

# **The Canadian Research Alliance for Community Innovation and Networking (CRACIN): A Research Partnership and Agenda for Community Networking in Canada**

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## **Abstract**

*The Canadian Research Alliance for Community Innovation and Networking (CRACIN) is a collaborative partnership amongst academic researchers in Canada, international researchers in Community Informatics, the three principal federal government departments promoting the "Connecting Canadians" agenda, and community networking practitioners in Canada. CRACIN's substantive goal is to review the progress of community-based information and communications technology (ICT) development in the context of Canadian government programs promoting the development and public accessibility of Internet services. Central issues to be explored include the sustainability of community networking initiatives, along with an examination of how the Canadian community-based initiatives contribute to: the amelioration of 'digital divides'; the enhancement of economic, social, political and cultural capabilities; the creation, provision, and use of community-oriented learning opportunities; and the development of community-oriented cultural content, open source software, learning tools and broadband infrastructures. The over-arching goal of our research is to begin the systematic documentation and assessment of the development of community-oriented ICT capacity and services contributing to local learning, to the strengthening of relations in and between communities, and more generally to community-focused social and economic development in Canada.*

## Introducing CRACIN

The Canadian Research Alliance for Community Innovation and Networking (CRACIN) is a three-year project funded by the Canadian Social Science and Humanities Research Council's (SSHRC) Initiative for the New Economy. It brings together leading Community Informatics researchers from across Canada and internationally to review the progress of community-based information and communications technology (ICT) development in the context of, among other things, the main Canadian government programs promoting the development and public accessibility of Internet services. Under the Federal Government's 'Connecting Canadians' agenda, several hundred million dollars have been invested in funding thousands of non-profit and community-based organizations to help Canadians communicate electronically, both locally and globally, as well as to access information services and resources that strengthen participation in contemporary economic and social life. We believe that this has resulted in significant benefits to Canadians and has positioned Canada on the leading edge in promoting community networking (CN) as a key element of the 'New Economy'. However, so far there has been very little systematic research documenting or assessing the effectiveness of these initiatives, synthesizing "lessons learned" from these efforts (particularly those that might be of interest in guiding future related programs nationally and globally), or, most importantly, placing these efforts into a wider research and knowledge context so as to determine how these valuable public services can be sustained into the future.

CRACIN is a collaborative partnership amongst an interdisciplinary mix of academic researchers from universities across all regions of Canada, along with international researchers in Community Informatics and ICT for economic and social development policy, the three principal federal government departments promoting the "Connecting Canadians" agenda, and community networking practitioners and advocates from seven of the major Canadian CN initiatives. (See Appendix 1 for a list of CRACIN members).

Central issues to be explored include the sustainability of community networking initiatives, along with an examination of how Canadian community-based ICT initiatives contribute to: the amelioration of 'digital divides'; the enhancement of economic, social, political and cultural capabilities; the creation, provision, and use of community oriented learning opportunities, especially for locally relevant employment skills; and the development of community oriented cultural content, open source software, learning tools and broadband infrastructures.

The over-arching goal of our current research is to begin the systematic documentation and assessment of the development of Canadian community-oriented ICT capacity and services as they contribute to local learning, to the strengthening of relations in and between communities, and more generally to community-focused social and economic development. The research includes a coordinated series of in-depth structured case studies of selected Canadian CN initiatives that have received significant funding from a variety of federal government programs. These studies are being undertaken in collaboration with community partners using a participatory action research approach. In addition, there will be thematically focused studies providing research linkage across several case study sites. Providing a framework for the cases will be a broader set of studies, in particular an evaluative survey administered to a broad base of CN initiatives and intended to provide a more quantitative basis for policy recommendations. The various studies will be assisted and integrated through a series of workshops that link community and government partners with the Canadian and international collaborators around the major policy themes.

In particular, CRACIN will examine how the Canadian programs related to community-based ICT initiatives contribute to:

- the amelioration of 'digital divides', notably those along the lines of age (seniors and children), income, language, education, gender, (dis)ability and location (e.g. rural versus urban) (Birdsall, 2000; Graham, 2002; Norris, 2001; Rideout, 2002);

