



The Journal of Community Informatics

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Table of Contents

Michael Gurstein <i>Editorial: Welcome to the Journal of Community Informatics</i>	2
Brian Beaton <i>The K-Net Story: Community ICT Development Work</i>	5
Andrew Clement, Michael Gurstein, Graham Longford, Robert Luke, Marita Moll & Leslie Regan Shade <i>The Canadian Research Alliance for Community Innovation and Networking (CRACIN): A Research Partnership and Agenda for Community Networking in Canada</i>	7
Geoff Erwin & Wallace Taylor <i>Social Appropriation of Internet Technology: a South African platform</i>	21
Ashok Jhunjunwala, Anuradha Ramachandran & Alankar Bandyopadhyay <i>n-Logue: The Story of a Rural Service Provider in India</i>	30
Michel J. Menou, Karin Delgadillo Poepsel & Klaus Stoll <i>Latin American Community Telecenters: "It's a long way to TICperary"</i>	39
Kenneth Pigg & Laura Crank <i>Building Community Social Capital: The Potential and Promise of Information and Communications Technologies</i>	58
Scott S. Robinson <i>Towards A Neo-Apartheid System Of Governance In Latin America –Implications For The Community Informatics Guild</i>	74
Tony Salvador & John Sherry <i>Local Learnings: An Essay on Designing to Facilitate Effective Use of ICT s</i>	76
Sergei Stafeev <i>Role of Community Informatics in Socio-Cultural Transformations in Russia and the CIS</i>	84
Sue Webb & Kate Jones <i>Women Connect: Phase 2 Report</i>	89

In the next issue of the Journal of Community Informatics (January, 2005):

**"Sustainability and Community Technology"
Papers from the Prato '04 conference of the
Community Informatics Research Network (CIRN)**

Editorial: Welcome to the Journal of Community Informatics

Welcome to the first issue of the Journal of Community Informatics!

Community Informatics (CI) – enabling communities with Information and Communications Technologies (ICT) – is a very new development in the academic world, but in reality a very old one in the daily life of communities.

It is very new in that only since the arrival of the Internet and low-cost personal computing could those without a direct professional or financial interest begin to engage with and *appropriate* Information Technology. It is very old, in the sense that *information* and *communications*, and using *technologies* to support these, are as old as communities themselves.

Equally new, of course, are the range of opportunities (and risks) which communities confront for technology-enabled change, development, and ultimately for empowerment (or for the loss of power and an increase in dependency). And these opportunities (and risks) arise in relation to both the community's immediate political and social environment and to their larger national and global context.

The technology, for better or worse, binds, links and *networks* communities into a larger world, and as the larger world is transformed with ICT, so communities must evolve and adapt in response. In this there are choices, and communities can either anticipate and through *effective use* realize their goals and objectives by means of these immensely powerful tools or they can adapt and adjust themselves as best they can to a technology-enabled future imposed on them by others.

CI is concerned with these processes of communities adapting and transforming, networking and binding, responding to and becoming the authors in the unending and increasingly rapid flow of information within and among communities and between communities and the larger society. CI addresses this process of adaptation and transformation through a systematic concern with the “how” — the infrastructure, the devices, the connectivity of enabling and empowering; the “how to” — the training, the community and organizational development; the “necessary conditions” — the funding, regulatory environment, the policy frameworks; and finally and perhaps most importantly the “why” — the goals and objectives of enabling and empowering communities.

CI represents a confluence between theory, practice and policy — between those who research and those who implement; between the theory and findings, and the policy and funding frameworks that in large part determine the available strategies for supporting ICT in communities as elements of development and innovation; and between the practice and policy of enabling communities and others to feed-back and feed-forward into strategies for sustainability and supportive regulatory regimes. Equally, CI is a disciplinary hybrid — linking hardware, software and telecommunications as infrastructure (and superstructure); with the social sciences, social and community development; and the professional activities of law, politics, accounting and administration.

Communities are the bedrock of human development. They ensure the transmission of language and culture. They provide for human security through knowing one's neighbours. They are the crucible for effective democracy through inculcating values of civic responsibility and active and effective citizenship.

As the technology supports an aggressive, even manic globalization, so *community* and *communities* become of even greater importance. And in this, social and community development becomes the practice through which communities become enabled, self-organized and self-transformed, with research and self-understanding as necessary resources in this process.

The Journal of Community Informatics (JoCI) has as its mission to present the work of those concerned with enabling communities with ICT, to provide a forum for the creation of a professional and critical discourse on the strategies and impacts of this enterprise; to help create a framework and a legitimation for those who choose this as the focus of their professional efforts; and to act as one hub among many for linking the various networks of those with interests related to community-based technologies. The Journal will include an identified section for professional peer-reviewed papers as a means to create and carry-forward a tradition of the highest quality and broadest base of systematic research. It will also include an opportunity for discussion and feedback from practitioners and policy analysts as to the application and significance of this research for practice and policy. The Journal finally, will look to act as a focal point for the broader range of professional but non-academic research with a concern for CI.

Much of the most interesting and valuable materials in this area (as in other areas where there is a confluence of the researcher and the practitioner) are produced not by academic researchers but by practitioners working for and through agencies and enterprises directly engaged in the practice of enabling communities. Our intention is to provide a means for making this available to the academic and practitioner communities and a structured opportunity to comment on and critique this work as appropriate.

In the definition of *community*, the Journal will not be restrictive. We consider the issue of how *virtual* or *electronic communities* can or do function as *communities* to be one which is open and an object of research including in and through this forum. In the larger frame, it is my personal belief that there is a necessary convergence between enabling physical and virtual communities through ICT and that the ultimate power of the technology for communities arises when the use of the technology as between the physical and the virtual becomes seamless and invisible... But more of this in later issues...

Also, as we go forward with this most exciting undertaking, I am reminded of a speech I gave a couple of years ago introducing Community Informatics to a technical audience. A young academic came up to me afterwards and was extremely critical of an approach which gave communities additional power through technology. As we discussed further, it emerged that he was from a minority community in Europe which had experienced and was currently experiencing significant discrimination at the hands of the dominant community particularly at the local level. The last thing that he wanted was to see that majority community have access to additional power to identify and create obstacles to the social development of his ethnic minority. I pointed out to him that the technology equally could empower him and his compatriots but that issue has remained with me and does, I think, reinforce the significance of the continued awareness of the ethical dimensions of our work.

This Inaugural Issue of JoCI is special in that all of the articles are a response by the Editorial Group to an invitation to give a context to our enterprise through position papers, scholarly papers and other materials. And this I believe it does. In the issue that follows we have from our editors:

- A pointer and introduction (in part through video) to the work of K-Net, an aboriginal group in Northern Canada which is innovating in the use of ICT for education, for administration, for health and perhaps most importantly, is demonstrating the way in which ICT truly can enable AND empower communities to move beyond traditional barriers and impediments to find a new and more equitable role in the Information Society. (Beaton)
- A description of an ambitious current research project examining the impacts and outcomes of government support for community technology with an overall objective of providing insight toward the future of such programs and their impact on the larger society (Clement, Gurstein, Longford, Luke, Moll, and Shade)
- A presentation of a most important rural ICT initiative whose current success is transforming large areas of rural India (Jhunjhunwala, Ramachandran, and Bandyopadhyay)
- An analysis and plan for using a major university in a Less Developed Country as a base for a highly innovative program of CI for community transformation (Erwin and Taylor)
- A highly significant analysis of the current state of the art with respect to Telecentre development in Latin America and where it might go from here (Menou, Delgadillo and Stoll)

- A fine paper examining the theoretical background to community use of ICT and giving most useful directions for future research as well as community practice towards this end. (Pigg and Crank)
- A most original and insightful critique of current thinking and approaches to ICT for Development (Robinson)
- A path breaking approach to applying an analysis drawn from the methods and insights of Social Anthropology to ICT design and development as a response to rural poverty (Salvador)
- A brave and insightful analysis of the opportunities and risks that are attendant to ICT in a most important but largely unknown part of the world. (Stafeev) and
- A document presenting the current “state of play” for a leader in supporting ICT use by women in local communities (Webb and Jones)

Overall we see JoCI as a “Knowledge” enterprise and it will be our intention as the journal evolves to integrate “Knowledge “ techniques and technologies as might be appropriate to support our collective CI efforts.

It should also be noted, that the JoCI is using the Public Knowledge software produced by the Public Knowledge Project at the University of British Columbia. Our intention is that the Journal have the widest possible reader (and user) ship and it was felt that an on-line and Open Source journal would most closely achieve this. Equally, we see the Journal as an element and a resource for the evolving CI community of researchers and practitioners and as such we welcome feedback and suggestions as to how the journal may be more useful and useable by this community.

To conclude, thanks should be given to David Ley, without whose steady and effective work this enterprise would not have reached the current level of maturity; to John Willinsky (of PKP) for giving us support and encouragement beyond the call of duty; to the Canadian Research Alliance for Community Innovation and Networking for providing financial support when it was most needed; to Sergei Stafeev for the layout and design; to the other members of the Editorial team for their feedback and support; and finally to you for having given us your time and attention as we move forward with this collective effort.

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The K-Net Story: Community ICT Development Work

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The Kuhkenah Network (K-Net) provides information and communication technologies (ICTs), telecommunication infrastructure and application support in First Nation communities across a vast, remote region of north-western Ontario as well as in other remote regions in Canada. This private telecommunications network supports the development of online applications that combine video, voice and data services requiring broadband and high-speed connectivity solutions. K-Net is a program of Keewaytinook Okimakanak (KO), a First Nations tribal council established by the leaderships of Deer Lake, Fort Severn, Keewaywin, McDowell Lake, North Spirit Lake and Poplar Hill bands to provide a variety of second level support services for their communities. *Kuhkenah* is an Oji-Cree term for *everyone, everywhere*.

The KO First Nation communities are part of Nishnawbe Aski Nation (NAN), located in northern Ontario, across an area roughly the size of France. NAN includes a total population of approximately 25,000 people. The majority of this population is aboriginal and lives in remote communities with 300-900 inhabitants. For most of these communities, the only year-round access into or out of their area is by small airplane.

[The accompanying video](http://streaming.knet.ca/fednor/brian_beaton3_300k.wmv) (http://streaming.knet.ca/fednor/brian_beaton3_300k.wmv) provides a brief overview of some of the work that has gone into building and sustaining the regional network that supports local community based networks (CBNs). The video was produced by members of the K-Net team working in partnership with George Ferreira, a PhD candidate at the University of Guelph who is completing his thesis work using video material as a medium to present evaluation documentation as well as influence policy and program development (Ferreira, 2004).

This video was created as part of a larger collection of video material that is being used for a variety of applications. On a Saturday morning in December, we went for a drive around my community of Sioux Lookout and spent time to talk about our work, our partners and our understanding about how these networks can develop and why they are important in remote and rural communities. In the video there is a scene where the base of the new 7.3 metre satellite earth station is being built. Today that satellite dish is operational and the pictures and the video story documenting the construction of this infrastructure are now on-line at <http://tech.knet.ca/photos/satellite>.

The production of these videos resulted in several other significant multi-media presentations being produced and shared on-line. The resulting work and presentations are helping others around the world understand the potential and the possibilities for these types of local ICT developments in their own communities. One important product of this work was a multi-media presentation that was produced with the Institute for Connectivity of Americas (<http://icamericas.net>) and other partners and presented at the World Summit of the Information Society (WSIS) in Geneva. The entire presentation is available on-line at http://smart.knet.ca/kuhkenah_flash.html and consists of a collection of case studies that include an Introduction to K-Net and four specialized case studies covering Network Development, Education, Health and Economic Development, along with accompanying video material for each chapter of the production.

Community vision and need have been the driving forces behind K-Net's development. The results impact local communities and the entire region's health, education and economic opportunities. These video productions provide an explanation of the network's history, some of the key players, partners and

accomplishments to date. The videos and accompanying print material demonstrate how First Nations people are finding ways to harness these new technologies to strengthen and support the entire community, including their traditions, language and cultural heritage.

