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Building the First Nations E-Community

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Introduction

One of Canada's key challenges is to maintain a skilled and participative workforce in the face of an aging population. According to the most recent census, First Nations are the youngest and fastest-growing segment of the population, thus there is an opportunity for First Nations workers to significantly contribute to this productivity challenge. Information and communications technology (ICT) offers a gateway into rural and remote First Nations communities to deliver the skills needed for First Nations youth to fill the vacancies that Canada will face as the baby boomers retire.

ICTs are being used to deliver more educational choices and better health services in rural Canada but, with a few exceptions, e-learning and telehealth are just beginning in First Nations communities. To be successful, skilled telehealth technicians are required to support this initiative. Teachers must learn digital literacy skills. Qualified ICT technicians must be available to support the rollout of e-services. Website developers must be available in communities to support entrepreneurs who want to market their goods worldwide, and to support other economic development initiatives. Water plant operators need digital literacy skills in order to maintain safe drinking water. Knowledge workers who maintain local information databases and produce appropriate reports for community leaders and program managers are required. The opportunities are limitless. What is required in every First Nations community is a skilled public service, comparable to federal and provincial public services, where employees receive regular training and have access to up-to-date computers.

Information must be managed in the same way as financial and human resources. Relatively few of the 633 First Nations governments have sophisticated information management (IM) tools, competencies, and capacities. Good data is required for planning and decision making, to improve accountability, and to measure success. IM and ICT successfully implemented together can be tools of transformative change in First Nations communities.

Canada is losing its competitive position. In order to encourage success, the economic and technological infrastructure in Canada must be more closely aligned to ensure compatibility, sustainability, and service in many individual, business, and government interests. In today's global markets, the notion of not

being connected is an exponentially growing liability. It is critical to ensure that base levels of technological infrastructure exist to serve a community and its local and regional economy. The Aboriginal Canada Portal report on community connectivity infrastructure (2005), confirmed that a digital divide exists in First Nations communities.

Brief History

In 2002, recognizing the importance of broadband connectivity in First Nations, the Chiefs in Assembly directed their team at the Assembly of First Nations to

advocate a process whereby First Nations address their core funding requirements in accordance with broadband connectivity and applications; and the Federal Government to act more expeditiously and boldly to provide financing required for operations and management, beyond currently identified funding, in order to cover increasing and ongoing information technology infrastructure, planning, support and maintenance costs.

(Assembly of First Nations 2002)

In 2006, the Assembly of First Nations' Chiefs Committee on Economic Development (CCED) was provided a briefing on ICT issues and next steps developed during a preliminary meeting of technical experts in March 2006. The national resolutions supporting work on this portfolio area, proposed next steps, and recommendations identified by the First Nation technical experts comprised a significant part of the briefing to the CCED. The CCED supported the request that additional work and advocacy be conducted by the secretariat to develop a national First Nations broadband implementation strategy.

Gaps in service support, funding, coordination, data management, and infrastructure have been noted in Chiefs in Assembly resolutions dating from 1997 to 2006. To assist in addressing the broad spectrum of gaps noted in the resolutions, expert technicians began a process to define a national strategic framework to serve First Nations ICT needs.

In 2008, the Chiefs in Assembly once again supported the development of an e-community strategy by the Assembly of First Nations with financial support from the Federal government (Assembly of First Nations 2008a). A second meeting, entitled the "National Think Tank of Experts," was held in Gatineau, Quebec, from March 18 to 20, 2008, to build on the preliminary discussions of technicians and managers. The objective of the think tank was to identify key areas to be included in a national framework to better serve and address ICT infrastructure, sustainability, operations, management, and other issues of importance to advance this portfolio area. The culmination of this discussion was recorded in the document titled, "First Nations ICT Mapping—Designing a National Strategic Framework," which outlined policy and technical views and recommendations for the chiefs' consideration (Assembly of First Nations, 2008b).

During follow-up video and teleconference meetings, the ICT working group worked with a draft briefing note entitled, "First Nations E-Community Program

Concept—A national initiative partnering with regional First Nations organizations.” The stated goal of this concept was to support broadband connectivity in First Nation communities using a community-based approach, and to improve the quality of life of First Nations peoples by closing health, economic, infrastructure, education, and service gaps, and creating new economic opportunities.

The ICT working group used the First Nations SchoolNet (FNS) program as a model for the proposed development of an e-community initiative. Whereas the FNS program involves utilizing appropriate technologies to improve education services, the e-community initiative expands this model to the areas of health, economics, governance, justice, and other community services. The initiative also builds upon Indian and Northern Affairs Canada’s (INAC) First Nation SchoolNet model whereby the program would be delivered by regional First Nations service organizations with proven track records under a contribution agreement with INAC. This allows groups of communities to tailor their ICT solutions to their particular needs, yet the bulk of the program’s resources would be used in the opportunities and initiatives that have already proven to be effective uses for ICTs.