- the enhancement of economic, social, political and cultural capabilities of community members (Borgida, 2002; Sen, 2000);
- the creation and use of locally-oriented cultural content valued by community members (Pigg, 2001);
- the provision and use of on-line social services of specific benefit to community members (Scott, 2001);
- the provision of community-oriented learning opportunities, especially locally relevant job skills (Bishop, 2000; Hargittai, 2002);
- the creation of appropriate governance and management practices for CN organizations (Paquet, 2001; Sassen, 2000);
- the development of community-oriented open source software and learning tools (Openflows, 2003; Preece, 2000);
- the development of community-oriented broadband and wireless (WiFi) infrastructures (Gabe, 2002; Malecki, 2002);
- the longer term sustainability of community networking initiatives (Clark, 2003; Kavanaugh and Patterson, 2001; Van Winden, 2001);
- community networking and “effective use” (Gurstein, 2003); and
- the role of community networking in community innovation (Gurstein, 2002).
- In pursuing these research objectives CRACIN is also aiming at a range of broader goals:
  - to better establish the nascent field of Community Informatics as a research and teaching area in Canada and worldwide, through the analysis of grounded field studies, and developing curriculum materials derived from these studies;
  - to enhance the research capacity of community based ICT-enabled organizations for self-evaluation, and to reinforce decision-making and problem-solving capacity in their communities;
  - to influence the development of government policies, programs and funding priorities concerning community-oriented ICT initiatives;
  - to promote the sharing of knowledge, resources and expertise between universities, government policymakers, and organizations in the community;
  - to explore the social impact, implementation, technological innovations, and trends of the New Economy through social science theories and methodologies.

### ***The Significance of Community Networking and the Need for Research***

There is a strong consensus that the rapid development and extensive deployment of information and communications technologies (ICTs) represents a central feature of contemporary economic and social development world wide (Castells, 1996, 2001; Côté, 2001; Loader, 1998). Community networking represents one of the most interesting experiments in the use of ICTs to strengthen local, geographically-

based communities. While there are many forms of CN, they have in common the broad ideals of promoting economic and social participation by enhancing the informational resources available to people living together in compact territories—cities, towns, and neighbourhoods (Gurstein, 2000; Keeble and Loader, 2001). CNs complement commercial on-line services by their distinctive orientation to the combination of: 1) local information resources, enterprises, services, culture and people; 2) equitable access to network services at little or no cost to all community members, and 3) community economic development by strengthening local networks of exchange and mutual support (Moll and Shade, 2001).

Canadian community-based on-line public access initiatives date back to the 1970s (Clement, 1981). CNs flourished in the mid-1990s with the rapid growth of computing and the Internet, eventually serving between 250,000 and 600,000 members through 35 community networks (Graham and Shade, 1996). While these numbers have since fallen as the options for cheap Internet access has widened, the volunteer, even entrepreneurial ideal of enlivening local communities through ICTs retains its promise to become a vital source of innovation for the New Economy.

In the mid-1990s, with the rapid growth and prominence of the Internet, many leading industrialized nations developed policies and funding programs to promote public access to the internet and ameliorate the emerging 'digital divides' (Hague and Loader, 1999; Loader, 1998). In Canada this was pursued most visibly through the federal "Connecting Canadians" agenda, launched in 1995, with the goal was making Canada the most 'connected nation on earth'. Led by Industry Canada, the "agenda" included such programs as SchoolNet, the Community Access Program (CAP), VolNet, LibraryNet, and Smart Communities programs. More recent federal and provincial programs have pursued related goals (e.g. Industry Canada's Broadband for Rural and Northern Development (BRAND); the National Satellite Initiative (NSI); Human Resource and Skills Development Canada's Community Learning Networks; Government On-line; and SuperNet project in Alberta). Altogether, several hundred million dollars were spent through these programs in support of roughly 10,000 community-based ICT initiatives ranging from community web portals, public Internet access sites and community technology centres to computing hardware for schools and network infrastructure for rural and remote communities. Today, CNs in Canada complement commercial on-line services through a distinctive orientation to local geographical communities and a commitment to universal access to network services, digital literacy, and community development and civic participation (Moll and Shade, 2001). While these programs have complex and sometimes contradictory objectives, they all share the declared aim of stimulating economic activity and promoting social cohesion.

Remarkably, there has been little publicly documented assessment of these programs to identify what has been achieved, what difficulties have been encountered, the effect of these programs on community activities, and what policies/programs might now be appropriate in light of contemporary Internet developments (Gurstein, 2004: 235). The federal government's preoccupation with access and hardware (225) is mirrored in the kind of research it has produced. Most Statistics Canada and Industry Canada studies, for example, have focused on the narrow question of technical "connectivity" in households, businesses and the public sector. Such a preoccupation with technical access ignores larger questions such as how these government programs have interacted with community-based ICT initiatives to address the issues of the New Economy? In short, has providing technical connectedness via public access to community-oriented Internet services promoted sustainable social and economic connectedness and development? In addition, the programs have thus far been pursued with no real linkages to academic research, Canadian or international, assessing the outcome of such policies and programs, which could be fed back into them in the form of best practices (235). It is both the research gap and absence of linkages among stakeholders characteristic of the "Connecting Canadians" initiative that CRACIN seeks to fill.