The KO First Nation communities have experienced an impressive amount of development in a relatively short time period. Two of the communities have gone from having one phone for 400 people four years ago, to accessing broadband services from individual homes today. This rapid development of K-Net's technical infrastructure and services, and its impact on local health, education, and economic development is introduced in these videos. The K-Net experience and the stories from the communities and the people involved in this work demonstrate how local needs and demands can drive technology and network infrastructure development.

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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  arch 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

ACADEMIC 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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Social Appropriation of Internet Technology: a South African platform

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Abstract

The social appropriation of Internet technologies is emerging as a research and practice field called Community Informatics (CI). Various research groups (for example Australia, UK, Canada, Latin America, Italy etc.) are contributing to Government's gradual realisation that the enabling of communities with Internet technologies can boost local economic and social development, as well as enhance personal empowerment. Civil society digital inclusion, linked with World Summit on the Information Society (WSIS), is now seen as a necessary component of social development strategy. However, various attempts at such initiatives have met different forms of resistance and various levels of success. Cape Peninsula University of Technology is establishing a research hub in Cape Town as part of the international CIRN (Community Informatics Research Network). This project will aim to establish a research, teaching and community engagement platform in Community Informatics (the social appropriation of Internet Technologies for local benefit) which will link Cape Peninsula University of Technology into a rapidly expanding international area of research and teaching as well as putting it into a national leadership position. Outputs will include demonstrated linkages with local, national and international Community Informatics efforts, the establishment of local projects and entities, the establishment of courses, the attraction of undergraduate and post graduate students, a profile with national and international funding agencies, publications, funding proposals, internal agency recognition in research and teaching, a program of high profile and internationally recognised visiting research fellows and academic sabbaticals. This paper discusses activities towards this South African initiative and experience elsewhere.

Introduction and Background

Information and Communication Technologies (ICTs) are posing fundamental questions for society, government and commerce in economic, social, educational, cultural and democratic processes within and across nation states in terms of access, equity and security. Electronic networks which can operate both inside and outside of nation states with hitherto unknown volume and velocity are challenging and changing the architecture of governance, power and culture (Bollier, 2003, Coleman and Gotze, 2002; Rheingold, 2004)

Many governments and global agencies have recognised the growing issues associated with inequitable ICT access and have provided funded programs aimed at addressing specific needs within nation states. However, there is growing evidence that many of these programs have failed to deliver on their desired aims and that the societal and community-based disadvantages resulting from uneven societal adoption of ICTs are growing (see for example Pigg, 1998; Hewitt and Pinder 2003; Clement, 2000; Gurstein 2003a, 2003b). There is now increased understanding that the provision of ICTs access, either high or low capacity, through government and private sector efforts by itself is insufficient to address the substantial concerns that face society as a direct result of ICTs (Gurstein, 2003a; Pinder and Hewitt, 2002).

Further, growing experience across the world in the application of ICTs in the provision of government services (known as e-government), is showing that the electronic provision of government information and service as for example, through currently available physical ICT access within particular communities, does not appear to be sufficient to meet the broad challenges governments must address for individual societies to move forward in the information economy (Hewitt and Pinder, 2003). In almost all jurisdictions across the world, the take up of electronically enabled government services has been well below expectations even in situations where there are high levels of income, education and Internet connection across their populations (Bertucci, 2003; Dutta, Lanvin and Paua, 2003; Riley, 2003a; Rohleder and Jupp, 2003; West, 2003). Fundamental to these issues is the recognition of concepts of:

- *Effective use* as opposed to *access* (whether this is based around physical, attitudinal, educational, disability, cultural, or integration concepts)
- *Civil Society* and a new contract that binds civil society, public and private sectors into a value matrix (Brussels-EU Chapter of the Club of Rome and Factor 10 Institute, 2002)

These issues provide substantial challenges for the traditional and familiar forms of governance and business education, as well as for issues related to the form and function of service delivery and forms of engagement with citizens, the private sector and civil society. The traditional incrementalist and efficiency-based approaches within specialist agency structures are now under pressure from increasingly ubiquitous ICT applications that have little respect for professional, organisational, nation state, social or cultural boundaries.

In recognizing these issues and their impacts on the developing world the United Nations (UN) through the International Telecommunications Union (ITU) delivered the first World Summit on the Information Society (WSIS; <http://www.itu.int/wsis>) in Geneva in December 2003. Fundamental to this event and the planning for the next WSIS in Tunis 2005, is the recognition of the concept of civil society alongside business and government as a triumvirate to deal with the huge problems of inequity that ICTs are delivering across the world. In defining responsibility for civil society, planning processes have clearly defined higher education as an essential leader.

The emerging context for Social Appropriation of ICTs

ICTs are simultaneously both incrementally and fundamentally changing the working, social and personal lives of many people in developed countries and developing countries alike. The technologically deterministic view of ICT diffusion, particularly in the development of e-government, is now being

challenged. As the many examinations of 'e-readiness' are finding, the major current impediments to adoption of e-government are in the demand and the aggregation of supply and demand domains. Many of the ICT applications developed for organizational use have not been successfully embedded into the demand and demand aggregation domains and are being found wanting in such areas. Hence the social appropriation of ICTs refers to the duality of redefining application design and of embedding the technology in social processes in civil society (for example see Surman and Riley, 2003). In short it is about customer-driven technology.

In beginning to examine the emerging frame for ICTs in a societal sense as opposed to a technology or organizational-efficiency lens, it is useful to consider the comparatively recent evolution of Information Systems (IS) as a discipline and its alignment with Management Information Systems (MIS). This can then act as a basis for examining the emergence of Community Informatics Systems (CIS) and Civil Society (CS) as a key area of the Information Society. IS has been the overarching term used to describe the information software systems used for organisational applications. The traditional discipline of Information Systems is currently undergoing a major evolutionary step into societal applications; as opposed to organizational applications in business, education and service delivery. Harris (2002) has proposed a discussion framework for the emergence of Information Systems as a discipline (see Table I). While the time frames therein can be considered approximate, depending upon location, and the descriptors used are unnecessarily prescriptive Harris does, nonetheless, chart a development base for Information Systems as a discipline. The point that the Information Systems discipline is now increasingly moving outside of organisational boundaries and into society is also made. This society domain is much more difficult to define in terms of both form and function at the operational level. In doing so, Information Systems is mixing with hitherto separate and unfamiliar disciplines that include community engagement.

Dominant Technology	Information Systems Locus	Work group focus	Dominant referent discipline	Scope
1960–70 Main Frame Computers	Electronic Data Processing	Clerical Staff	Computer Science	The Organisation
1970–80 Mini-Computers	Management Information Systems	Managers	Management	
1980–90 Personal Computers	End User Computing	Knowledge Workers	Organisational Behaviour	
1990–2000 Networks	Strategic Information Systems	Shareholders	Economics and Marketing	
2000 The Internet	Community Informatics	Citizens	Social Science	Society

Table I: Information Systems as an Emerging Discipline

Source: Harris (2002)

The term Community Informatics (Gurstein, 2000) has recently emerged to describe the use of ICTs for local community benefit and more recently, international researchers and funding agencies have moved towards the term Community Informatics Systems (CIS) as a parallel for Management Information Systems (MIS). CIS is an emerging area of practice, teaching and research that fits within an Information Society framework alongside the more traditional areas of Business, Technology, Government service delivery and Contemporary Communication. There are several very distinct differences between MIS and CIS approaches. Community Informatics Systems focus on distributed systems and not aggregated ones. CIS favours collaboration over competition and sharing over hoarding. CIS is based on a premise of active interaction in the development, use and appropriation of the systems, compared to MIS which is predominantly based on a passive consumption of service offerings (Gurstein, 2003b).

The role of higher education

There have been increasing calls over recent times for Universities to recognise their responsibilities in regard to life long learning in their communities (Cumpston et al., 2001; Garlick, 1998; Gronski & Pigg, 2000; Harkavy, 1998; Nyden, 2001; Rice, 1996). In particular, there is discussion on the role of higher education in providing capacity to communities to address the imbalances between the private, public and the community sectors in the basic operations of a democratic society; facilitating an attitudinal change in graduates towards community service; and in aligning some of their research programs to address 'real' issues confronting particular communities (Garlick, 1998; Gronski & Pigg, 2000; Harkavy, 1998; Nyden, 2001; Nyden et al., 1997; Schuler, 1997, 2001). Underlying these issues is a fundamental challenge to Universities to revisit the issues of plurality and local relevance from whence many of them have come (Rice, 1996). CI goes to the very heart of these above mentioned calls because effective communication at the community level is the collective base for learning which combines science with practice as an essential core component. In recognition of the importance of readdressing this leadership vacuum in the United States, more than 850 Universities have joined the University Compact (<http://compact.org>) with the overarching aim of building social responsibility into teaching and research in order to better equip their graduates and society for an increasingly positive engagement in shaping their collective community futures. The social appropriation of ICTs quite clearly has a very important role in achieving these aims and is vital to effective self reliance in the developing world. Such matters are increasingly being recognized across the developed and developing world including significant examples of University/Community partnerships for the social appropriation of ICTs and Community Informatics research to determine the key issues that will allow communities to become more self-reliant in the digital exist in both situations.

The work of the COIN Internet Academy (<http://capricornia.org>) and the Centre for Community Networking Research (<http://www.ccnr.net.au>) in Australia, the Canadian Research Alliance for Community and Innovative Networking (CRACIN; <http://www.cracin.ca>), the Community Network Analysis project in Brighton UK (<http://www.cna.org.uk/>) are examples of the research based approaches that a number of Universities are taking to examine the social appropriation of ICTs and Community Informatics. Such activities form the basis of the Community Informatics Research Network (CIRN; <http://www.ciresearch.net>) which involves more than 200 researchers from more than 20 countries to coordinate, share and develop useful research that will complement the enormous energy that has been applied to the *organizational* appropriation of ICTs in government and business across the world.

Key Elements in the social appropriation of ICTs

Taylor (2004) shows key elements for CI policy, praxis and research:

- ICT competency as an essential life skill
- Trust
- Discontinuity of ICT adoption
- Collaboration of civil society, government and business sectors
- Perceived relevance
- Information granularity
- Spatial dimension
- Assessment, policy and research

In preparing for the next phase of the emerging ICT-enabled environment, a new social contract is required that binds and partners civil, private and public sectors in delivering social inclusion and social cohesion in ways that strengthen economic, social and cultural benefit in the information society.

In the context of the Information Society, as defined by the United Nations and its related international bodies and task forces, the emergence of a construct of civil society is clearly the preferred option for all of

the significant international bodies with an interest in broad-based access to, and the effective use of ICTs (Birch, 2003; Bloem, Guerra, Krebs and Lassonde, 2004; O'Siochru and Constanza-Hock, 2003; Thompson, 2004; WSIS, 2003; WSIS Civil Society Plenary, 2003). Tentative first steps have been taken in this regard in Australia with the formation in 2003 of the Roundtable for Australian Civil Society (RACS, 2003) to develop and deliver a statement from Australian Civil Society to the World Summit on the Information Society (WSIS). Equally in this context, Governments should aim to achieve the considerable public value which could be realized from representing themselves as *members of networks* instead of *levels of hierarchies*.

In putting forward such a distributed agenda of participation and involvement, there is a need for both a recognisable *form*, through a visible and supported structure, and *function*, through a distributed research and policy development capacity. Such a forum/academy should sit alongside government and act as:

- an open channel for discussion
- a primary developer of relevant inputs to policy
- a coordinator and evaluator of research, and
- an alliance builder with relevant international efforts.

This approach will provide the means to continually advance a 'joined up' agenda which recognises the needs of various societal layers or segments, the value of participation in gaining increased effective use of ICTs and the high costs of retro-designing for ubiquitous electronic interaction.