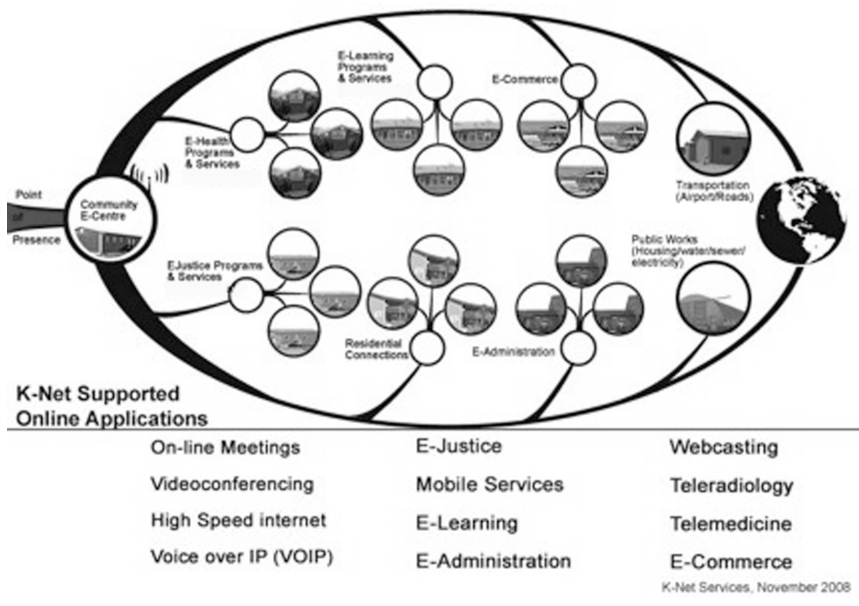
The E-Community ICT Model

The First Nations E-community IT development and maintenance model builds upon the network model employed by every institution and corporation across Canada. Every First Nation requires a broadband (preferably fibre) connection, and a local ICT team to support its connections to the telecommunication infrastructure that serves as the communications link to the rest of the world. Just as every hospital and university is served by a broadband fibre-optic connection to CANARIE or some other government-funded, regional broadband provider, every First Nation requires an equitable broadband connection to serve its multitude of services and applications. Just as every hospital or university operates its own IT team of technicians to manage its local connections, support different applications, provide training for staff, and maintain a working network, every First Nation requires a team of IT technicians that delivers an equitable level of service for all local programs, services, businesses, and community members.

Figure 6.1 (page 98) describes the First Nation broadband e-community network model that is being deployed in First Nations across northern Ontario and elsewhere in Canada.

The Think Tank Recommendations

The AFN IT expert think tank sought to clarify the essential role of ICT in ensuring that current programs are better delivered and delivered more successfully. Successfully implementing broadband technology and investing in the technical skills required for people to use technology will magnify the success of First Nations communities.

Figure 6.1: First Nation Broadband E-Community Network Model

During the AFN IT think tank, discussions and planning began to identify what a framework needs to be cognizant of, such as being large enough to support the spectrum of First Nation ICT growth requirements and community development aspirations. Technical considerations of these issues were grouped into the following themes, which will be further discussed below:

1. First Nation Capacity Development
2. First Nation Connectivity
3. Human Resources Development
4. Information Management
5. Service Delivery and Partners

1. First Nation Capacity Development

First Nation capacity resources are required for new and existing infrastructure development, institutional development, and operations and management that are stable and predictable. Some of the identified resources for implementing this component include considerations such as:

- Resources/support at each level (local, regional, and national) with special attention for very remote areas;
- A five-year strategy to support development requirements;
- Sustainable, permanent funding in all regions of the country;
- Capital funds to build administrative infrastructure and support ongoing operations and maintenance of the networks, ensuring the proper support

systems are in place; and,

- A federal program funding authority must be established with direct involvement of a First Nation governance structure.

To deliver this service and support, the following principles need to be applied to any meaningful and effective ICT development and ongoing operations initiative:

- a) There must be linkages along with support for the development of a First Nation governance structure for administration and support;
- b) Modernizing and sustaining existing infrastructure must be a priority, with a strong escalator statement that recognizes the evolving nature of the industry;
- c) There must be an appropriate scale that includes special initiatives to connect very remote areas, and that recognizes the value of including these communities and the people who live there;
- d) The formula needs to be designed in coordination with other program areas so that there is a holistic approach, rather than the traditional silo approach, to program and service delivery;
- e) Regional organizations that offer second-level support services to First Nations in education, health and social services, economic development, skills development, etc., must be included in the strategy;
- f) Similar to other levels of government, institutions, and private sector corporations, First Nations require funding to sustain their technical, operational, and full ICT requirements.

In line with establishing appropriate systems of government, First Nations must be part of the program and policy development and decision-making processes. The clear objective is to ensure sustainable systems are built in which First Nations control the means and the solutions, and own and maintain the infrastructure property. To do this, existing First Nation community networks and services should be coordinated with federal government departments, a First Nations–federal design process should be initiated, and partnerships with other national and international indigenous peoples should be developed and supported.

