Community Engagement, Performance Measurement, and Sustainability

Experiences from Canadian Community-Based Networks

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Abstract: Community-based networks (CBNs) are local organizations that have introduced information and communication technologies (ICTs) as tools for social, economic, and cultural development. This study reports on the achievements of 11 Canadian CBNs in terms of how they engage their clients and how they address sustainability. A tentative typology is provided and contextualized with the literature on social capital. Community engagement was reported to be an ongoing process, involving a broad range of community stakeholders and leading to a responsive project management style. The track record with sustainability shows a growing recognition about the importance of base-line data, an awareness about the challenge in defining what to measure, and the realization that performance measurement is neither easy nor inexpensive.

Résumé : Les réseaux communautaires sont des organismes locaux ayant adopté des technologies d’information et de communication comme outils de développement social, économique et culturel. Cette étude porte sur les accomplissements d’onze réseaux communautaires canadiens par rapport à leur clientèle et aux mesures qu’ils prennent pour assurer leur durabilité. L’étude fournit une typologie provisoire qui fait référence à des écrits sur le capital social. Assurer la participation de la communauté semble être un projet de longue haleine qui implique un vaste éventail de parties prenantes dans la communauté et encourage une gestion de projet ouverte envers celle-ci. Les résultats pour ce qui est de la durabilité démontrent que les réseaux reconnaissent de plus en plus : l’importance des données de base; la difficulté et le coût de bien mesurer leur rendement; et le défi que pose la définition de ce qu’il faut mesurer.

Keywords: Participatory action; Community networks; Internet; Management; Community informatics; ICTs

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Introduction
This paper explores emerging characteristics and experiences of Canadian communities that are implementing ICT applications and services, with emphasis on community engagement, sustainability, and performance measurement. Many of these experiences refer to “smart projects” in light of the high profile Industry Canada’s Smart Communities Demonstration program. Few themes emerge that are relevant across the wide range of organizational and geographical settings. In many cases the emerging themes refer to mechanisms to bring funding agencies, community-based networks, and community members together to plan around common visions and to address performance measurement as a learning process for course correction.

In this paper we briefly address what community-based networks are. We then explore the experiences of 11 specific CBNs in the area of community engagement. A second section describes how they are addressing sustainability and performance measurement. In the last section we highlight how these three themes are complementary, like three legs of one stool, and we suggest some follow-up work that may respond to their communities’ needs.

Community-based networks
This paper is based on experiences of Canadian community-based networks (CBNs) that have introduced information and communication technologies (ICTs) as tools for social, economic, and cultural development. This study contributes to the growing literature on community informatics in that it shows how communities harness information and communication technologies to further their economic and social development efforts (Gurstein, 2000). A wide range of organizations fall under the loose term community-based networks. Each has a particular organizational orientation, provides particular services, and has its own unique funding support and history. Internationally, a common term is “telecentre.” Although typologies available in the literature describe the range of facilities, a common feature is that they offer shared access to information and communication technologies (ICTs) (Roman & Colle, 2002). Community networks, telecentres, freenets, televillages, smart communities, and civic nets are also common terms used in North America (Pigg, 2001; Strover, Chapman, & Waters, 2004). In the context of this Canadian study, we are referring mostly to geographic communities in rural and remote settings, where some of the facilities may indeed offer shared access to ICTs. In some cases, in addition to geographic communities, communities of interest will also coexist.

This paper integrates two parallel studies that were commissioned by Industry Canada. Data were collected in early 2002 to document experiences in community planning (“community engagement”), impact assessment, and sustainability by community networks not covered by its 12 Smart Communities Demonstration projects. The reports were expected to yield “best practices” that could be shared through the Smart Communities Web site. In this paper we refer to emerging “components” (of community engagement and of sustainability and performance measurement) in lieu of “best practices” to emphasize the context.
sensitivity and organization specifics that need to be appreciated as emphasized by Swan, Newell, & Robertson (1999).

The process of community identification was limited by a tight timetable and by the lack of an updated list of networks to contact. While we had hoped to include a cross-section across provinces, territories, and francophone and Aboriginal organizations, the final list is more limited. Table 1 offers a tentative typology on the basis of three dimensions: orientation/ownership, services offered, and major support. More important than their classification, however, is the contribution of community-based networks. A recent report by EKOS Research reminds us of the importance of community-based networks: “Not-for-profit Internet access and training services can significantly increase the usage rates by the social sub-groups traditionally found to have low or lagging technology adoption rates in Canada” (Reddick, Boucher, & Grosseilliers, 2002).

During our research many community networks were contacted across Canada, and from those who responded we selected 11 for further research; Table 2 provides a summary of CBNs by geographical location. Among the contact lists we used was the Community Access Program site. The Community Access Program (CAP) was initiated by Industry Canada in 1994. It aimed to establish 5,000 public Internet access sites in rural and remote communities and 5,000 sites in urban communities. Many of the community-based networks had accessed CAP funding, and in some cases, they had come together in response to the program. To receive CAP funding it was required that several not-for-profit organizations in the community come together and indicate their shared goals and expectations. The program went through several stages, including second-generation support for proposals covering networks of CAP sites, but it was ultimately closed in 2004. Our choice of CBNs to contact was limited by time constraints as well as the fact that some of the communities contacted were not available for consultation within the research period allotted. We were to some degree challenged in our ability to adequately represent a sufficient range of communities, though we were able to include indirectly all types of communities through the CBN’s broader initiatives that encompassed, within their geographical territory, francophone and First Nations community groups.