The vision for CI @ Cape Peninsula University of Technology

Cape Peninsula University of Technology has established a Business Applied Research Centre (BARC) to align its research energies and graduate competencies with national and regional business and community needs. Under the umbrella of a (South Africa) National Research Foundation (NRF) research niche area for e-commerce in Small Medium and Micro Enterprises, (SMMEs), many projects are running, including those in the fields of health informatics for Small/Medium Medical Practices, success metrics for e-commerce SMMEs and adoption of e-commerce by SMMEs. These projects are clearly aligned with a Community Informatics theme for empowering local communities using Information and Communication Technologies (ICTs). The new initiative in joining and contributing to CIRN will supply strong focus on the emergence of ICTs into civil society issues, such as poverty alleviation, policy formulation and reduction of employment. These efforts will attract partners throughout Africa.

Another Cape Peninsula University of Technology initiative called e-iKamva has already begun as a pilot project to provide access to skills training and technology for disadvantaged residents of Cape townships as a step towards economic self-sufficiency from small business operation.

The large group of researchers in CIRN (Community Informatics Research Network, internationally and now in Cape Town) will work with Cape Peninsula University of Technology to create a model Community Informatics post-graduate curriculum suitable for Masters and Ph.D students, as well as short courses in CI for community practitioners and policy makers. The process of development of the curriculum will be one which both transfers international experience (research and practice) and works with local communities and community technology practitioners to reflect local needs as understood and articulated by the diverse range of local South African communities as they are given an opportunity to engage with and appropriate ICTs.

The developed curriculum and student learning will link into a range of community based technology initiatives within a context of Community Informatics research. In this way student learning will both incorporate the highest level of academic/professional content and a direct experience and involvement in community-based technology practice. The development of these programs will be sensitive to the requirements for community specific cultural, linguistic, and gender applications.

An element of this approach will be that Cape Peninsula University of Technology students will have access to a range of learning and research opportunities both direct and electronically mediated with the other centres worldwide currently active in the CIRN network. Staff and student exchanges on community-based projects and research will be targeted.

Among the areas that will be included in Cape Peninsula University of Technology's CI approach are:

- community research methodologies
- approaches and methodologies for CI sensitive policy analysis and development
- the development of contextual community responsive technology, and
- strategies for effective use of ICTs within a community practice context.

Other significant aspects of the community informatics approach include the development of strategies for the analysis of community and social requirements for designing community based processes of technology appropriation and planning; technology program planning and outcomes evaluation research. Professor Taylor, a co-author, has been instrumental in launching successful CI initiatives in Australia and elsewhere. His experience and CIRN contacts form a platform for CI to become a community-focused research hub at Cape Peninsula University of Technology. His several visits to South Africa have already enabled him to assess the resources, partnerships and goals of the Community Informatics project based at Cape Peninsula University of Technology.

Partnerships with government, civil society, business and industry are being sought to develop this CI focus for the empowerment of local communities via ICTs using BARC and other bodies as vehicles. Cape Peninsula University of Technology and Peninsula Technikon are merging in January 2005 to form the Cape Peninsula University of Technology (CPUT). Community Informatics will form a strong central component of CPUT's future vision. The purpose of a University is to protect and develop society by producing active, skilled citizens with adaptability and entrepreneurial approaches. Community Informatics supports this purpose directly.

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n-Logue: The Story of a Rural Service Provider in India

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Introduction

Can rural Information Communication Technologies (ICTs) be an effective tool to bridge the digital divide? How can the Internet help developing nations and their disadvantaged in particular? Those who lobby in favour of rural ICT believe that the Internet is not just a means of communication but is also an enabler of livelihood in rural areas and therefore, power.

For a very long time now, the developing world has carried the burden of colonization and slavery. This has resulted in a lack of confidence among developing economies and the belief that they are not at par with the rest of the world. The lack of 'access' has curtailed their ability to compete. In fact, ingenuity and hard work has not been adequate for one to enjoy economic and social benefit. In order to acquire these benefits, access to resources like education, health and employment become critical.

The Internet has been a boon in this regard. Today, one can be in the remotest corner of the world and as long as there is access to Internet enjoy access to education, health and resources. This allows them to compete and use their ingenuity and hard work to bring about a significant difference to their lives.

This paper concentrates on how ICT can affect the lives of rural people in the developing world. The total rural population of the developing world is about 3.5 billion, with their average per capita income being no more than \$ 200 per year. India, with 700 million rural people located in 600,000 villages, is a reflection of the developing world. The key issue that is addressed in the paper is whether technology can bring about a difference in the lives of people who earn less than half a dollar a day. Can health and education be made available to them? Can they afford the Internet? And ultimately, can it significantly enhance their livelihoods and income?

The ICT Delivery Model

As mentioned earlier, India has over 700 million people living in over 600,000 villages. Therefore any program that is implemented in 100, 1,000 or 10,000 villages is miniscule and makes very little difference to the entire rural economy of India. The underlying element here is that a program should have the potential to scale to half a million plus villages. Anything that is not **scalable** is simply an experiment, probably worth watching, but not of significant relevance.

There are three factors that are mandatory to build a scalable and successful business in rural areas. These are:

- Technology that is cost effective, affordable, robust, scalable and capable of delivering the relevant applications
- A clear business model that addresses all market, stakeholder and operational needs
- An organisation that is exclusively focussed on the rural market, which thinks and acts rural

Connectivity

Over the last 15 years, the state owned incumbent telecom operator, BSNL, has taken fibre to almost every taluka (county town) in India. These fibre lines are infinite bandwidth pipes. Further, if a wireless coverage of 15 to 20 km is established from these county towns, one can cover almost all villages of India. In India, a taluka typically has 300-500 villages and most of them fall within a 30 km radius. What is even better is that wireless technology is constantly evolving - costs are coming down and bit rates are going up. In other words, technology is present to carry this task forward.

The corDECT technology, jointly developed by TeNeT (Telecommunications and Computer Networks Group of IIT Madras) and Midas Communication Technologies Pvt. Ltd, has proved to be a major breakthrough for the cause. An exchange and a base station are installed at the taluka or county where fibre is located. This exchange functions at a temperature of 55 degree centigrade, and does not require air conditioning. The total power requirement is 1 KW. This capability counters the problem of lack of power in small towns of India. Also, in a situation when power is unavailable, a one KM generator can be easily obtained and used as a backup. CorDECT is capable of offering simultaneous voice and Internet access and can deliver 35/70kbps connectivity to villages that are within a radius of 25 km from the fibre-connected taluka.

The start-up cost for this technology is low. Last year, \$200 million worth of this technology was sold and deployed in India and other developing nations including Brazil, Argentina, Nigeria, Tunisia, South Africa and Singapore. An upgrade of this technology will be launched soon. The next generation corDECT technology, which will be released in the latter part of the year, aims to deliver 80/150kbps-sustained **rate** on each Internet connection.

Such wireless technologies work wonders for 85 per cent of the villages of India, which lie predominantly in the flat areas. In case of rough terrain, primarily mountainous regions and forests, fibre fails to go deep and the problem gets complicated. The TeNeT group is working on a solution that combines satellite and terrestrial wireless to provide low cost connectivity even in such villages. Hence, technology is not a serious issue.

Business Model

However, technology is only the first leg. The second leg is a business model, which allows this kind of set-up to scale up to 6, 00,000 villages. The issue that needs to be addressed is in villages where affordability is low, is can a business scale? Telecom operators have declared rural connectivity an unviable business.

The clue to a successful business comes from what was done in the mid 80's in India. During that time, urban area telephony was very difficult. People had to endure a 7-8 year waiting period to acquire a telephone connection. This was particularly difficult on the lower middle class and poor people.

At that time, an innovative idea was developed – find a shop in every street in an urban area and convert it into an operator-assisted telephone booth or a PCO. The PCOs were set up at street corners at a distance of about 50 metres from the closest residential areas and were manned by an operator who kept it open for 16 hrs a day, 365 days a year. The presence of these PCOs addressed the issue of distance and no one was required to undertake a long journey to avail of their services. Such PCOs spread rapidly. The approach made connectivity viable and pervasive while it also created a stream of entrepreneurs. The success of the PCO revolution can be gauged by the fact that until recently, 25 per cent of India's telecomm

income came from these PCOs. Today, 300 million people who do not have a telephone in their house, use these PCOs. The lessons learnt from the PCO revolution were several – aggregation of demand, presence of entrepreneur-driven business, proximity to a facility for greater access.

These three factors provide the basis of a viable business model for rural ICT. Demand aggregation would address issues of affordability, while the entrepreneur and the easy access would ensure a steady stream of users.

Organisation

This leads us to the third leg - an organisation called n-logue, a rural service provider whose entire focus is rural India. It focuses on providing commercial telephone and Internet connection to every village. The company is prohibited from operating in urban areas by virtue of its charter.

n-Logue decided to adopt the demand aggregation approach to small villages by creating an Internet kiosk with a computer, an Internet connection, a printer and some accessories like web/digital camera in each village. The kiosk was to be the hub of the rural connectivity providing communication services (e-mail, chat, browsing), as well as other much-needed applications like education and training, healthcare, agriculture consultancy and e-governance.

The kiosk operator (KO) is a rural entrepreneur and the interface with the rural customers. n-Logue chooses an enterprising local person from the village itself to setup and run the kiosk. The kiosk operator is trained to use, and to help other people use various applications, which are made available by n-Logue. The KOs are typically youngsters, mostly women, who have passed their 10th standard. They are not required to have any prior knowledge of computers.

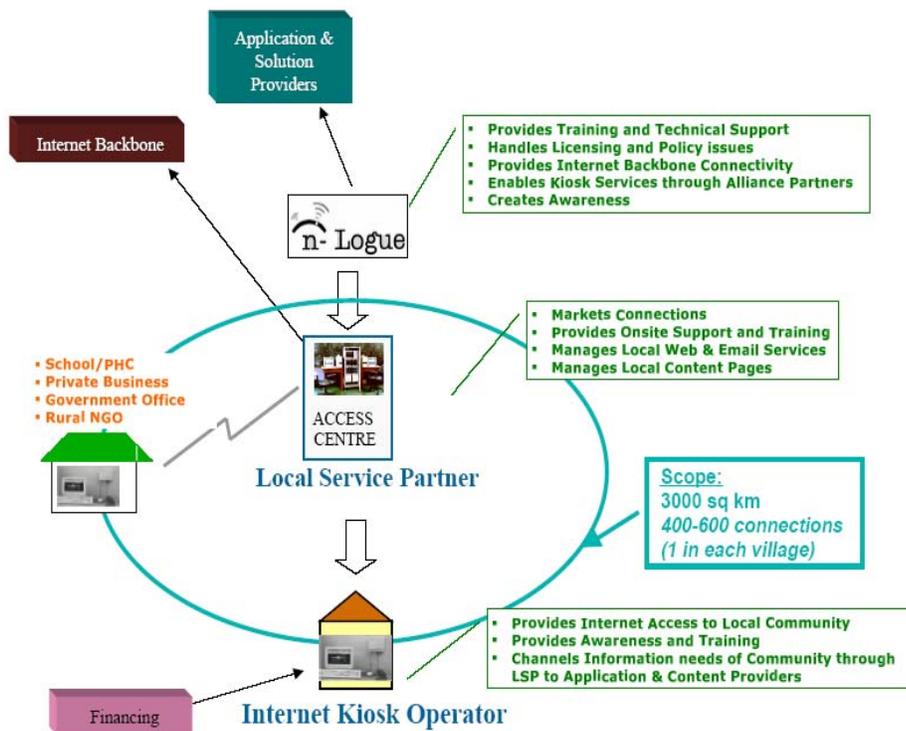
It takes about \$1000 to set up an Internet kiosk inclusive of a wall set to receive signals, a PC with a 15" colour monitor, peripherals including speaker, microphone, CD-ROM, digital camera, inkjet printer and sound card, power back-up, cabling and an application suite consisting of word-processing, browsing and email software all in the local language as well as English.

The kiosk operator is funded through bank loans to a maximum in the range of \$700 to \$800. The kiosk needs to earn about \$70 to \$80 per month to break even, which in a village of about 1000 people roughly translates to just 7 to 8 cents per person per month. At this price level, the service becomes affordable to the rural populace and a sustainable business is built.