The need for research is all the more compelling in the context of a number of challenges currently facing CNs in Canada and elsewhere. With the narrowing of the 'digital divide' and Internet access rates approaching 70 percent in Canada, the continuing relevance and necessity of public Internet access services, (many of which were launched in the mid 1990s when Internet penetration rates were much lower and the costs of commercial access higher) have been called into question. Both federal and provincial governments appear poised to withdraw significantly from previous involvement in supporting CNs and

Internet accessibility. In fact, a general retreat was sounded in 2001 with the federal government's lukewarm response to the recommendations of the National Broadband Task Force, which urged the government to embark on an ambitious broadband infrastructure program to service rural and remote communities. More recently, in the 2004 federal budget, Speech From the Throne, and Liberal Party election campaign platform ICT policy dropped off the radar screen. ICT policy was barely mentioned in these documents, where it had been a regular fixture for nearly a decade. The major "Connecting Canadians" programs, such as CAP, SchoolNet, BRAND and NSI are being wound down or closed altogether. Two year extensions on CAP and SchoolNet were recently announced, but with greatly reduced funding and new strategic directions away from general public access to focus on "digital divide" communities. The BRAND broadband program has allocated its available funds, despite the fact that thousands of rural and remote communities remain unconnected. The NSI recently announced plans to connect just 52 communities via satellite. Further investments are being contemplated, but over a 10 to 15 year time period.

At the provincial level the situation is somewhat more mixed. While the Alberta government is proceeding with its \$300 million SuperNet project aimed at connecting roughly 400 rural and remote communities to a publicly-funded high speed network, the province of Ontario recently announced the suspension of its two key rural broadband initiatives - Connect Ontario: Partnering for Smart Communities (COPSC) and Connect Ontario: Broadband Regional Access Program (COBRA) - pending a major program review.

Suggestive references to the importance of the "social economy," or Third Sector, by the federal government provide one of the only glimmers of hope that community-based ICT initiatives figure somewhere in the government's future plans. At the very least, the arrival of "social economy" discourse on the federal scene represents a potential opportunity for CN researchers and advocates to continue to engage with policymakers, by documenting and demonstrating the benefits and advantages of CN within this new rhetorical and programmatic frame; provided that the government's commitment to the voluntary sector as a vehicle for community-based economic, social, cultural and civic development is genuine.

With the imminent withdrawal of the federal government from community networking and public Internet access promotion, thousands of CN initiatives across Canada face a crisis of sustainability, since most of them rely heavily on government funding, thereby threatening to undermine the significant progress recently made in closing the "digital divide". In this context of policy and funding uncertainty, CRACIN research will be all the more important to document and analyse not only what has been achieved under these programs but, crucially, what may be *lost* (in terms of the distinctive contributions of community-based ICT initiatives) if governments retreat from the CN field altogether.

### ***Program of Research***

The project will include a) case studies that focus on in-depth site-specific community-based technology initiatives; b) broad-based studies spanning all seven case study sites, and c) integrative knowledge distillation activities aimed at framing the case and broad-based studies and linking them across the main research themes and policy development issues.

An evaluation framework is being constructed on a participatory design/action research platform with a community partner. Participatory design processes enable two-way institutional learning between the community partner and the researcher, ensuring that all parties are engaged in the design, development and analysis of the CN project and are able to garner meaningful and relevant outcomes. Methods include qualitative measurements such as interviews, surveys, focus groups, and participant-observation, and quantitative measures and multi-modal tools to create a series of flexible indicators that can encompass diverse program goals while enabling comparisons across multiple sites. This model will be used as a basis for the larger CRACIN research and evaluation of the project-based case studies.

The seven case study sites consist of the following:

- Vancouver Community Network (Vancouver);
- Alberta Library/Supernet (Alberta);
- K-Net Services (Sioux Lookout);
- St. Christopher's House (Toronto);
- SmartSites/SmartKids (Ottawa);
- Communautique (Montreal); and
- Western Valley Development Authority (Nova Scotia).

The sites reflect a range of CN models and regional experience from across Canada.

Specific research projects include those concerning:

- immigrant populations and community networks;
- institutional development and community organizations;
- community learning and human capital development;
- technology choice and infrastructure;
- civic participation and community service;
- rural community broadband development;
- language and local cultural content creation;
- smart communities and community networking;
- intergenerational story-telling;
- community networks as public goods;
- community networking and libraries;
- community informatics: from theory to practice.