**Components of community engagement**

Community engagement is more than just holding a public meeting. The term refers to a consultation process whereby stakeholders are able to shape a project initiative and take ownership over its evolution. It is an ongoing interactive process characterized by commitment to ever-changing community needs and interests. The outcomes of community engagement are sometimes surprising. When people and organizations who are not in the habit of working with one another are brought together for a common purpose, new relationships are formed as community members learn how to collaborate. From a social capital perspective, community engagement constitutes a mechanism to explore shared needs (reciprocity), build trust, agree on implementation mechanisms (shared norms, networks), and enhance social agency (Pigg & Crank, 2004). One concrete
example of this is the aggregation of demand across sectors. A common situation is where the connectivity needs of a health clinic, a school, a municipal building, and a public library may enable the community to attract infrastructure investors when they can demonstrate a willingness to pay for their aggregated bandwidth (Ramírez, 2001).

What is not always evident in the social capital literature, however, are the challenges faced by rural and especially remote communities. In many of the

Table 1: A preliminary typology of Canadian community networks

<table>
<thead>
<tr>
<th>Example</th>
<th>Orientation/Ownership</th>
<th>Services</th>
<th>Major Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Access Program (CAP) site</td>
<td>Partnership among at least two non-profits</td>
<td>Public access, orientation, training</td>
<td>Community Access Program (CAP), often the seed for other types of networks</td>
</tr>
<tr>
<td>Community based network (many variations)</td>
<td>Non-profit community development; some services on cost-recovery basis</td>
<td>Community development; often linked to libraries</td>
<td>Gradient of funding sources, starting with CAP</td>
</tr>
<tr>
<td>Community-of-interest network (many variations)</td>
<td>Non-profit community and sectoral development; some services on cost-recovery basis</td>
<td>Community development with sectoral emphasis</td>
<td>Existed as an organization before accessing CAP or other information tech grant</td>
</tr>
<tr>
<td>Locally based research net</td>
<td>Commercial, subsidized</td>
<td>Academic/research community orientation</td>
<td>Canarie-funded universities play a leading role</td>
</tr>
<tr>
<td>Locally owned, commercial ISP</td>
<td>Commercial, competitive</td>
<td>Caters to residential and businesses</td>
<td>Provides services that were once offered by frenets,</td>
</tr>
<tr>
<td>Locally owned Public Utility Commission (PUC)</td>
<td>Commercial, competitive</td>
<td></td>
<td>Monopoly access to right-of-way</td>
</tr>
<tr>
<td>Community economic development portal</td>
<td>Municipal portal to town or region</td>
<td></td>
<td>Municipal funding, some FedNor</td>
</tr>
<tr>
<td>Network of networks</td>
<td>Association of existing CAP sites and other CBNs</td>
<td>Addresses CAP sustainability and coordination</td>
<td>HRDC Community Learning Networks</td>
</tr>
</tbody>
</table>

Note: The vertical column signals a gradient in terms of years of service, budget, and extent of commercialization. Many examples will likely be “mapped” across several categories.
<table>
<thead>
<tr>
<th>No.</th>
<th>Case</th>
<th>Type</th>
<th>Geographic Location</th>
<th>Services</th>
<th>Unique Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pictou-Antigonish Regional CAP Project (PARL)</td>
<td>Community-based network</td>
<td>Nova Scotia; Rural, small town</td>
<td>Training, awareness raising, CAP site coordination</td>
<td>Community took the initiative to raise over $100,000 toward the construction costs for an Innovation Centre</td>
</tr>
<tr>
<td>2</td>
<td>Information Access Oxford (IAO)/County of Oxford Integrated Network (COIN)</td>
<td>Community-based network</td>
<td>Southwestern Ontario; Rural/small town</td>
<td>Training, awareness raising, broadband ISP service, CAP sites at libraries</td>
<td>Owner of infrastructure; Long history, experience accessing many grants</td>
</tr>
<tr>
<td>3</td>
<td>NEOnet</td>
<td>Community-based network</td>
<td>Northern Ontario; Rural/remote (a territory the size of Belgium)</td>
<td>Training, awareness raising, CAP site coordination</td>
<td>Carries out surveys of phone/e-mail use; Seeking annual financial contributions from carriers to acknowledge their efforts at priming demand</td>
</tr>
<tr>
<td>4</td>
<td>WEDNet</td>
<td>Community-based network and research hub</td>
<td>Southwestern Ontario; Peri-urban</td>
<td>Training, awareness raising, broadband access, research, demand aggregation</td>
<td>University support; Relationships with vendors</td>
</tr>
<tr>
<td>5</td>
<td>Nottawasaga Community Economic Development Corporation</td>
<td>Economic development corporation</td>
<td>Central Ontario; Rural</td>
<td>Training, awareness raising, facilitation, and brokering</td>
<td>Strategic program developers; Clear goal statement: “a healthy, dynamic, holistic community”; Experience with evaluation; Funded by a for-profit company</td>
</tr>
</tbody>
</table>
CBNs, a major factor that enhanced social capital was the lack of ICT infrastructure due to geographic isolation and small population numbers. As different organizations and individuals come together with shared goals, they create