The next issue that needs to be addressed is who services the kiosk operator? What happens when the computer encounters a virus? Where are the technicians who are equipped to deal with such problems? Such bottlenecks would need to be addressed immediately. Also, kiosk operators would need regular support in terms of maintenance, connectivity and handling of other local issues. It was therefore decided that a middle tier of Local Service Providers (LSPs) would be created to service the needs of the kiosk operators in every county or taluka. The LSP is located in a town not more than 15 to 20 km from each village. This proximity enables the LSP to reach a kiosk in about 60 to 90 minutes in case of an emergency. The LSP covers a 30 km radius, 3000 sq-km/ 400-600 connections and is stationed in the place where the tower/access centre is located. The LSP is made a 50 percent partner in the total business by n-Logue. The LSP is also assigned the task of identifying an appropriate entrepreneur in the village and is required to help them, train them, and commission and maintain the equipment. What is notable here is that as long as the kiosks are not up and running, the LSP makes no money.

n-Logue, on the other hand, provides the connectivity backbone in the operations, co-ordinates with multiple technology providers for relevant applications and content, trains LSPs and kiosk operators, sources critical supplies for kiosks including the available hardware and software, co-ordinates with regulators and policymakers to ensure service availability and markets the services to the community with the help of the LSPs and kiosk operators.

n-Logue, thus, adopts a three-tier model for rural connectivity. Tier I is the kiosk operator in the village who does the primary customer interface. Tier II is the LSP who is located at the district level. Tier III is n-Logue. The KO is integral to the entire operation. If he/she doesn't succeed, the other tiers don't succeed. While the LSP ensures that the KO succeeds, n-Logue guarantees the LSP functions.



Services

Communication:

While telephony is a technology most people comprehend, e-mail and video mail are being offered by the kiosks as additional means of communication, primarily for the purpose of being in constant touch with relatives/friends living abroad or in far away places. Video mail is more popular in the rural areas since the villagers feel more comfortable with a face-to-face dialogue. These technologies are also affordable and n-logue with the aid of TeNeT has created some relevant technologies which function at low bit rates.

Education:

Education is one of the key applications that is very important to the rural populace. The education module created by nLogue is based on computer-based education and computer education.

Computer Education: n-logue has helped create a number of customized courses under the brand name of Chiraag (Fig 1) to train people to use computers. Titled Red, Blue and Green, these courses are designed for different ages and skill sets. While the course content of some span over 20 hours, others are some 50 hours long. The course is taught over several classes and each class enables the rural populace to get familiar with computer basics. These packages have proved to be extremely popular in rural areas, as they are seen as means to towards employment.

Remote tutorials: The online tutorial is specifically focused on assisting children complete their school examinations. Unfortunately, there aren't too many good teachers at the village level and the remote tutorial attempts to bridge this gap through three modes - learn, practice and test. The remote tutorial is based on a question and answer format. It looks at questions from past papers and suggests the kind of answers that need to be provided. Each module is supplemented with a voice-over that makes learning easy. The online tutorial has focused on several subjects, including Mathematics, Social Science, English and Science.

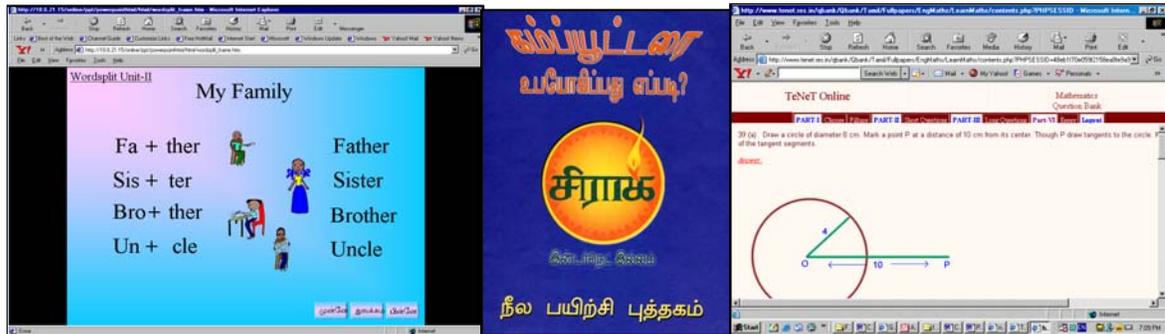


Fig 1: Spoken English, Computer education and Tutorials

Spoken English: Villagers view Spoken English as an important credential in acquiring a job. Having understood this significance, Spoken English module has been specially created to help children and adults improve their English speaking ability.

Typing:

Several children come to the kiosk to learn basic typing. They pay a dollar a month and attend 8-10 classes for this purpose. Similarly, adults avail themselves of the kiosk's facilities to acquire typing skills, which they again find is useful in obtaining employment. Apart from this, villagers also may get their resumes made.

Photography:

Most kiosks double as photography studios, where photographs are shot using a digital camera and a printout can be made available. Photography is proving to be a major source of income. Photographs for a variety of purposes, including for government forms and veterinary applications, are being shot at the kiosk.

Others:

Children make greeting cards using the computer, which is surprising considering that their knowledge about computers is only some six months old.

Agriculture Consultancy and Veterinary:

Farmers in the village bring their animals to the kiosk and get them treated by doctors remotely. A videoconference is initiated between the farmer and the doctor. Conferences are also welcomed among farmers. Through such conferences, queries, doubts and apprehensions get resolved. These services are extremely important to the rural people as their livelihood depends on agriculture and cattle/poultry.



Fig 2. Farmer with his goat at a village

A current example is the case of the farmers of T Ulagapichampatti. Their okra produce was turning yellow. A videoconference between the farmer and agriculture specialists, in the city, was set up. The leaves and the produce of the damaged crop were shown through the web-cam, the kind and amount of fertilizers added was also discussed. The experts diagnosed it to be yellow mosaic. Appropriate treatment was administered and the farmers were able to prevent a loss of Rs 1, 40,000.

nLogue is also planning to enhance the services provided to the farmers through video-conferencing by accessing a greater number of resources and through additional services like weather reports, crop price and other market related information.

Health Care:

Even though Public Health Centres exist in every three to four villages, many of these centres function rather poorly. Health care is a major concern in rural areas. Qualified doctors in reasonable numbers are available only in towns.

In May 2002, an enterprising kiosk operator took the initiative to send some pictures of an elderly woman's eyes to n-Logue. The lady was suffering from severe eye pain. The pictures were forwarded to doctors in the Aravind Eye Hospital (Fig 3), a large facility in a neighbouring city. The doctors used Internet-based video-conferencing to examine the patient. This provided the basis for a program of video-conferencing based eye-care for rural areas. Eye-doctors in town now regularly examine the eyes of patients in the villages by means of video and suggest remedies as might be required.

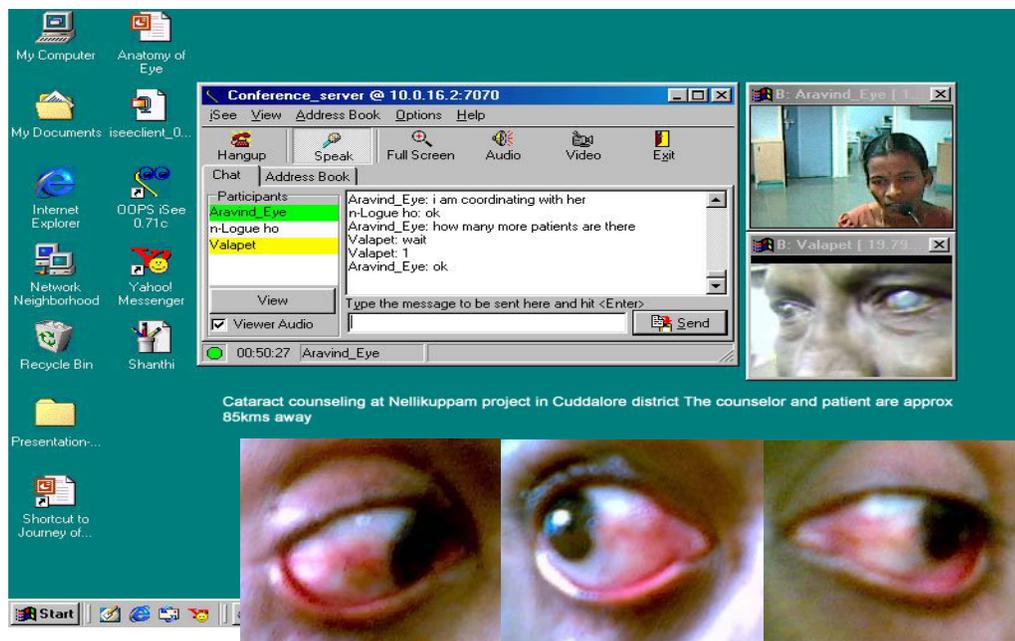


Fig 3. Remote Eye Care consultation with Aravind Eye Hospital

This process was quickly extended to regular health care. Doctors in towns use video-conferencing to provide medical advice to remote patients located in villages. A multi-party video-conferencing product is commonly used, where multiple villages are simultaneously connected to a doctor in the town. The doctor connects to several villages at the same time and examines them in full public view. Questions of privacy have been raised on account of such a procedure. However, most villagers prefer this mode of examination, and when asked, one remarked that such a system makes the doctors more accountable.

e-governance:

Similarly, the Internet is being used to approach the government for all kinds of problems. There is a well-known story concerning a handicapped person who sent a complaint to the Chief Minister's cell complaining of unfair termination of service. Having received the complaint, swift action was initiated wherein, the person in question was handed back his job.

Other e-government services including widow's pensions, and birth, death and land certificates have been applied for through the Internet.

While this service has worked commendably well in certain villages, it has failed to make a dent in several others. The performance of such a service depends on the district collector, who needs to drive the service.

For instance, in Thiruvallur, a small town on the outskirts of Chennai, the district collector started what is popularly known as a '**weekly web darbar**' with the villagers. Through the darbar, the collector connects to 50 villages simultaneously. Through these sessions, he answers queries and addresses grievances.

Entertainment:

There are several means of entertainment like Chirag radio and movie CDs that are played at the kiosk. Recently, a newspaper, entirely written and prepared by the villagers, was launched.

Other Benefits:

The KO has also donned the task of a data collector. Data pertaining to land holding/number of families/ animals/ water/ source of income/ income levels/ educational qualification have been gathered. This data can be useful to several corporations and agencies across the country.

Technologies Supporting Kiosk Operations

One question that has been asked several times is - how has all this been done? What has made n-Logue capable of delivering such services? Today, n-Logue is present in over 40 districts. The TeNeT Group has worked with the vision of providing significant services in rural India. It has incubated over 14 companies with over 1400 engineers whose focus has solely been **developing technology for rural areas**. Such an approach has been purposely initiated because if programs are directed towards developing technology for urban areas, this tends to completely absorb efforts and rural areas are generally forgotten.

Language Applications:

While connectivity was easily addressed, how were rural people to communicate if they had no knowledge of English, the lingua franca of the Internet? It was also found that existing language software was quite expensive to be installed at the village kiosk. TeNeT found an answer in CKShakti, an office suite package in the local language from a venture called Chennai Kavigal Private Ltd, which it helped create. CKShakti offers most of the features offered by Microsoft and costs a fraction of the cost of the MS Office package. It also has a dual language option, which facilitates switching between the local language and English. CKShakti is available in three dual language packages as well as in English.

Video-conferencing Software:

Initial studies at the Internet kiosks indicated that a lot of rural subjects still regarded email as a difficult communication medium and needed the help of the kiosk operator to type and also read out messages to them. Hence most applications such as telemedicine, education, and agri-consultancy were difficult for them to use. To address this problem, TeNeT with a related company, Objective Oriented Programming Systems Pvt. Ltd (OOPS) created video-conferencing software called iSEE which can function at very low bandwidth. When this video-conferencing software was installed in the kiosks it facilitated the use of health, education and consulting services as the villagers were more comfortable having a face-to-face interaction with the respective experts.