2. First Nation Connectivity

ICT infrastructure is no longer optional. Future levels of service requirements and the ability to manage and transfer information based on key service points in a community need to be based on adaptable, scalable, sustainable, and affordable systems. Some of the principle objectives must include:

- Eliminating the connectivity gap and establishing a collaborative timeline (identifying specific milestones for three- and five-year timelines).
- Ensuring that First Nations have access to the necessary resources so that they can build and maintain a connectivity plan that incorporates

progressive business ethics, is future orientated, strives for operational excellence, and achieves user satisfaction.

- Recognizing that the ability to define bandwidth is a current and future issue.
- Promoting First Nations ownership and control of infrastructure, including the ownership of network circuits, to maintain a bandwidth guarantee.

Associated with First Nation connectivity issues is the need for bandwidth guarantees so First Nations control the flow of information to determine how the available resources are managed and utilized. Just as hospitals and universities manage their own bandwidths, First Nations must be able to determine which applications have priority. For example, an e-health application, such as a doctor consult, must be able to be supported over the need to download a music file.

All First Nations require managed broadband circuits that enable the community to administer its own data, applications, and services. Selected IT must be considered in the context of scalability, availability, sustainability, and capacity.

First Nations must be able to define the costs, needs, standards, and priorities for implementing and maintaining their local infrastructure. Management initiatives to support a digitized environment are required in all organizations and services in each First Nation.

3. ICT Human Resources Development

As First Nation governments are developing infrastructure, specialists with technology-based and information management training are required to support local and regional systems. To support a coordinated development strategy for local ICT capacity building, First Nations and their regional organizations require the resources necessary to conduct local visioning/planning exercises, education, and application development. Coordinated training efforts must be determined and facilitated both locally and regionally. Additional investments are also required for local information management systems, document management, and e-reporting that ensure the principles of OCAP (ownership, control, access, and possession) are protected.

4. First Nation Information Management

Connectivity is an essential (enabling) service for First Nations. Directly associated with this capacity is the management of data and information, which includes the development of local and regional ICT systems for the maintenance, transfer, and storage aspects of these services. Creation, building, maintenance, and expansion of these information systems by First Nations is a natural application for an innovative e-community initiative.

First Nation information planning, accountability, and tool design are important components for creating an appropriate approach to these developments. System

support requirements must become part of each INAC funding agreement as e-reporting and information management become electronically supported in First Nations, as well as their regional and national organizations. A holistic approach to these developments must include reviews of local and regional economic data (current and future), local training requirements and delivery, local security and emergency information supporting secure channels, education assessments (pedagogical management system), linkages to health information management, and appropriate data storage and controls.

5. Service Delivery and Partnering

As First Nations identify partnering opportunities with the private sector and other partners to develop local and regional e-community opportunities, there is the need to explicitly support local innovation, priorities, and needs through these partnerships. A new framework is required in which First Nation regional and local ICT service providers and leaders, government, and local and regional partners can identify and respond to economic, environmental, and social well-being issues for the present and future.

Where a business partnership may be proposed, a program initiative to help support First Nation needs must be identified locally, regionally, and nationally. Such an effort will support First Nation organizations in developing and assessing opportunities to negotiate new arrangements that promote economies of scale at a national level, such as providing Microsoft software at discounted rates for First Nations schools, or other equipment purchase benefits.

National research partnerships and opportunities are required to monitor, evaluate, and explore new initiatives and existing developments in the effective use of ICTs in First Nations communities. This work will ensure that local and regional First Nation authorities receive the recognition and support in all sectors that is needed to establish these relationships with the appropriate partners.

Conclusion

The Assembly of First Nations is continuing to work with the team of First Nation information technology experts to support the development and implementation of a national First Nations broadband network development strategy. AFN Resolution 16/2008, "E-Community for First Nations: A National Framework," along with all of the supporting resolutions from previous AFN assemblies, provide the team with the mandate to work with appropriate partners to create a national First Nations broadband network that will support economic and social development in First Nations across Canada.

There are numerous identified stakeholders that are contributing to the success of this broadband initiative. Today this network is providing IP video conferencing, data, and voice services in those band offices, nursing stations, schools, and residences where First Nations are working with their regional partners to make

it possible to address the government's agenda to deliver services online. There is still a lot of work to be done to ensure that the First Nations that still require the construction of local networks to support these services are able to create their local e-community network and associated services.

In conclusion, investments in ICT infrastructure, operations, management, human resource requirements, and investments are essential if Canada is to profit from the opportunities the growing First Nations population can offer. An investment to connect First Nations communities must begin immediately. Even if fully funded today, it would still take three to five years for the telecommunication builds to be realized and, in the meantime, the digital divide is widening. What is also required in every First Nation are adequate levels of funding and infrastructure, and trained technicians capable of supporting the local community network that connects and delivers these required services. Building a strong workforce, and ensuring capable, equipped governments and healthy families are certainly key to encouraging the success of any community. First Nations can and must be part of the information economy and part of the solution to build supportive infrastructure that will enable competitive economies, competitive workforces, and responsible governments. The right investments made now in First Nation communities will reap long-term dividends far greater in value than their overall short-term cost. The work is only now beginning.

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