### Table 2: Community-based networks (cases) contacted

<table>
<thead>
<tr>
<th>No.</th>
<th>Case</th>
<th>Type</th>
<th>Geographic Location</th>
<th>Services</th>
<th>Unique Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Algoma District Community Network (ADNet)</td>
<td>Community-based network</td>
<td>Northern Ontario, Urban, rural, remote</td>
<td>Needs assessment training and awareness, proposal writing, advocacy</td>
<td>Huge territory with different user groups</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Firm believer in open network</td>
</tr>
<tr>
<td>7</td>
<td>Eastman Community Computing</td>
<td>Adult education</td>
<td>Manitoba</td>
<td>Adult education</td>
<td>Integrating ICTs with adult education</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Co-existence with commercial ISPs</td>
</tr>
<tr>
<td>8</td>
<td>Estevan Community Access Project (ECAP)</td>
<td>Community-based network</td>
<td>Saskatchewan Rural, small town</td>
<td>Training, awareness raising, CAP site coordination</td>
<td>Community has developed &quot;habits of collaboration&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Perception that the Internet is going to be superseded in value and importance by something else</td>
</tr>
<tr>
<td>9</td>
<td>BCCNA</td>
<td>Community of community networks</td>
<td>British Columbia Province-wide</td>
<td>Training, coordination, promotion, and advocacy</td>
<td>Provincial network of CAP sites</td>
</tr>
<tr>
<td>10</td>
<td>Cariboo Chilcotin Regional Network</td>
<td>A network of CAP sites complemented by a community learning network</td>
<td>British Columbia Interior (a territory the size of New Brunswick)</td>
<td>Training, awareness raising, broadband access, and ISP</td>
<td>CAP sites started through champions that work within a for-profit organization, though with many attributes of champions in the non-profit sector</td>
</tr>
<tr>
<td>11</td>
<td>Lumby Community Internet Access initiative</td>
<td>CAP site partnered with a private company</td>
<td>British Columbia Interior</td>
<td>Training, awareness raising, CAP site coordination</td>
<td>Offering a service application package for CAP sustainability</td>
</tr>
</tbody>
</table>
community-based networks, they learn the technology, and, in doing so, they are transformed very much in line with the notion advanced by Castells (2001) that people transform technology by modifying it and experimenting. Community media can create spaces and places for innovation, where people interact and jointly explore common goals (Lotz, 1998). The legacy of the community engagement becomes more than the installation and application of information and communication technologies (ICTs). The experience community members gain by assembling proposals, obtaining funding, installing hardware and software, training clients, solving problems, and educating additional partners is a major asset (Ramírez, 2001; Ramirez & Richardson, 2000).

Here are the emerging components of community engagement reported by the CBNs interviewed for this study.

**Community engagement is an inclusive and ongoing process, involving a broad range of community stakeholders**

The involvement of a broad and varied spectrum of community stakeholders is critical to the success of a community-based network. Project leaders are generally responsive to those community members who come forward to participate in project activities, but also need to seek out those who may be less inclined to participate in the project. This is as important in small communities as it is in community networks that cover large geographic regions. Community engagement should be an ongoing process, from project inception when a vision is created through to planning stages, project implementation, management, monitoring, and evaluation.

*Pictou-Antigonish Regional CAP Project (PARL), Nova Scotia (www.parl.ns.ca)*

The challenge of engaging people from a variety of communities throughout a region was faced by the Pictou-Antigonish Regional CAP Project (PARL). In response, the Regional Library developed a management structure that is responsive to community needs and interests, and at the same time promotes community ownership of projects. Each of the CAP communities in the region has its own committee that decides on and implements new projects and events, with PARL simply providing a coordinating function. In this way, projects have a distinctly local flavour, drawing on the creativity and participation of the various community members.

The level of community ownership is evident in the small fishing village of River John (www.riverjohn.com), where a community group called the Friends of the Library raised over $100,000 for the construction of the building that now houses the new library and “Innovation Centre.” Much of the money was donated by former community members, who were able to witness the progress of construction through the ever-watchful eye of a Web cam. The community owns this building, which is now used for a variety of community functions, including a lively and active seniors training program. To serve broader community needs, the building includes a boardroom and an office that can be rented by the public.

Several very successful projects have been developed in this community, supported and enabled by the responsive management of PARL. The River John CAP
site, with assistance from the Regional Library, has completed a Digital Collections Project, outlining the history of the community’s shipbuilding heritage (http://collections.ic.gc.ca/vessels). A Web site featuring the Atlantic lobster is another project reflecting community interests and engaging the participation of community staff and volunteers (http://www.parl.ns.ca/lobster). Regional interests, particularly among community seniors, are reflected in the War Cenotaph Project, a Web depiction of cenotaphs in the region, linked to the Canada Veterans Affairs database of veterans, sponsored by LibraryNet and PARL (www.parl.ns.ca). PARL’s support of local interests has led to a strong community ownership of projects.

Themes that emerge from the CBNs’ experience include the following:

- Actively involve a broad and varied spectrum of stakeholders.
- Community engagement is an ongoing process.
- Support local needs and interests.
- Provide opportunities for marginal groups and individuals to participate.
- Successful community engagement results in a feeling of community ownership.