Remote Diagnostics:

The doctors who regularly use the Internet to deliver healthcare services to the rural poor, have often wondered whether they might be able to do a much better job if they could remotely monitor the patient's temperature, blood pressure and heart beats.

Recently Neuro-synaptic Ltd, with help from the TeNeT group, has launched an interesting low-cost remote diagnostic kit. The kit is placed in the kiosk and enables a doctor to measure the temperature, blood pressure, pulse count and ECG of the patient remotely and also to listen to heartbeats using a remote stethoscope. This combined with video-conferencing enables a doctor to significantly enhance remote medical treatment. The kit is being incubated in several kiosks by n-logue.

The Rural ATM – A New Technology:

TeNeT believes that going beyond normal Internet applications and leveraging ICT to enhance livelihoods would be the primary means of sustaining rural kiosks. One of the innovative applications it developed to support livelihood is a rural automatic teller machine (ATM).

With the support of the TeNeT group at IIT, Madras, Vortex Engineering Ltd. has developed a low cost ATM specifically for rural applications. The ATM will make use of an existing network

of Internet kiosks that currently access hundreds of villages in India. Capable of dispensing both new and used notes, the ATMs will also offer non-cash transactions, micro-deposits, credit and a number of other services tailor-made for rural areas. The machine can be used with ATMs or SmartCards and also has the option of using fingerprint identification. The machine costs around US\$ 1,000, just a fraction of the US\$ 20,000 it takes to install an urban ATM.

The Future:

Where does one go from here? We believe in the existence of a good business model and technology to take Internet to all villages in India. Through this, services like health and education can be driven. Apart from these basic services, livelihoods have to be enabled. Enough needs to be done to help the rural populace generate wealth. Towards that end, one needs to create viable rural micro-enterprises in rural areas, in the domains of agriculture, food processing, animal husbandry, handicrafts and IT-based services among others. How can Internet help in this regard?

There are the four pillars on which a successful micro enterprise rests:

- Finance
- Knowledge, training and support
- Buying/selling/logistics
- Risk sharing ability

If viable micro-enterprises can be set-up in villages, one can significantly impact the rural economy. Today, the TeNeT Group dreams of doubling rural GDP. It is hoped that the per capita rural GDP of India will double from its current figure of \$200 to \$400. After all, the kiosk is not just a communication centre. It has the ability to become a communication hub, with a base station, 50 telephone and Internet connections. It has the potential to become a virtual university, training centre, banking outlet, trading outlet, agriculture support centre and much more. The key is to dream and to make it happen.

*Latin American Community Telecenters: “It’s a long way to TICperary**”

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Abstract

Community Telecenters, that is centers for community development using ICT (Information and Communications Technologies)¹, have become the focus of attention in international development circles over the past ten years, especially in Latin America. A virtual community called Somos@Telecentros is progressively taking shape in the region (<http://www.tele-centros.org>) with a specific interest in supporting and enabling these Community Telecenters.

As part of the build up effort an inventory of telecenters was conducted, followed by a review of the situation. The latter involved self-description, recording of stories on the web and through Email, and Email and face-to-face interviews. The results were synthesized into an analytical panorama of the telecenters movement in the region, the challenges faced, the solutions encountered and the lessons learned.

This paper will summarize these findings and highlight a number of key issues, in particular, the trade-off between top-down connectivity and computer literacy programs and horizontal and community-led and controlled comprehensive development efforts.

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** TIC is ICT in Latin languages.

¹ ICT is TIC in Latin languages.

The Somos@Telecentros community and the Telelac projects

For more than 20 years, collective access to telecommunications facilities and services has been tried in industrialized countries as a means to alleviate economic and social disadvantages faced by marginal, isolated or rural communities². In the second half of the 1990's, various non-governmental organizations, especially in Latin America, began to offer collective access points to telecommunication facilities, with an emphasis on Internet access³. In the same period a number of international organizations, especially the International Telecommunications Union (ITU); the United Nations Education, Science and Culture Organization (UNESCO); and the Canada's International Development Research Center (IDRC) undertook to emulate and adapt these endeavors through "pilot projects" that supported "Multipurpose Community Telecenters" principally in Africa. The rapid spread of Internet access and use at the international level, and the resulting concerns for the so-called "digital divide" and its consequences prompted many non-governmental organizations and even some governments to follow a similar path. By the end of the 1990's, "telecenters", under various names, were becoming relatively common in many parts of the world, and even more widely referenced in the debates and strategy developments concerning poverty alleviation and what information and communication technologies (ICTs) could contribute to such efforts. The very notion of a "telecenter", its characteristics and more importantly its actual effects were however, and continue to be, a subject of considerable discussion. (Fuchs, 1998; Gomez, Hunt, Lamoureux 1999; Menou & Stoll 2003).

It was thus natural for the IDRC to consider investigating what the reality might be concerning the development and significance of Telecenters in relation to "Development" in the Latin American region. The IDRC looked to identify Latin American partners that could undertake a survey and analysis of the telecenters in the area. In the course of preliminary discussions, a somewhat different approach emerged where the project would not be limited to a single immediate outcome but would primarily seek to facilitate the construction of a cooperative network among telecenters and a participatory approach to the proposed studies and activities (Menou, 1999). The Chasquinet Foundation, based in Ecuador, agreed to assume responsibility for the coordination of the project. This developed further through an online discussion among a number of actors within the telecenters movement in the region followed by face to face meetings among some of these, on the occasion of a workshop on telecenters evaluation organized by IDRC. A two-year project, called Telelac 1, was formally approved by the IDRC in December 1999.

The focus of the project was originally to be on the consolidation of data and lessons learned about telecenters operating in Latin America and the Caribbean. At the first meeting of project participants three other objectives were added:

- establishing mechanisms for cooperative learning and sharing experiences, especially through an online resource center and electronic discussion groups;
- building an effective community network that could become self-sustaining;
- developing, and possibly applying, appropriate methodologies for impact assessment.

In sum, the project evolved and was implemented so that it could contribute to the creation of conditions that would support action research, on the one hand; and the building of a pro-active and representative community of telecenters in the region, on the other. The latter objective was conceived as the necessary collective platform to achieve open and continuous learning, and to facilitate effective participation in the articulation of policies and plans related to the use of ICT for development.

Even though all objectives could not be achieved, progress under Telelac 1 was significant. This led the IDRC to request a proposal for a second phase. After a somewhat excruciating process of successive

² Thus the often used name for these facilities--"telecottage" reminiscent of cottage industries.

³ Among these, the Red Cientifica Peruana, RCP, initiated the Cabinas publicas Internet [Public Internet cabins] in 1994, which were widely, and often incorrectly and abusively, acknowledged as a "best practice".

revisions resulting from institutional changes within the donor community, Telelac 2 was finally approved by the IDRC and the Institute for Connectivity in the Americas (ICA) and activated in July 2002 for a period of a further 2 years. Considering that the community of telecenters was already emerging, Telelac 2 was intended to offer indirect support to this process by:

- Setting up cooperative mechanisms for research, learning and experimentation, and the dissemination of best practices and results;
- Providing capacity-building opportunities for telecenter practitioners in LAC as a way to enhance their performance, relevance and sustainability; and
- Strengthening the regional network and its capacity to partner and influence the private and public sectors in the region.

The network's geographic scope encompasses both Latin America and the Caribbean. The majority of participants are Spanish speaking. Spanish is the main language of communication within the Network. One result of this has been to reduce the collective participation of Brazilian actors in the telecenters movement and even more those from English or French speaking countries and territories, even though individual participation from these regions has been substantial.⁴ The cost of providing translation has unfortunately been prohibitive restricting access from not only other major European languages but also from the significant indigenous languages as well. However it should be noted that the lack of direct personal contacts, the difficulties in creating the encounters through which mutual understanding and trust might be built, as well as the slow process of building and appropriating a culture of networking and sharing can be regarded as even more significant barriers to the development the Network than language.

The Somos@Telecentros community is at the moment an "open space". Telecenters, telecenter personnel, social activists, academics, and anyone interested in this phenomenon may join by registering on the web site. The only requirement is to agree to a set of principles⁵. Currently more than 1900 persons and some 350 telecenters or telecenters organizations have registered. One can roughly estimate that more than 30% of the members are actively participating in the activities of the community, participation being understood as sharing of materials, especially through the online resource center; contributions to the discussion lists; or attendance at the local or regional meetings in addition to the regular activities undertaken in the respective locations.

The on going strengthening of the movement is likely to rely on the formation of effective though flexible national structures. Toward this end, Somos@Telecentros has encouraged the holding of national meetings which since 2001 have taken place in 9 countries⁶ and has supported a regional meeting for Central America and the Caribbean organized by the Inter-American Bank for Development⁷. The outcome of the national meetings has been directed to feed into the discussions at the regional meetings, which economic conditions have prevented many members from attending (as has been the case even for national meetings, at least in the largest countries). A variety of local circumstances and the focus on the formalization of the regional network from 2003 led to some loss of impetus in the building of national groups. However, the momentum seems to have recovered somewhat with the activation of national discussion lists. Three regional meetings have been held to date, in Quito, Ecuador (July 2001 & April 2003) and São Paulo, Brazil (May 2004).

⁴ A phenomenon which can also be observed in related regional endeavors such as the Mistica a virtual community focused on the social effects of ICT in Latin America and the Caribbean;
<http://funredes.org/mistica/>

⁵ Democracy, open access to knowledge, solidarity and mutual help, participation and transparency, proactive participation, respect of diversity and gender equality

⁶ Argentina, April 2001; Brazil, June 2001 & May 2004; Chile, July 2001; Colombia, June 2001 October 2003;

Cuba, February 2001; Ecuador March 2001 & April 2003; Mexico, March 2001; Peru, March 2001 & April 2003; Venezuela, June 2001

⁷ <http://www.tele-centros.org/comunidad/tallerBID.html>

At the 2nd regional meeting a process of formalization was engaged in through the election of an interim steering committee entrusted with the task of leading this process. Bylaws and organizational structures were discussed in an open working group. The community has now been incorporated as an international non-governmental organization under Ecuadorian law and a board of directors was elected at the 3rd regional meeting.

A series of general and thematic discussion lists (see Table 1) has allowed for continuing interaction among the participants, while lists restricted to specific coordination functions are established as need arises. The main channel of interaction among the participants is the Telecentros list. It has an average of 200 messages per month. A significant level of interpersonal and small group interaction appears to be taking place in parallel to this, both electronically and through direct observation. From 2003 national lists began to operate in Argentina, Colombia, Ecuador, México, Perú; and in 2004 in Bolivia, Brasil, Chile, Guatemala, Nicaragua, Paraguay, Venezuela established their own lists. These it is hoped will play a significant role in strengthening the community at both the national and regional levels. The online resource center meanwhile provides access to a growing collection of documents⁸ and references on all aspects of telecenter activities presented in a systematic fashion with emphasis on the sharing of experience among members of the community and offering practical answers to specific needs. The resource center currently receives some 1000 visits per month.

Table 1. Somos@Telecentros electronic discussion lists

List	No. Of Subscribers	Countries represented
Telecentros	671	<u>Latin America & Caribbean</u> Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Curaçao, Dominican Rep., Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, Uruguay, Venezuela. <u>Other</u> Australia, Belgium, Canada, Denmark, France, Germany, India, Italy, Japan, Netherlands, Portugal, Slovakia, South Africa, Spain, Sweden, Switzerland, U.K., U.S.A.
Tigers [Linux]	72	Argentina, Chile, Colombia, Cuba, Ecuador, Mexico, Paraguay, Peru, Uruguay, Venezuela USA
Equity (e.g. Gender)	27	Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guatemala, Mexico, Peru
Training	6	Ecuador, Peru
Virtual Telecenters School "Oscar Pedraza"	48	Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Nicaragua, Panama, Peru, Venezuela
Rural distance education	119	Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Mexico, Peru, Uruguay, Venezuela,
CoVITALC (research)	46	Argentina, Bolivia, Brazil, Chile, Colombia, Dominican Rep., Ecuador, Guatemala, Mexico, Nicaragua, Panama, Peru.
Rules of operation for Somos@Telecentros	19	Argentina, Brazil, Chile, Colombia, Ecuador, Guatemala, Mexico, Nicaragua, Paraguay, Peru.

