing their innovative use of digital technologies and their networks. Collecting these digital productions and hosting them on the FirstMile.ca website became an ongoing task of the First Mile team. Currently there are close to one hundred stories of Indigenous digital innovations hosted on this site.

The “Stories from the First Mile” (2018) book and the images it contains illustrate the variety of digital innovations occurring in remote and rural Indigenous communities across Canada. The First Mile team decided to produce this new publication highlighting their work in the First Nations as a document that would be read and appreciated by community members. The book’s chapters describe the various digital applications developed by and serving the First Nations. The book also contains a summary description of the research undertaken over the years. A complete list of all the publications produced, along with the policy interventions undertaken, are included to highlight the depth of the research and production work created by the FNI research project.

Sample of policy interventions undertaken by members of the FNI team

- FMCC’s response to the Governor in Council’s request for a report on future programming distribution models (October 12, 2017) Broadcasting Notice of Consultation CRTC 2017359.
- FMCC’s response to the Study on Broadband Connectivity in Rural Regions (September, 2017) The House of Commons, Standing Committee on Industry, Science and Technology.
- FMCC’s response to the Development of the Commission’s broadband funding regime (April 25, 2017) Telecom Notice of Consultation CRTC 2017112
- FMCC’s response to Review of basic telecommunications services (April 9, 2015) Telecom Notice of Consultation CRTC 2015134

Carrying on the work begun by First Nations Innovation research

One result of this research partnership project is the First Mile Connectivity Consortium (FMCC). FMCC was formally incorporated in 2014 as a not-for-profit national association of Indigenous broadband service providers and researcher allies. FMCC membership includes First Nations community-based telecommunications organizations serving remote and rural communities. These organizations represent the telecom interests of the citizens in their member communities. FMCC re-
search associates include experts on the topic of broadband infrastructure and digital technology adoption in remote and rural communities. It is a growing organization with representatives from Indigenous technology intermediary organizations across Canada.

The FMCC is primarily engaged in developing evidence-based policy related to broadband infrastructure, digital services and technology adoption in remote and rural Indigenous communities. The organization is focused on improving federal regulations and policies affecting the operation and sustainability of the members’ networks. A listing of FMCC work to-date is included in the new publication and documentation is available online at the FirstMile.ca website.

FMCC has contributed primarily to regulations developed by the Canadian Radio-television and Telecommunications Commission (CRTC) and policies created by the federal Industry, Science and Economic Development Canada (ISED). The CRTC creates regulations governing broadband infrastructure and information and communication technologies (ICT) that concern First Nations. The new book contains a list of the FMCC interventions and contributions to the CRTC hearing undertakings. FMCC becomes involved in other policy development opportunities with ISED and other government bodies when they can potentially support First Nation control and ownership of broadband infrastructure and ICT (Beaton, McMahon, O’Donnell, Hudson, Whitened & Williams, 2016).

The FMCC members focus on innovative solutions to constructing and operating digital network infrastructure and services with and in rural and remote regions and Indigenous communities across Canada. The FMCC partners are advocating for reliable, equitable, affordable and scalable broadband in rural, remote, Northern and Indigenous communities, involving and benefitting residents of these communities in the provision of digital services. This reflects the FMCC position on the need for “first mile” solutions in the design, development, ownership and operations of telecommunication infrastructure and services. FMCC member organizations provide and support the delivery of broadband-enabled public services such as digital education, health, justice as well as entertainment services for household consumers.

Evolving telecommunication technologies and the digital networks supporting these communication tools provide an ongoing challenge for the FMCC members. The struggle continues to respectfully and adequately serve the most remote and rural communities in Canada while addressing difficult geographic and economic realities. The FMCC team shares a common commitment to working together to assist governments and regulatory agencies in establishing and managing policies and programs to the benefit of Indigenous communities.

**Conclusion**

“Creating new paths with communities” is the theme of the cover image of the new publication (see Figure 1). The artist, Jesse Fiddler, is from Sandy Lake First Nation and lives in Sioux Lookout, Northwestern Ontario while working at Keewaytinook Okimakanak’s KNET. He began working with KNET as a high school student in its very early days back in the mid 1990’s. He explains how his art relates to the work of the First Nation Innovation research project, its Indigenous technology organization partners, and the First Mile Connectivity Consortium as follows:

> Breaking new paths in snowshoeing is the hardest work and it gets easier for those behind us... I like the new aspect of adding technology to this lifestyle as it reminds us that it’s a tool to be used in our way of life. (First Mile Connectivity Consortium, 2018).

First Mile Connectivity Consortium member organizations are “creating new paths” as they help the policy analysts, the engineers, government officials and other allies understand the unique needs and desires of Indigenous rural and remote communities. Everyone requires this information to ensure every remote and rural community in Canada is able to access and sustain local digital networks and services while being connected to the rest of the world using equitable and scalable infrastructure.

Changing urban-centric government perceptions, regulations, technologies, policies and programs requires constant surveillance to influence and support decision-makers as they respond to and create new opportunities in this ever-evolving environment. Prioritizing the recognition of “first mile” opportunities benefitting each community across Canada to replace the current “last mile” dependency-based, corporate narrative is essential for local sustainable digital services and networks. Our book should cause urban readers to ask, what would happen if neighbourhood
residents and collectives in urban centres began viewing themselves and their homes through a “first mile,” whole community lens instead of the “last mile” lens of individual consumers?

This latest FNI publication presents a summary of nearly thirteen years of work by a team of academics, community members and their technology organizations collaborating, sharing and celebrating their digital experiences and successes. As the hand-off of this work to the First Mile Connectivity Consortium team occurs, it is once again another opportunity to celebrate First Nation innovation in the effective use and operation of digital technologies.

Brian Beaton, a doctoral candidate in the Faculty of Education at the University of New Brunswick, was a researcher on the FNI project. He is the Treasurer and co-founder of the First Mile Connectivity Consortium and was the former coordinator of KNET Services, Keewaytinook Okimakanak First Nations Council in Sioux Lookout, Ontario.

References


First Nations Education Council (Quebec) Regional Broadband Network (May 2017)