Community engagement is based on partnerships across sectors

Partnerships are the foundation of community-based networks. Aggregating demand for shared telecom infrastructure, applications, and services has often been the driving force behind projects that have resulted in ongoing community-wide benefits. However, the process of defining, contracting, and maintaining partnerships has taken many different forms in different communities.

Information Access Oxford (IAO), Southern Ontario (www.oclc.net/iao)

In some cases, the vision for a “Smart” project was conceived by people in one sector, who then realized that they couldn’t succeed alone. Information Access Oxford (IAO), the Technology Branch of the Oxford County Library, has been working since 1996 to help get all residents of Oxford County online. The original goal of the project was simply to create a wireless communication link between the new Ingersoll Branch Library and the library headquarters in Woodstock, funded by Human Resources Development Canada (HRDC, www.hrdc-drhc.gc.ca). It didn’t take long before other organizations close by became interested in the library’s connectivity, and soon enough there were enough partners to be able to pay for bandwidth, with dollars to spare. These partners included the public library, Town of Ingersoll, Ingersoll Fire Hall, and the Ingersoll Learning and Employment Resource Centre.

“A physical network is possible through wireless technology,” says IAO’s technical director, “but we proved that the human network is just as important, or even more important.” In its second year, IAO was faced with the question of where it could find funding to continue its activities. The answer was found in partnerships with organizations willing to share the costs. In 1998 the County of Oxford, with funding from the Ontario Telecommunications Access Partnerships Program (TAP) and HRDC, along with the municipalities and libraries, created a
wide-area network that encompasses the entire county, connecting every municipal office, each library, and other provincial and federal locations. The network is now well known as the County of Oxford Integrated Network (COIN, www.county.oxford.on.ca/coin).

In the experience of IAO, you do need partnerships to create a critical mass, but you don’t need everybody. It is important that all stakeholders have a clear understanding of what the partnership entails and what is needed to be able to achieve common goals, so they don’t go into a partnership blindly. “Creating partnerships takes time,” emphasizes IAO’s technical director. “Sometimes partners will come in at different phases. They need to see the benefits of partnership before they join in.”

Even given the benefits and necessity of partnerships in Smart Community projects, some Smart Community coordinators offer words of advice. A member of the Estevan Community Access Project (ECAP) cautioned that partnerships are not going to work for everybody. “You need to carefully manage your partnership so no one member uses the project for their own interest.”

Themes that emerge from the CBNs’ experience include the following:
- Partnerships can be formal or informal, depending on the goals and objectives of the project.
- Partnership should have a clear understanding of what partnership entails.
- Partners need to see the benefit of partnerships before they join in.
- Partnerships can create an aggregated demand, to drive down costs.
- Creating partnerships takes time.
- Partnerships are based on history and trust.

**The engagement of community “champions” is key to a successful “Smart Community”**

Without partnership and teamwork a community will never succeed in becoming a effective community-based network. However, at one time or another, someone has to take charge, step forward, and make things happen. Community champions play this role, and they are key to both the instigation and the sustainability of these initiatives. Often an individual will be identified as the “champion,” though a “team of champions” is a more reliable factor for success.

**Algoma District Community Network (ADNet), Northern Ontario (www.adnetalgoma.ca)**

In many Canadian communities, early experiments with ICTs could be attributed to the vision and energy of one or two individuals who were early adopters of the technology. This was the case in the small logging town of Iron Bridge, on the north shore of Lake Huron. People had heard about the Community Access Program, but it was not until the late Randy Sweetnam stepped forward that any efforts were made to develop a project plan. Sweetman met with community members and made a presentation at a public meeting to raise awareness of the opportunity for setting up Internet access at the public library. Soon after this a group of volunteers decided to support the project and develop the application.
By 1997 a number of communities throughout the Algoma District got together and formed a consortium to develop high-speed affordable bandwidth for the entire district of 55,000 square kilometres. Although Sweetman remained a driving force in the newly formed Algoma and District Community Network (ADNet), he became just one of many project champions. The program manager explains that ADNet now has a team of champions, which drive the project at the community and organization level. Their role is to bring the message into the community and at the same time to promote the communities’ interests in the larger network. The role of these community promoters is informal, and all of them are characterized by a creative, positive, outgoing personality. ADNet realizes that keeping these community champions updated on changes in technology is critical to keeping the communities on board.

Themes that emerge from the CBNs’ experience include the following:
- Community champions are key to the instigation and sustainability of community-based networks.
- A team of champions is a more reliable factor for success.
- A community-based network needs a variety of people to champion its activities at different phases.

**Communication is ongoing and active**
Two-way communication mechanisms should be built into CBN projects to allow for simple and effective community input. Mechanisms may range from surveys, public meetings, and presentations to organizations and interest groups, one-on-one conversations, newsletters, and “bulletin boards.” Attention should be given to cultural, language, gender, and age differences. Integral to the communication plan is community capacity-building. Awareness of the potential of ICTs and training in how to apply them for individual and community benefit are critical to building and nurturing a CBN.