## **Theoretical Frameworks**

To a considerable degree the dispersion of information and communications technologies beyond the initial cohort of university, corporate and government users took place in the absence of a theoretical understanding of how, why or under what conditions this was taking place. Only after the practice had become well developed was an attempt made to place these developments in the wider context of social theory. Rogers (1985), in his seminal technology diffusion studies dealt with technology innovation as experienced by local end users. Wellman's on-going research on social networks has given a language and a set of concepts useful for describing some of the processes at work (Wellman and Hampton, 1999, 2001; Wellman, 2002). Studies on community networks and community technology centres have taken a socio-technical stance, often adapted from the tenets of social constructivism and social shaping of technology studies (Bijker and Law, 1994; Dutton, 1999; Kubicek, 1997; Mackenzie, 1999) and have emphasized their contribution to democracy, development of local community and cultural content, social cohesion, and

social inclusion (Kubicek and Wagner, 2002; Servon, 2002; Schuler and Day, 2004, Warshauer, 2003). With the shift to the New Economy dependent on ICT innovations, many scholars have pointed to the need for social science research to contribute to a deeper understanding of this techno-economic paradigm, focusing on changes in the technology of social organizations and upon changes in ICTs that enable social innovation (Mansell, 2002).

Largely absent in the innovation literature is a discussion about democracy and community and a consideration of human activity outside the entrepreneur or the producer (Gurstein 2002). If innovation is to play a role in Canadian society, discussions should be conducted within the framework of democratic systems of governance and decision-making, allowing for an understanding of not only how the government intervenes within economic systems for the production of competitive national advantage, but also how individual citizens engage themselves (or not) with such systems in their daily lives. Given the significant amount of attention paid by governments to the realm of innovation in socio-economic policy in recent years, analysis of how such programs have been used within communities to develop and maintain daily activities is of significant importance to citizens. There are several gaps between social analyses of technological uses and the relations to socio-economic systems and related policy contexts, and a need to assess such relations, which is one of the principal goals of our research alliance (De la Mothe, 2000; Kahin and Wilson, 1997; Ruttan, 2001).

### ***Community Informatics***

As a new multidisciplinary field of academic study, community informatics is concerned with the study of the enabling uses of information and communication technologies in communities – how ICTs can help achieve a community’s social, economic, cultural, or political goals (Gurstein 2000). Community informatics brings together the perspectives of a variety of stakeholders – community activists and groups, policymakers, users/citizens, artists, and a range of academics working across disciplines (communication studies, cultural studies, information studies, sociology, political science, urban studies and geography, and area studies).

An emphasis on community is implicitly fore-grounded: community informatics “combines an interest in the potentially transforming qualities of the new media with an analysis of the importance of community social relations for human interaction” (Keeble and Loader, 2001:3); it is “concerned with the development, deployment and management of information systems designed with and by communities to solve their own problems” (McIver, 2003:33); and via incorporation of “the user and his [sic] community into the system design process introduces new “stakeholders” into an extended approach to ICT design, development, and implementation” (Gurstein, 2000:6). Community informatics prioritizes the social requirements of ICT use in communities and acknowledges a bias reflected in valuing “public goods” and the potential for human growth and development (Bieber et al., 2002: 3).

Six areas that encompass a community informatics approach include: access facilities, service design, tele-centre or community access centre design, design of the community system, online service delivery, and online support. Applications of community informatics include community Internet access, community information, online civic participation, online community service delivery, community economic development, education/training/learning networks, community and regional training, and tele-work.

A rich literature has developed in community informatics, which covers a broad range of issues, focusing on case studies in North America, Europe, Latin America, and developing countries (Gurstein, 2000; Keeble and Loader, 2001; McIver, 2003; Taylor, 2004). These issues, broadly speaking, include:

*Access* – how are access needs met in particular communities? Are community nets able to bridge the ‘digital divide’? (Access here defined as both access to the technical and the social infrastructure). Design is important here – are the concepts of user-centred design, universal design and participatory design utilized, taking into account various linguistic and literacy barriers?

*Community economic development* - how are community nets contributing to this?

*Social cohesion* – are community nets contributing to social inclusion? What has been the effect of community and civic participation?

*Development* – are tele-centres and other public access facilities meeting the needs of those in developing countries?

*Learning* – how are community nets being used or contributing to digital literacy?