As the host for the central functions in the network, the Chasquinet Foundation has provided staff and logistical support far beyond that for which it was compensated through the above-mentioned projects. An average of 3 full-time equivalent staff have been engaged in support of the "central functions"--web development and maintenance, list moderation, support to working groups, etc. In addition, a great deal of the activities of the Network are coordinated and implemented by its volunteer members.

⁸ Some 350 as of August 2004

Implementation of the "State of the art"

A first step in the building of the Telecentros virtual community was naturally to call telecenters and telecenters organizations that were sharing the basic values of the community⁹ to join in and register themselves in a directory. This was done using a variety of channels, especially the electronic discussion lists that focus on ICT and development¹⁰. The data requested was detailed enough to provide a basis for an initial classification of the Telecenters in accordance to a variety of characteristics¹¹. In March 2000 a first perspective on the community was tentatively drawn up. The reliability of this information was however limited. More importantly, it lacked the touch and feel of real life experience that is required for inviting readers to learn from the experiences, especially in the cultural context of Latin America and the Caribbean.

This led to direct contact with the participants with a request for them to tell the story of their telecenter by sending the information in an Email, following a simple format¹². A lottery¹³ was combined with this exercise with the goal of increasing participation. Direct contacts and messages to discussion lists were initiated between June and October 2000. This effort yielded a total of 27 stories¹⁴ (Hunt 2001). About the same number were promised but not received. The ones received appeared to be exceedingly factual and lacking both a critical reflection and the "special human interest" that would illustrate the individual and collective experience arising from the Telecenter activity.

It was thus decided to make yet a third attempt with another methodology, the "virtual meeting" (Blanco Garcia 2001)¹⁵. The objective was to deepen the representation of the experiences with regard to five areas:

- Ethnography of the place: social, geographic and economic environment
- Story of the telecenters' operators: their motivations, expectations, and interactions with their milieu;
- Story of the supporting project;
- Story of the telecenter: the interactions among stakeholders that facilitate or limit the development of the telecenter; and the
- Stories of the activities and services, their positive and negative effects and impact.

This was to be achieved by means of open in-depth interviews in form of a continuing conversation, and designed to obtain the desired information including the biography of the respondents. Biography being understood here as the set of factual events experienced by the informant and the associated images and

⁹ See note 3

¹⁰ Among those one can mention: Telecentros, telecentres-1, MISTICA, GKD, Library Juice, IFLA, DevMedia, INFOANDINA, ENREDO, Genevalink, Greenstar, Bellanet, CCTA & IDTG (Perú), PACT (Perú), ISOC, OneWorld, RITS (Brazil), Red EPTIC (Brazil).

¹¹ For example, starting date, localization, legal status, main activities, sources of funding and business plan, community participation, social groups served, connectivity and equipment.

¹² Full Name of storyteller; Telecentre Name, E-mail, Web site; Brief description of the set-up and resources of the telecentre (one paragraph); Describe the social role your telecentre intends to play. How does it support civil society? What are the main problems faced by the community in which the telecentre is established? How does your telecentre contribute to working toward solutions for these problems? (give examples) What obstacles or problems does the telecentre face in operating? What helps you to do a good job? (e.g. specific resources or people; give examples) What results can you report at this stage in the development of your telecentre?

¹³ With a prize of 500\$ US in equipment

¹⁴ Brazil 2, Chile 1, Colombia 5, Cuba 5, Dominican Rep. 1, Ecuador 2, El Salvador 1, Guatemala 2, Mexico 1, Nicaragua 1, Paraguay 1, Peru 3, Venezuela 2,

¹⁵ The description of this part of the study is derived from Ilian Blanco Garcia's report.

representations, including those of the interviewer (Alonso, 1999, p.225) as in the case of oral history. It should further be stressed that the purpose of the study was not only, nor primarily, to assemble meaningful data for a “survey”, but for the building of a body of knowledge that would serve the learning and sharing of experience of Somos@Telecentros members.

Due to financial and material limitations, as well as technological constraints¹⁶, the interviews were conducted by means of electronic mail. Such a virtual setting and process imposes drastic constraints in the dialogue, and of course excludes those who cannot or have significant difficulties in writing. The interviews concentrated on telecenter “operators”, that is managers and staff, or managers of telecenters programs. Other stakeholders, in particular a representative sample of the communities served by the telecenters could not be included. However, the prize attached to the stories was allocated on the basis of a “popular vote” by electronic mail, open to all members of Somos@Telecentros thus allowing in principle the beneficiaries to highlight what they considered as the best achievement. The interview guide was designed on the basis of a critical review of the information already available and the specific objectives of the study. Rather than a rigid set of questions, it was a list of topics and desired outcomes designed to help in the recording of the information. The quality of the interviews was quite satisfactory in general, despite the unnatural environment, perhaps in part due to the fact that people were made to feel special by being invited to tell their stories. It was originally planned to conduct 30 interviews with 3 investigators. As a result of various circumstances only 23 interviews from 10 countries were completed in usable form¹⁷. Concern for balance in gender or other key characteristics and material constraints resulted in a slightly different composition of the sample compared to the set of stories gathered in the earlier round. It might also be noted that even though the interviewees were informed that the interview was taking place in a fully “free space”, it is intriguing that the bureaucratic control existing in some real environments apparently was carried over into the responses of some participants.

The content of the interviews was disaggregated into discrete topics that reflect qualitative information relating to various topics, times and stakeholders in the establishment and operation of a telecenter. The information highlighted in the account of real life endeavors by the actors was extracted and organized using methods recommended by S.J. Taylor and R. Bogdan. (Taylor & Bogdan, 1986). These elementary components were then grouped into logical categories and the latter combined into a kind of conceptual map showing the interrelations, convergences and oppositions existing among them. This allowed for the construction of a comprehensive text, while making appropriate reference to the original sources. The comprehensiveness and coherence of this text with regard to the various queries initially considered was then checked. A preliminary version of the “state-of-the-art” was presented in summary form at the regional meeting held in Quito at the end of July 2001. On this occasion a number of interviews were eventually completed or revised in face-to-face interaction. A second round of consolidations then took place in order to produce the final version (Somos@Telecentros, 2002).

The State-of-the-art report contains, in addition to the consolidated stories, a series of national profiles for 16 countries¹⁸ resulting from desk research and the information provided by the members of Somos@Telecentros community. Five thematic chapters based upon the outcome of the process just described offer some sort of synthesis. This should of course, be regarded as an on-going effort. Participants in Somos@Telecentros are expected to keep their stories up to date as well as to provide up-to-date information regarding the situation in their respective countries.

As can be expected, discrepancies were observed between what the investigators were expecting and what was actually collected. A number of issues, which were earmarked for inclusion in the final report, had to be dropped for lack of sufficient information. Also, the level of education, the approach to the appraisal of the milieu and endeavor, and the critical reflection varied significantly among the respondents. This diversity of perspectives further added to the inherent heterogeneity of the situations and endeavors. It

¹⁶ E.g. cost of travel, cost and quality of voice connections.

¹⁷ Brazil 3, Chile 1, Colombia 3, Costa Rica 1, Dominican Republic 1, Ecuador 2, Guatemala 2, Mexico 3, Peru 3, Venezuela 3.

¹⁸ Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Honduras, Mexico, Nicaragua, Guatemala, Peru, Venezuela

proved impossible in particular to provide a general view of the social context in which telecenters operate; this aspect had to be mentioned in conjunction with each particular case. No attempt was made at hiding contradictions or at identifying best practices. Rather there was an attempt to understand the roots and rationale of the respective discourses. The material gathered was intended as much as possible to cover the following topics:

- the operators: their identity, personal characteristics and relationship with the local community;
- planning of the telecenters: the underlying philosophy, specific objectives, installation and training;
- operation of the telecenters: objectives, services, users, equipment, management and approach to sustainability; and
- effects and impact: the initial situation in the local community, changes that occurred, production, current relationship with the local community, vision of the future.

Even though all telecenters share a common conceptual background, geared at contributing to sustainable and comprehensive human development, and to some extent they share basic ideological premises, their answers to specific challenges might vary widely. One of the most obvious instances of difference was found in relation to the issue of the financial sustainability. The majority seemed to accept that users would be charged, within reasonable limits, with a view to sustaining the operation. This met with radical objections of the Sampa.org network in São Paulo, Brazil, which contends that it is fundamentally unjust to charge people for the use of their rights and that it is the responsibility of the community to provide these services. Another contentious topic is in the negotiation of social acceptance when facing traditional values and power systems where these are seriously challenged by the intrusion of free access to “global information” such as domestic violence or gender equity. Some argued that confrontation has to be engaged at least up to a certain point, while others, and probably the majority preferred a smooth incremental approach. In practice the major differences were found in the social environment and its approach. There was for example, a fair degree of variation in such areas as internal administrative routines, relationship with the stakeholders, production of contents, and development strategies exhibited. Conversely the more technical activities and aspects exhibited the most convergence. The management of connectivity issues, equipment and training activities were dealt with in almost parallel methods by all telecenters.

A picture of Latin American Telecenters

The reality we are trying to describe is rapidly changing for a number of reasons. Public policies, private sector involvement and society’s response to the related needs and challenges are all changing. National “digital inclusion”¹⁹ programs for instance became commonplace during the past few years, while they were an exception when Somos@Telecentros was launched. The overall economic and socio-political conditions can also change quite dramatically over a short time, especially in Latin America, as is illustrated, by the pitiful recent history of Argentina. What was true a few years ago, when most of the empirical evidence for this paper was assembled, may no longer hold in a number of areas. A few countries in Latin America have not been or only superficially covered. As noted earlier, English and French speaking countries and territories in Latin America and the Caribbean are represented in the network by a limited number of participants from a few countries²⁰. In addition, the relative novelty of telecenters in developing countries and the propaganda of their sponsors, operators, users, admirers or detractors, in the

¹⁹ Digital inclusion seeks to foster not only broader access but also the social use and appropriation of digital technologies in order to meet the needs of communities, particularly the most underprivileged, the creation of appropriate knowledge and contents and the strengthening of individual capacities. In this way digital inclusion can contribute to improving the economic, social, political and personal lives of the vast majority.

²⁰ Which is unfortunate since most Caribbean States are now developing digital inclusion programs, often based in public schools.

absence of any solid conceptual framework, allows for multiple variations and interpretations of the facts. Furthermore, obtaining accurate factual information is not an easy task in the particular cultural and historical context, irrespective of the methods used. Even though telecenters registering with [Somos@Telecentros](#) are asked to fill in a fairly simple descriptive sheet, many items remain blank or ill covered; a continuing effort needs to be pursued in order to assemble reliable data. Far more time, data and insights will need to be available till one can present "the" picture of telecenters in Latin American, or any other part of the developing world.

Offering a meaningful typology of telecenters is at the moment quite difficult and artificial. In their study Proenza and co-workers (Proenza, F., Bastidas-Buch, R., Montero, G. 2001, p. 13) used for instance a classification with 7 categories of telecenters²¹, mainly based upon the legal form of the entity in charge. However a telecenter can be based in a school but be supported by a program of the central government and develop a variety of activities for different segments of public, thus cross several of their identified categories. In view of recent events in countries hit by financial or political crises, one may need to add to their classification a component describing the state of activity, ranging from "promised before the elections and still not on" to "fully operational without interruption". Colle and Roman (1999) have proposed a more detailed grid with 10 dimensions²², some of which are in fact inter-linked (e.g. Private sector and for profit). However, the publicly available information does not allow for categorizing telecenters along such lines without risking serious misinterpretations. Furthermore the significance of these labels is dependant on the social reality and actual endeavors, which are often far more versatile and delicate. At this stage, it was felt more appropriate to stick to only 3 types of initiatives: those of central or local governments operating within communities, those of central or local governments operating from educational institutions (schools or public libraries) and those of non-governmental organizations (NGO's) or the private sector. Note that the plain cyber cafés or similar purely commercial ventures are not included in this category, nor reflected in the figures below²³.