**NEOnet, Northern Ontario (www.neonet.on.ca)**
NEOnet maintains continuous community contact with people throughout the region. Since a primary objective of NEOnet is to create awareness of ICTs and to stimulate demand, communication and capacity-building are a major component of the ongoing activities. Face-to-face meetings are held with all stakeholders in order to explain the objectives and build a common understanding of various projects. Open houses and special events, such as a GIS Day and a Career Day, have been held to invite broad community participation. Frequent inquiries to NEOnet come by e-mail and telephone, and newsletters are distributed to the municipalities and interested individuals. Every six weeks press releases are sent out to provide updates.

Capacity-building to use media technology for community development requires training in the technical side of the media as well as methodological training to ensure the media are used to enhance community involvement. Both types of training are necessary to ensure the community harnesses the media and uses it to gain another voice.
The media can play a useful role in profiling Smart Community projects. The media can also oversimplify issues and tends to view activities from the outside in. The Cariboo Chilcotin Regional Network (CCRN), through their video training initiative, is encouraging people involved in the project to document the community and changes in the community, as seen by the community members themselves. This also draws community into the project and makes them feel ownership. Although video is typically a one-way media, in this case what is important is that people from within the community are the ones producing the video materials. If and when they choose to engage the community in viewing the material, and invite people to suggest changes, then the medium may become truly participatory, as it did in the famous Fogo Island process in Newfoundland over 30 years ago.

A manager at IAO says that one thing he has learned is that to communicate effectively you have to use different techniques in different areas. In rural communities, for example, you have to rely on word of mouth, and give it lots of time—and you have to talk in language people understand, which can be a challenge when dealing with technical terms.

Themes that emerge from the CBNs’ experience include the following:
- Two-way communication mechanisms are key to a CBN’s success.
- Capacity-building is integral to CBNs.
- A variety of communication channels should be considered.
- Face-to-face communication between coordinators and communities should be part of the ongoing communication strategy.
- Communicate in language people understand, and avoid technical jargon.

**Project management is flexible and responsive to changing local needs and interests**

Legend has it that when Alexander Graham Bell invented the telephone, his idea was people would use it to listen to opera.

— “Thirteen Key Lessons Learned from Ten Years of CN Experimentation,”
http://lone-eagles.com/chap10.htm

Change happens, and especially so when dealing with community needs and interests. Smart projects that endure are generally those that adapt and change. Maggie Matear of NEOnet explains that the composition of the stakeholders has changed considerably over the years. Originally NEOnet was a project on its own, but now it has branched into a series of ICT community capacity projects based on changing community needs. “It is important to be flexible and be prepared to modify agendas and objectives,” states the technical director of IAO. “This is absolutely critical, particularly if technology in involved, because technology is ever-changing and technology needs are ever-changing.” An IAO representative comments that the community engagement must be faithful to the community and must act on community needs. The process is one of “continuous transformation,”
and you must be ready to start over from scratch. “Let the community challenge your assumptions,” he adds.

In Oxford County, coordinators of a Rural Resources Partnership Project thought it would be a good idea to involve high school co-op students in the project to introduce them to employment issues. An early evaluation, however, showed that it was just not working, and they simply had to drop the idea and find a different role for the youth. Pictou-Antigonish Regional Network also had to respond to the needs of the community. They had originally planned to do community training in the summer. It turned out that when they went to Pictou Island no one turned up—they were all out fishing. Now they fly in during the winter-time when the island is iced in and have large turnouts to training sessions.

“You have to be extremely flexible,” explains an ADNet representative. “Everything we do is flexible. A cell phone project wasn’t even on the radar screen when we started.” However, when Northern Ontario Heritage Fund (www.mndm.gov.on.ca/nohfc) announced plans for new cell service in the Algoma District, within a month ADNet formed a partnership and prepared a proposal. In fact, this is now the most popular project they are dealing with, since there remain more than 5,000 people who at the time had only access to party lines—and they all wanted cell phones.

Themes that emerge from the CBNs’ experience include the following:

- Community-based networks that endure are generally those that adapt and change.
- Management must be flexible, and be prepared to modify agendas and objectives.
- Management should let the community challenge its assumptions.

**Sustainability and performance measurement**

All of the organizations contacted seek to sustain their core services, which requires maintaining revenues to cover operating costs. All are aware that technology evolves rapidly, and they seek to sustain their capacity to keep up with the evolution. This means sustaining the know-how to advise others and upgrading the technology they utilize.

“What you measure is what you get” is a basic axiom in the field of performance measurement. Community network projects that are managed to achieve or sustain specific and measurable social and economic development results have a better chance of achieving and sustaining those results than projects that are managed to achieve or sustain specific electronic network services. Network services may be established and maintained, but there is no guarantee that such services will effectively contribute to a community’s social and economic development unless project managers work within a performance measurement framework that encourages them to achieve those higher order results. The emphasis on the services achieving community development goals resonates with the notion of effective use (Gurstein, 2003).
A legacy of skills

While many community-based network funding proposals and business plans are written with a view that the network will result in community social and economic development, seldom are such results incorporated in sustainability or performance measurement plans and activities. Service sustainability is more tangible than the sustainability of community development results, yet it is entirely conceivable that a community-based network could completely disappear, yet still achieve social and economic development results that will be sustained indefinitely. For instance, many of the networks studied started as a CAP site where people from the community learned the basics about computers, e-mail, and the Internet. CAP funding covered the equipment, a subsidized phone line, and a trainer. Over time, equipment becomes outdated and other organizations may offer comparable or more advanced services. Sustaining a CAP site may not be what a community needs most. Once a CAP site closes down, what is left—what is sustained—are people with skills with the confidence to explore the power of technology. In other words, some services may be short-lived, yet they may provide significant changes in people's skills, which are worthy results though they are often unaccounted for. The experience that other community networks in Canada have gained through the process of negotiating grants, installing equipment, training community members, and maintaining the networks are invaluable. Even if they closed the networks, those experiences are sustainable in that they constitute learning that people can apply and adapt elsewhere (Ramírez, 2001).