## Methodology

### *Methodologies for Community Informatics*

Assessments of community networks and community technology centers tend to examine social capital, individual empowerment, strength of democracy, sense of community, and economic development opportunities. Most CI researchers agree that the social influences of ICTs need to be considered. CI methodologies are thus moving away from measures of access and looking instead at patterns of use. One model encourages a multidisciplinary approach by examining the interconnected nodes of design, access, critical mass and impacts. In order to predict the effectiveness of CI projects an autonomy/harmony model was created. When a project is funded and managed within its community, its autonomy level is higher and so is the likelihood of its success (Romm and Taylor, 2000). Fewer conflicts are equated with higher harmony and again, a greater likelihood of success. Methods of research include focus groups, interviews with users, technical staff and administrators, (online) surveys, email questionnaires, case studies, reviews of websites, content analysis of websites, usage statistics and site observation (O'Neil, 2002).

Venkatesh (2003) advocated the importance of understanding dynamic elements of communities before researching them and he identifies origins, stabilization and transformation as the three segments of the lifecycles of communities. CNs should be analyzed as artifacts developed within a given historical and social milieu and their development is best analyzed at both macro- and micro-social levels. Because CNs are grounded in and institutionalized by pre-existing technology and technical support arrangements, studies of CNs should begin with the community and consider its size and resources (including extra-local ones), as well as the nature of ties between constituents including how these create webs, social hierarchies and power structures.

Pinkett (2003) has examined how individuals and families comprising a community within a low-to-moderate income housing development use ICTs to support their interests and needs in a project seeking to leverage indigenous assets rather than perceived needs. The study's theoretical framework integrates 'socio-cultural constructionism'—which suggests that individuals and communities are enhanced by shared constructions that resonate with the social environment and the culture of the community—and 'asset-based community development', a model for community building that assumes that social and economic revitalization must begin with what already exists (366). Through this framework the question which emerges is how community social capital can be increased, and how community cultural capital can be activated through integrating community technology in the context of a community building initiative. Investigation methods included preliminary and post-assessment surveys and direct observation.

Looking at "smart projects" in Canadian communities, Ramirez et al. (2002) examined the three-way and mutually supportive relationships between sustainability, performance measurement, and community engagement. Performance measures are often difficult to finance and are seen as an additional activity, not a core management function. Evaluations of these sites may be long or short term and include surveys for baseline data collection as well as video-based performance assessment (the value of this approach is not yet acknowledged by network funding agencies).

## Conclusion

The CRACIN project has been inaugurated at a critical juncture in the history and development of CN and CI in Canada. The last decade has been marked by laudable government efforts to close the digital divide and explosive growth in community-based ICT initiatives as a result. Together, these have led to many benefits for communities across the country. However, with the realization of increasingly affordable and widespread technical access (and resulting questions about the continuing need for public access initiatives), uncertain and shifting government ICT policies and programs, and the sustainability of thousands of community-based ICT initiatives in question, the need to systematically document and assess the accomplishments, unique contributions, and challenges of CNs in Canada has seldom been more compelling. With the narrowing of digital divides in Canada and elsewhere a shift in focus from access in the technical sense to access in a richer, socio-technical sense, such as that developed in Clement's and Shades' *access rainbow* model (Clement and Shade, 2000) or Gurstein's concept of *effective use* (Gurstein, 2003), is called for on the part of CN researchers, policymakers and practitioners alike. Mere access is not the end of CN in itself but, rather, the beginning of the pursuit of real end - which is to enable the accomplishment of communally-identified goals in economic, social and cultural life. *How* are CNs *using* ICTs to meet the economic, learning, civic and cultural needs of communities? What successes have been achieved and what challenges do they face? What policy and program changes at the governmental level will best support the effective use of ICTs to build community in Canada? CRACIN aspires to generate both practical and theoretical responses to questions such as these, and, by feeding into other research networks and bodies of CN/CI literature emerging internationally (e.g. Community Informatics Research Network, CIRN), to share research and practical experiences with CN/CI academics and practitioners in other jurisdictions faced with similar challenges.

## APPENDIX 1 - CRACIN Partners

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Community Informatics Research Network (CIRN) - International

### COMMUNITY PARTNERS

Telecommunities Canada  
Vancouver Community Network  
Alberta Library/Supernet  
K-Net Services  
St. Christopher's House  
SmartSites/SmartKids  
Communautique  
Western Valley Development Authority

### GOVERNMENT PARTNERS

Canadian Heritage, (Strategic Research and Analysis)  
Human Resources and Skills Development Canada, (Learning Policy Directorate)  
Industry Canada, (Electronic Commerce Branch & Information Highway Applications Branch)

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