Table 2 shows the 2002 estimates for existing and planned telecenters, distributed across the three main types. It should be regarded as a very rough indication. The figure of 6500 "telecenters" in 2002 is to be compared with the 50 that were assumed to operate in 1996. In the first category the currently identified telecenters are mainly those of Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Guatemala, Honduras, Mexico, Panama, Peru, Uruguay and Venezuela. The expected increases result from various governmental programs that have been announced principally in Bolivia, Brazil Colombia, Ecuador and Mexico. The second category corresponds to telecenters installed at the initiative of central governments, but often also include state or provincial governments and municipalities in educational institutions of all levels, from primary school to universities, and in public libraries or cultural institutions. Such programs play a significant role in countries such as Argentina, Colombia, Guatemala and Mexico. Though primarily targeted at youth, these telecenters are also expected to serve the entire community. The production of educational software and applications is eventually included in related programs. The relatively high proportion of future development results from the attractiveness of such programs for public authorities with regard to both their logistical convenience and more importantly their appeal to public opinion. But the implementation of these plans is more often than not subject to all types of interferences. The provincial government of Pichincha in Ecuador has for instance initiated the establishment of telecenters in the primary school and hopes to reach 1000 centers by the end of the program. The majority of telecenters in the third category are the result of community initiatives. The expected increase here is bound to programs of international cooperation agencies that are actively supporting these initiatives.

²¹ Commercial, Franchise, NGO, University, School, Municipal and Polyvalent.

²² Public sector versus Private sector, Publicly funded versus Privately funded, Commercial (fee-based) versus Free, Urban versus Rural, Narrow focus versus Multi-purpose, Independent versus Networked/grouped, Community-based versus Establishment, Stand alone versus Attached, Profit versus Service, Thematic versus Universal.

²³ The revolving argument about the inclusion of not of cybercafés among telecenters will be discussed below under Issues and challenges.

Table 2. 2002 estimates of telecenters by main type

Initiatives supporting the telecenter	Currently Identified	Announced increases
Central & Local Governments based in communities	4 560	1 850
Central & Local Governments based in educational institutions	1 780	1 500
NGO's & Private sector	106	837

The main aspects of telecenters based in public entities, which will be called “government telecenters”, and in NGO’s respectively are summarized below.

“Government” telecenters at the national level

Governmental programs to support telecenters on a large scale can be traced back to 1998 with the argentin@internet.todos in Argentina, which discussed the establishment of a large number of Community Technology Centers²⁴. Such moves have since become commonplace. The strategic vision here is to provide free or low cost connectivity to members of the public who cannot afford private access, or are not any time soon likely to be served by an appropriate technology infrastructure. Most programs come under a broader agenda of digital inclusion as part of an overall program of “modernization” and the preparation of the countries to become partners in the global “digital economy”. In this connection computer literacy, facilitation of E-Government initiatives and creating E-business opportunities are often associated with the basic connectivity concerns.

A common feature of these programs is their impressive size, at least in the plans. The first version in 1999 of the CTC program in Argentina contemplated the creation of 1350 units (telecenters), each with 5 computers, 2 printers, 1 scanner, 2 camera USB’s for web casting, 1 digital camera, software and furniture. The E-Mexico project announced in 2000 contemplated the opening of 2470 telecenters in all municipalities of the country. The COMPARTEL program in Colombia was directed to establishing telecenters in 191 main towns serving 557 constituencies. In the Dominican Republic there were to be 322 computer labs established in schools. As part of the ICT strategy for education in the OECS²⁵ countries all schools are understood as being in the process of being equipped with computer labs that will also be open to the local communities. Carlos Afonso gives an idea of the magnitude of such efforts in the case of Brazil where the Ministry of education is considering the installation of some 130.000 computers in 13.000 schools; “... disregarding training, maintenance, instructors, software and other associated expenses, 130000 computers at 1000 US \$ each make 130 millions US \$” (Afonso, C.A, 2002).

The development of these programs originally followed typical patterns of direct administration with predefined beneficiaries, conditions and rules, and management by central units. Later on decentralized approaches have emerged where the telecommunication regulatory agencies²⁶, or other central government bodies, allocate resources to organizations, through a regular tendering process that will implement standard telecenters in specified localities, usually major centers in the provinces. In both cases, the definition of the capacity to be installed seems to follow rules of “fair distribution” rather than for example, social need. (That there would be a fixed ratio between the permanent population, on the one hand and the

²⁴ The use of a mostly U.S. terminology is perhaps symptomatic.

²⁵ Organization of Eastern Caribbean States

²⁶ For instance the COMPARTEL program in Colombia (<http://www.compartel.gov.co>) or the Program for Public Internet booths in district capitals of the Fondo de Inversión en Telecomunicaciones (FITEL) in Peru (<http://www.osiptel.gob.pe/Index.ASP?T=P&P=2695>)

capacity of a telecenter remains to be demonstrated.) There is also some question whether government telecenters when “parachuted” into institutions such as schools, public libraries, town halls, healthcare centers, post offices or the like, without either proper preparation of the environment, training of the staff or adjustment of the institutional rules may not be in serious danger of not delivering the service the community is supposed to enjoy. Another difficulty lies in the lack of suitable provision for maintenance, or amortization and renewal of equipment that is a standard feature in public administration as well as of course, the frequent budgetary crises resulting in the temporary freezing of expenses, when other more drastic actions are not instituted. As one may expect the installation and continuity of government telecenters does not always escape political influence.

In many cases the funding of these programs is secured with funds for universal service that are set up as part of the deregulation of the telecommunications sector. The wording of telecommunications acts and their Universal Access provisions is usually obscure enough to offer a comfortable margin of interpretation, usually in the direction of supporting the operators of the infrastructure rather than the needy communities. In some cases when the funding relies upon generous provisions, such as with the Brazilian FUST (Fund for the Universalization of Telecommunications) the amount collected may become a tempting target for any Minister of Finance confronted with a severe fiscal crisis²⁷. Rather than allowing for a steady development, governmentally initiated telecenters result in a continuing seesaw between emphatic promises, delayed and/or partial implementation, and occasional implementation especially in pre-election times.

As can be expected the interaction with the civil society organizations that may be active in the particular communities, the production of local content – beyond a directory like web page of the locality, users education beyond basic computer and Internet literacy, and the connection with community development struggles all remain a matter of personal readiness among telecenters’ staff. Fortunately many of these are sufficiently committed to deliver effective services. This again suggests the observation that the way in which programs are implemented, and more importantly who implements them matters far more than what their remit appears to be on paper. The key role of individuals and the need for all actors to actively seek personal transformation as a requisite for social transformation has become a leitmotiv of [Somos@Telecentros](#) coordination (Delgadillo Poepsel, 2000). Another striking aspect, especially in view of the geographic extension of the programs, is the general lack of attention paid to the possible building of networks. Each telecenter is seen as a separate access point and the networking left to the individual initiative of the users and natural effect of the communications that will take place. But the multiplier effect that networks of communities communicating through telecenters both within the country and with the diaspora can have upon development calls for a more interventionist approach such as the one proposed under the project “Conectandonos al futuro de El Salvador”²⁸ which contemplated a structured national network of some 100 “Infocentros”²⁹.

“Government” telecenters at local level

The involvement of local governments in community access and use of ICT started before the activities of central governments. The City of Buenos Aires (Argentina) initiated participatory administration centers in 1996. At about the same time municipal communication networks were launched in Montevideo (Uruguay) and Santiago de Chile. Being closer to the grass root realities, local governments are in principle in a better position both to develop programs that make room for the needs of the population, respond to its expectations and articulate themselves with social movements; while at the same time ensuring that core requirements such as provision of connectivity and enabling the deployment of E-

²⁷ In 36 months of operation the FUST is believed to have collected about 1 billion US \$, [http://www.anatel.gov.br/Tools/frame.asp?link=/biblioteca/releases/2004/release_08_01_2004\(2\).pdf](http://www.anatel.gov.br/Tools/frame.asp?link=/biblioteca/releases/2004/release_08_01_2004(2).pdf) visited Aug. 27, 2004.

²⁸ <http://www.conectando.org.sv/index.htm> visited Sept. 25, 2002. The actual implementation of the scheme suffered a number of alterations and delays but still presents marked differences with the more traditional approaches.

²⁹ A choice of name that was intended to emphasize collective access to, and use of, information as opposed to mere connectivity.

Government projects are equally present. For instance, in Manizales (Colombia) coffee producers can find online assistance while in São Paulo (Brazil) unemployed people can find online job offers.

Local governments might also be expected to be more flexible in the management of these programs. Even though the Popular Participation Committees, such as those of Porto Alegre (Brazil), started without concern for the use of ICT, this innovative form of organization tends naturally to link up with the new communication opportunities that telecenters offer with the possible result of a mutual reinforcement with regard to management, services and interaction with the local authorities. Proximity factors at the local level also makes it relatively easier to develop strategic alliances among stakeholders, including ICT industries, local businesses, grass root organizations, etc. as has been effectively demonstrated by Sampa.org in São Paulo (Brazil) (Ortiz, R.A.A, 2001).

“NGO’s” telecenters

Diversity is the most obvious feature in the NGO telecenters category since the starting point is often either a specific community seeking to take advantage of ICT in its struggle for development, or a particular need within community or a segment of the community. Some telecenters will thus focus on environmental protection, education, income generation, healthcare, cultural heritage, human rights, etc., while others will be concerned with street kids, women, or minorities. These roots in the community are both a strength and a weakness. As a strength, they provide the necessary impetus, vision and basis for participation. But the inherent tensions, contradictions and above all poverty and lack of skills are often reflected in the development of the telecenter. Whether they are operated by a community group, or by a social development NGO, or a conjunction of the two, major constraints for all are financial sustainability and human resources.

The sustainability issue is linked to the external sources, whether national programs, charities or international organizations, which are often providing the start up funding, and the structural poverty that affects most of these communities. There are, however instances where the communities themselves have managed to assemble the resources needed to start up and have continued to operate at least in part, independently, from NGO or other support³⁰. As discussed earlier, the debate is quite open. As usual it is lost in the foolish attempt at applying business profitability principles to basic social needs and services. The actual challenges are eventually complicated by the vagueness of regulations or their inappropriate application where the result is to treat telecenters in the same way as for-profit cyber cafés, imposing on them the burden of telecommunication licenses or taxes. Even if the amortization of the infrastructure is not being required, it takes time before revenues can be developed to balance the cost of operations particularly where the fee structure is set up to reflect the needs of the poorest segments of the communities, a dilemma that is observed in all parts of the world (Oestman and Dymond, A.C., 2002).

Human resources for the operation of the telecenters presents another major difficulty. The training of staff for the basic technical functions is relatively straightforward but the more complex skills related to network or hardware maintenance, for example, require more effort and time. In fact, computer maintenance is not available in many places for lack of a sufficient market. Once trained and experienced, the staff, usually young and educated people, naturally look for career development opportunities which are only infrequently possible in the social sector. They cannot be expected to resist the offers from the private or public sector which badly need computer savvy personnel. Also, from a development perspective, skills cannot be restricted to telecenter staff. There is a need to equip all the users not only with the ability to use the facilities but also to create relevant content and develop purposeful applications that will support the various development efforts. Such comprehensive approaches are best illustrated by the unique example of the Ashaninka community in Peru, which has embarked on a long-term strategy for human resource development effort aligned with its other social transformation targets (Castro, M.E., 2000). This latter endeavor is also a fascinating illustration of the necessary appropriation process and the resulting effective empowerment of the local population. This type of ICT enabled community re-birth is of course, at odds

³⁰ Cases of this nature can be found for instance in Ecuador in Lumbaqui or Recoka in the Amazon or Papallacta

with the immediate concerns for sustainable connectivity that is at the core of commercial cyber cafés and even many government telecenters.