Quantifying awareness creation: The example of NEOnet

Many community networks act as a go-between, introducing new technologies to people who might benefit by adopting the technologies. They provide opportunities for people and businesses to "play" with new tools and get a sense for their potential. As they educate community members and create awareness among businesses and residential users, they stimulate the demand for information and communication technologies and services. NEOnt in Northern Ontario is a good example of a community network that acts as a go-between, by dedicating its attention to training and awareness building. Because it remains independent of carriers or equipment vendors, it carries out this service without a specific product or carrier to sell. Its awareness and promotional work constitutes a demand stimulus to the industry at large to the extent that it is now negotiating annual financial contributions from the competitive carriers to acknowledge the value of these services. This innovative approach may prove to be an important economic measure of performance. The approach is similar to the way in which a local chamber of commerce markets the values and services of a particular community, financing those activities through fees from members. To our knowledge, there are no precedents for this approach among community-based networks.
A community-based network could catalyze and develop the local human resource talent necessary to continually innovate, learn, and adapt with regard to electronic tools. Such results could be self-sustaining beyond the life of the community-based network itself. Most community-based networks manage projects with a focus on lower level project outcomes in terms of service provision; they do not manage with a focus on higher level social and economic development results. Most of the organizations contacted track network use, membership data, and event- and project-specific outcomes. They recognize the value of this data to demonstrate their relevance to funding agencies and clients/members. However, there are few examples of client/member involvement in developing performance measurement approaches or defining the indicators that will be measured. Although there is a universal recognition of the importance of performance measurement, this is sobered by the fact that it is not easy to obtain funding to invest in such activities. Performance measurement is often seen as an additional activity, not as a core management function.

**Emerging components of sustainability and performance measurement**

This study revealed a number of components that merit attention, such as the importance of base-line data and needs assessments, the priority given to sustaining staff and services often through creative cost recovery mechanisms, the focus on well-defined goals as a foundation for performance measurement, and the acknowledgment that tracking impact is resource-intensive.

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**Long- versus short-term evaluation: The example of Nottawasaga**

Separating short from long-term goals is an important component of evaluation. The Nottawasaga Community Economic Development Corporation has developed an evaluation plan for the Simcoe Community Access Network (SCAN) that addresses the following long-term goals:

- the evolution of SCAN as an organization;
- the engineering plan;
- the accessibility and affordability of the infrastructure;
- the applications and the benefits they provide.

In the short term, the plan seeks to measure:

- the sustainability of the network;
- the present and future performance of the network;
- the number of municipal offices, hospitals, schools, libraries, businesses, public, etc. connected to the network;
- the amount of savings that can be estimated from the development of the network.

This plan has been developed for the SCAN proposal to Connect Ontario.
Base-line data and need assessments are a place to start

1. NEONet (Ontario) recently completed an ICT access study and has data—which is otherwise not available—on phone penetration, gender- and income-based differences in access (digital divides), etc.

2. IAO/COIN (Ontario) completed a library needs survey in 1991-1992, but it was not repeated beyond that year due to budget constraints.

3. WEDNet completed a research report, Connecting Windsor and Essex County (September 2000), for HRDC and the Windsor Human Resource Centre of Canada. The recommendations call for a Connected Community Toolkit, Knowledge Transfer Activities, Impact Monitoring, and Assessment. The toolkit is now in the testing stage, and a CD was shared for review. (The product development was funded by HRDC.)

The Nottawasaga Community Economic Development Corporation (Ontario) has completed a survey of businesses that provides base-line information for future impact assessment.

Themes that emerge from the CBNs’ experience include the following:

- There are compelling reasons to do base-line surveys: how else can one set benchmarks on which to measure change? There is scarce or no data on telecommunication access and use, especially in rural counties and remote regions.
- Needs assessments are educational opportunities that can help spark communities’ interest.
- It is never too late to do a base-line study and set benchmarks.
- Base-line data can be integrated into needs assessment efforts.
- Survey work costs money and requires donor funding.

Video-based performance measurement

The Coast Cariboo Chilcotin Learning Network is committed to capturing stories, in written and video formats; in their mind, that is where the future lies for performance measurement and the related task of sharing experiences and lessons learned. They already have a server for streaming video and are planning to do Webcasting in the near future. There is an enormous potential for video-based performance assessment and a great deal of Canadian experience in this unique approach. However, there has yet to be an acknowledgment by community-based network funding agencies of the value of video-based performance assessment. The Coast Cariboo Chilcotin Learning Network, and its innovative use of the technologies, may play an important role in enabling funding agencies to make the link between their programs and creative multimedia approaches to performance measurement. The skills and resources are available across Canada, particularly through Community Access Program (CAP) sites where people have been trained on desk-top video production, and they could easily work toward video documentation of experiences as an evaluation effort.
Sustaining core staff and services is the major concern of community-based networks

1. At the Pictou-Antigonish Regional CAP (Nova Scotia), they feel the challenge has not been financial as much as human resource sustainability. At the Coast Cariboo Chilcotin Learning Network (B.C.), a great deal of effort goes toward finding resources to upgrade the technology and keep youth keeners on board. (The area has a net loss of young people.) “Youth keeners” are young people who show motivation and commitment; they are champions in the making and, most important, they tend to be savvy with the technology. Rural and remote communities have a difficult time keeping young people around; those with keen interest in the community are the most valuable but also the most difficult to lure to stay.

2. At Eastman Community Computing (Manitoba), an ongoing challenge is balancing the services they can charge a fee for (and integrate into their training activities) with the interests of the private ISPs and Web designers.

3. Lumby Community Internet Access (B.C.) has joined forces with Monashee.com and N2 Technologies Inc., a business solutions Web development firm, and the three have announced a strategic partnership. Under this agreement N2 will provide Monashee.com a service application package to assist Monashee.com with economic sustainability issues. N2 has built a solution for these challenges and through an initiative with Industry Canada will provide the N2 Service Applications Package to the CAP community of Web sites for a very reasonable daily user fee.

Themes that emerge from the CBNs’ experience include the following:

- Charging a fee for services is an important revenue stream for CAP sites, but it is not the magic bullet for sustainability.
- Economic sustainability packages for CAP sites are being pioneered.

What you measure is what you get, so you better define where you are at and where you want to go

Community networks evolve, and during the initial phases it is awkward to talk about measuring impact. As they evolve they often track network performance. The more advanced organizations mature to the point where they begin to aim for results in terms of economic, social, and quality-of-life goals.

The following are emerging themes with regards to measurement with examples for each:

- CAP sites monitor use of facilities and numbers of people trained. Lumby Community Internet Access (B.C.) maintains statistics on usage, demographics, hours, program operation, assets, inventory, etc.
- Established network organizations often manage powerful electronic networks, and they monitor their use on an ongoing basis. For network monitoring, WEDnet uses several software packages: WhatsUp Gold (Ipswitch), Net Health (Concord), and HP Openview, in co-operation with its vendor
partners. At IAO/COIN they track network backbone performance (traffic and transactions).

- The value of the awareness created by community networks is significant to private carriers in that they benefit from the stimulated demand. As was mentioned earlier, the actual value of that demand stimulation is about to be measured. NEONet (Ontario) is independent of carriers or equipment vendors.

- What is less often measured is what people do with the acquired knowledge and skill. At Eastman Community Computing (Manitoba), they track what happens to people they train. They also track those who leave or drop out: some go off to work, others change schools, others start a business. IAO/COIN and the University of Guelph measured the relative change in knowledge and skills by CAP students involved in an innovative partnership program with HRDC (Ramírez et al., 2000).

- Success stories communicate real-life impact (results) on people’s lives, communities, and organizations; they merit as much attention as quantitative indicators. The BCCNA’s Web site (http://hp.bccna.bc.ca/capsuccess.html) includes a section with about 18 success stories, many of which are CAP sites. The Coast Cariboo Chilcotin Learning Network (B.C.) feels that capturing stories in written and video formats is where the future lies. They already have a streaming server and are planning to do Webcasting in the near future. People have been trained at a CAP site on movie-making and could easily be put to work documenting experiences by video as an evaluation effort. At the Estevan Community Access Project (Saskatchewan), the community has developed “habits of collaboration,” which a representative of the Estevan project considers the most important thing. People have learned to work together. It is very rare in most communities for economic development players, representatives from government, education, and libraries, and members of the private sector to work together on any one thing.

- People, technology, applications, and programs change, and it is increasingly difficult to predict all outcomes. As goals shift, performance measurement approaches need to be flexible. At the Estevan Community Access Project (Saskatchewan), they want to sustain “changeable objectives.” Originally they thought that the money and the technology were going to be the big problems. However, they soon realized that the technology was something they could figure out. On the other hand, the human element—the institutional territoriality—remains an ongoing challenge.

**Defining what to sustain and how to measure performance is neither easy nor inexpensive**

Project planners and policymakers need performance measurement tools to demonstrate that funds are contributing to policy goals and priorities. Predicting what will happen with an investment is the hallmark of planning and evaluating. However, when the investment addresses a cross-cutting theme such as communication and information, the challenge of measuring performance becomes complex. Not only are multiple dimensions of people’s lives affected, but also the outcomes are
not entirely predictable, especially as many of the stakeholders have yet to fully appreciate and utilize the technologies.

The emerging themes in relation to performance measurement are as follows:

• While performance measurement is valued, most case organizations feel they require specific funding to address this component adequately.
• Performance measurement is not typically integrated within a course-correcting management orientation for a project.
• Many CBNs will welcome examples of approaches and methods that are proven and workable.
• A partnership with a university is a proven mechanism to enhance performance measurement.
• Many case organizations focus on tracking network use and event-specific outcomes. Results to users and communities, or knowledge and skill gains, are less often measured. These cases where the organization offers training courses for credit do track the performance of the trainees.
• The notion that there will likely never be a single, simple evaluation framework is shared by many CBNs. Instead, developing a set of common guiding questions and an acknowledgment of the major dimensions that need attention may be a starting point.
• There is a gap between the theory on performance measurement and practice. There is scope to demystify evaluation and link it to basic management practice, while acknowledging it is not simple. In particular, the evaluation as a learning process merits more attention at the practical level.
• Most case organizations are keen to brainstorm on approaches and performance indicators jointly with peers and funding agencies. (This collaboration would ideally include federal, provincial, and municipal agencies and programs.)

Community engagement, performance measurement, and sustainability: Three legs for the same stool

Community engagement is both the starting point for community networking and the foundation for sustainability and performance measurement. These seemingly separate issues are truly like the three legs that hold a stool together. The experiences reported in this paper suggest that community-based networks are innovative, adaptive, and able to adjust policies to suit the needs of the people, organizations, and communities they work for. These organizations have gained the mandate and trust to advise on, demonstrate, build, and put technologies to work toward communities’ goals and needs.

This article provides examples of how community-based networks are implementing these community services aided by modern ICTs. To make this happen, however, the community-based networks have successfully put people and organizations on centre stage and given them the opportunity to decide how to harness the technology. Our data confirms how CBNs enhance what Pigg (2001) refers to as technologically mediated information infrastructure. This demand-driven
process brings together a number of services: awareness creation, consultation, training, support, and counselling. Our findings support the notion that information and communication technology has potential if the services respond to communities’ needs; the process cannot be technologically driven. “ICTs have many revolutionary implications, but in order to achieve their full potential benefits it is necessary to focus on user-oriented and cost-effective applications rather than on technology-driven applications” (Mansell & Wehn, 1998, p. 95)

The “mediating” role CBNs offer is provided by neither the private sector nor the funding agencies of federal or provincial governments. The value of this community-driven process is essentially an educational one and an economic one in that the networks are enhancing an educated demand for ICT services.

The analysis of users’ needs is essential as is consideration of the factors that may exclude them from participating in the design and implementation of applications. User representatives must be involved in all stages of ICT application development if the users themselves cannot be involved directly. The range of capabilities among potential users must be taken into account in the process of designing and implementing new applications. (Mansell & Wehn, 1998, p. 95)

This study points toward the need to support community-based networks in exploring creative and affordable tools to track their performance, comprising quantitative and qualitative impact on people’s lives. Community networks consistently voiced an interest in having opportunities to explore different impact assessment methodologies. There is an interest in becoming more involved in tracking impact, for it is clear that funding will be increasingly dependent on being able to show results. The challenge remains, however, to develop methodologies that also account for unique circumstances and unexpected results. For example, the use of video technology to capture real-life stories or personal anecdotes is one area that has yet to be fully explored as a complement to quantitative approaches (Ferreira, Ramírez, & Walmark, 2004). Another inspiring view is the notion of “effective use” as a way to ascertain the contribution of the technologies on communities (Gurstein, 2003).

While community-based networks are not entirely dependent on donor and government funds, there is a role that the government could play in providing consistent support specifically targeted to community engagement, performance measurement, and sustainability. Widespread interest exists among the organizations contacted across Canada to explore performance measurement and sustainability issues in a creative manner. There is also evidence that this effort can be a creative and exciting learning experience. The International Development Research Centre (IDRC) has pioneered some brainstorming efforts to demystify evaluation. Evaluation is both complex and powerful, and collaborative activities that bring funding agency representatives and practitioners together to explore the challenges on an equal footing may be an important next step.
Notes
1. This paper summarizes two studies commissioned by Industry Canada’s Smart Communities program.
2. The Smart Communities Demonstration Project initiative was a nation-wide competition to select 12 “world-class” Smart Communities—one in each province, one in the North, and one in an Aboriginal community (http://smartcommunities.ic.gc.ca). Selected projects received up to $5 million in program funding over three years to support their Smart Community vision. They are also gaining valuable experience and knowledge by networking with other selected demonstration projects—and international recognition.
3. The Community Access Program (CAP) was the first out of six pillars of the federal government’s Connecting Canadians vision: Canada-On-Line: Getting Canadians Connected; Smart Communities; Canadian Content On-Line; Electronic Commerce; Governments On-Line; and Connecting Canada to the World (http://www.taybridge.com/mtc/e2.htm).
4. For example, in the late 1960s and early 1970s Canadians, through the work of the National Film Board of Canada, developed the “Fogo Process” and the related “Challenge for Change” initiative where community members with access to video production tools produced their own “video white papers” and documented their community development efforts so that others in their own communities, and across Canada, could hear their voices and learn from their experiences (Quarry, 1994; Snowden, 1974; Williamson, 1998).
5. La Red de Telecentros en América Latina y el Caribe (Telecentre Network for Latin American and the Caribbean, somos@telecentros) has developed a Web site (http://www.tele-centros.org) that includes a chapter on monitoring and evaluation. The following are relevant points from their experience:
   • Monitoring, evaluation, and impact assessment are complementary activities.
   • The three have an important learning dimension.
   • The social impact of ICTs is closely linked to the extent to which stakeholders have been involved in exploring their potential and deciding on how to utilize them.

References


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