Because of their ties with community groups, NGO telecenters do not restrict their services to basic telecommunication and computer services (phone, fax, copying, Internet access, etc.). Rather they are concerned to use the resources that connectivity makes available in support of basic educational, cultural and economic programs. They are thus at the same time a learning center, social center, meeting place, market place, recording studio or whatever local people feel appropriate. In this respect, the technological marvels such as the 1st generation Lincos telecenters-in-a-container³¹ falls short of a real response to the requirement for social appropriateness (Granqvist, 2002). Even though it may not be associated with specific services, a key application and use of community telecenters, in particular among indigenous communities, is the struggle for their rights, which of course goes far beyond outspoken “communication rights”. In many instances what is at stake is simply the right to exist.

There are a number of other issues raised by NGO or community based telecenters. Both cost and social principles are moving community telecenters towards emphasizing the use of open source software to the greatest extent possible, even though this may in the short term increase the skills shortage they are facing for their staffing. Connectivity raises additional problems especially in remote mountain or jungle areas, but also in the poor suburbs of the major metropolises, the more so when spectrum licenses are dealt with from the perspective of “profit opportunities” rather than “social needs” and when de facto monopolies are established by international corporations under the banner of open market competition. Also, a number of telecenters are already using radio, integrated or not with Internet platforms, for the delivery of services and community interaction. As critical as it may be, media integration is not sufficient. In practice multiple forms of human intermediation are also required in order to create the required connections between the information resources, the communication technologies and the local community.

Issues and challenges

According to NUA figures for September 2002³², Latin America and the Caribbean would represent close to 5.5% of the total Internet population, as compared with 30.92% for Asia and the Pacific, 1.04% for Africa and 0.84% for the Middle East. But this 5.5% corresponds to about 7 % of the population of the region. If one considers, with appropriate precautions, the position of the 20 countries of Latin America and the Caribbean among the 75 that appear in the Network Readiness Index (Kirkman, G., Cornelius, P.K., Sachs, J.D., Schwab, K., eds., 2002, chapter 2), one finds that none of these is in the 2 first quartiles (NRI between 6.05 and 4.06), where only 3 Southern, in fact Asian, countries, can be found. 15 of them are in the 3rd quartile, out of 34, and 5 in the last quartile (NRI between 3.08 and 2.10), that is half of this group. If one considers the basic figures regarding connectivity the picture is equally unsatisfactory³³. Even though Internet presence and use is by all yardsticks steadily growing, it remains very low compared to advanced countries and even some emerging countries of Eastern Europe. Interestingly when comparing the figures of the 2002-2001 and 2002-2003 NRI, it appears that 1 country has kept the same score, 5 have a higher score (increases ranging from 0.02 to 0.61), and 14 have a lower score (decreases ranging from 0.05 to 0.39). This seems to indicate that the overall situation is not really improving. Only the major countries of the “Cono Sur”³⁴ appear in the upper half of the sample. As artificial and uncertain as they might be, the

³¹ The description that was provided in 2002 on the Lincos web site (<http://www.lincos.net/html/eng/descripcion.html>), no longer available, stated “The structural design of these centers is based on transportation containers properly modified and conditioned for these purposes. They were selected because of their convenience, availability, safety, and transportation easiness. The units are permanently installed in a community with an awning that provides them with shade and protection from the rain.”

³² http://www.nua.com/surveys/how_many_online/index.html visited August 27, 2004

³³ Of the 31 countries of the region that appear in the ITU Digital Access Index, 14 are in upper, 15 in medium and 2 in low DAI groups. Broadband subscribers per 100 population ranges from 0 (in 18 countries) to 1.3, Internet subscribers per 100 population ranges from 1% to 23,8% with only 14 countries above 10% (of which 9 Caribbean countries).

³⁴ Argentina, Brazil, Chile

figures in table 3 below provide a basic overview of the background situation. It unfortunately does not truly reflect the dramatic inequalities that affect people in Latin America with regard to connectivity and use of modern ICT, as well as with any other aspect of society. An illustration can be found in the study of metropolitan Lima (Peru) by Ana-Maria Fernandez-Maldonado (2001), which shows that the lower income segments of the population, representing more than 80% of the total population are severely deprived of most telecommunication facilities, and for the lowest segment, appear to have no telecommunications access at all.

The commonplace debate whether telecenters will succeed in bridging the so-called digital divide, like most issues favored by the media, is a non-issue. Especially if raised in terms of the telecenters ability to sustain themselves financially in a competitive market. This divide is one of the many facets of the basic social divide, which is growing in all countries. With or without “Simputers” or “Volkscomputers”³⁵ the total cost of Internet access will for many years to come remain beyond the reach of the great majority of poor families in the region. Collective access is thus the only alternative. But more importantly the potential benefits of this facility cannot be achieved through individual use, at least in the short to medium term. For this to be realized there is the need beyond computer and information literacy; a proper articulation with other government, social or community efforts towards the creation of new opportunities for broad changes and improvements in the conditions of the poor people. This is to say that from whatever corner, a comprehensive approach is required that would leverage all strengths and assets. Even though a basic requirement for integrated development has been acknowledged for many years, it is striking to see that segmented piecemeal approaches continue to be the norm in practice.

Table 3 Network Readiness Index and connectivity

³⁵ Names given to the low cost simple computers recently designed in India and Brazil

Country	NRI Score	NRI Rank	Network Access Rank	Network Use Rank	PIB per capita	Fixed lines per 100 inhabitants	Inter-net users in % of population
United States	6.05	1	1	2	32,198	66.10	40.7
Canada	5.23	12	10	16	19,962	63.50	36.3
Argentina	4.01	32	33	31	8,257	20.11	2.5
Chile	4.00	34	30	34	4,921	18.57	4.2
Uruguay	3.80	37	38	37	6,335	27.07	7.6
Brazil	3.79	38	37	40	4,675	14.87	2.4
Mexico	3.58	44	41	43	4,330	11.22	2.6
Costa Rica	3.57	45	53	48	2,763	20.41	3.9
Trinidad & Tobago	3.52	46	58	49	4,726	20.58	1.9
Dominican Rep.	3.52	47	35	42	1,925	9.28	0.3
Panama	3.42	48	47	55	3,305	16	1.6
Venezuela	3.41	50	44	50	4,088	10.91	1.7
Peru	3.38	52	46	44	2,530	6.69	1.5
El Salvador	3.30	55	60	56	1,984	7.61	0.7
Jamaica	3.29	56	64	64	2,707	18.68	2.4
Colombia	3.29	57	52	53	2,844	16.04	1.6
Paraguay	3.15	63	72	47	1,646	5.54	0.4
Bolivia	3.04	67	67	52	1,077	5.80	0.4
Guatemala	3.00	68	59	62	1,754	5.46	0.6
Nicaragua	2.83	69	69	65	452	2.98	0.4
Ecuador	2.65	71	62	73	1,620	9.10	0.2
Honduras	2.64	72	70	72	859	4	0.3

Sources: Kirkman et al., 2002, p. 11: "America Telecommunication Indicators 2000" ITU quoted in Proenza et al. 2001, p. 3.

Summarizing key issues concerning the development of telecenters for the debate in the workshop on community telecenters at the 2nd Global Citizens Networks conference, Menou and Silva (2001) tentatively listed the following:

1. Securing effective community participation in the design, operation, management and development of one's telecenter or network of telecenters;
2. Securing social sustainability, especially when the cost-benefit balance takes diverging forms among the various groups of stakeholders;
3. Secure financial sustainability;
4. Assemble and keep a body of qualified staff to operate the telecenter;
5. Produce local contents that respond to the needs of all members of the community and at the same time could be attractive to a broader, possibly global, public;
6. Respond to the educational and training needs of members of the community;
7. Contribute to the process of wealth creation within the community;
8. Breed among the telecenter operators and the leaders of the community the vision, capacity and legitimacy required in order to negotiate alliances and support with entities of the public and private sectors;
9. Use effective procedures and tools for the open, continuing and collective assessment of the outcomes, successes and failures of the endeavors;
10. In sum, identify and satisfy the conditions for putting in practice the formula: "Social Development = Empowerment of the People + Telecenters".

During the discussion, Raul Román rightly proposed to add one more item: Establish and nurture trust among stakeholders, especially within the community.

Apart from perseverance and luck, there is no recipe for achieving the above. It is of course easy to abuse such metaphors as “turning the vicious circle of poverty into a virtuous circle” that are so popular at the International Monetary Fund³⁶. Actually one of the causes of the vicious circle is “the inertia which characterizes popular sectors of Latin America. This inertia prompts them to adjust to the circumstances that shape their lives rather than seek ways to change these circumstances” (Palma, D., 1998). To be fair it should be acknowledged that these attitudes are the result of complex socio-cultural influences marked by 500 hundred years of external and internal colonization, and the hard learned lesson that “the more it changes, the more it is the same”. The first step in the possible way out is the recognition of their own social capital by members of the community and the community as a whole. It is the foundation upon which a process of empowerment can take place. Assuming the dominant powers at play are willing to let it grow. ICT can play a noteworthy role in this process by allowing the community to hear its own voice and make it heard by many, and by bringing it on top of the wave of “modernity”, as modestly as that may be. An increase in the number of persons “having access” to ICT or a collection of “success stories” in E-commerce by local entrepreneurs are only remotely connected to this process.

The proliferation of cyber cafés, at least in places where foreign tourists tend to concentrate, is often taken as a model of development. The number of cyber cafés in Quito (Ecuador) is now estimated at some 800; they charge around 3 US \$ per hour, that is 6 times the current minimum wage. The assumption is that these are small enterprises that are generating income in the community and can have a multiplier effect. The same economic justification could as well be used to the less fashionable sex tourism business. Of course in a falling civilization that takes quick money making as an absolute ethical principle, such considerations are in order. This is not to say that some cyber cafés could not pursue social development goals in the long run, or that telecenters should not seek the highest possible financial autonomy. But confusion of genres seldom brings clarity. The generalization of massive national programs whose actual contribution hardly goes beyond connectivity and elementary computer literacy, and that are eventually designed and operated according to commercial rules, poses another threat. It is likely to popularize a mere consumerist perspective³⁷ as opposed to a social vision such as the one proposed by Mistica (2002).

To the extent that few telecenters and telecenter networks are represented by specific organizations, and are themselves so diverse and dispersed, it is difficult for them to consolidate their interactions and form a critical mass that can boost internal growth as well as allow them to play a pro-active role on the local, national and regional political scenes. This is why [Somos@Telecentros](#) is putting a priority on the building of a strong representative movement. Such a transformation is however going against some of the existing libertarian traditions and informality of practices. It also raises risks of bureaucratization and institutionalization, as is constant in social movements, which may jeopardize the original objectives. Nevertheless, even when the processes of consultation, or partnership building with civil society are sincere and honest, in the end it is the same components of the techno-structure that dictate their approaches, implement programs and get the returns. Observing the evolution of the discourse of the major representatives of the techno-structure -- politicians, government officials, industry representatives -- one can only be struck by the extent to which the ideas of social transformation and socially responsible application of ICTs have been absorbed and emptied of any true meaning. Only the presence on the scene of a second interlocutor -- as for example a community sufficiently organized to effectively articulate its own interests -- can put limits to the doubletalk.

³⁶ There is a long Western philosophical tradition which considers poverty as a vice or the direct consequence of it, in fact the vice of the poor themselves, not of those who exploit them.

³⁷ A sign of this trend can be found in Jensen, M., Esterhuysen, A. (2001). *The Community Telecentre Cookbook for Africa: Recipes For Self-Sustainability. How to Establish a Multi-purpose Community Telecentre in Africa*. Paris, UNESCO. Here social diagnosis and needs assessment are treated as standard marketing activities and community participation reduced to representation in the management bodies of the telecenter.

Conclusion

So, what is a telecenter? Colle and Roman claim that they have encountered some 30 different definitions of “telecenter” and thus propose to stick to one they consider the most generic: “shared premises where the public can access information and communication technologies” (Colle and Roman, 1999). We contend that what characterizes a community telecenter is its social vision, its dedication to an explicit mission to support the social and personal development of the individuals and communities they serve, and their contribution to improving the condition of the people. We therefore feel that a telecenter would be better identified, if not defined, on the basis of the following basic features:

1. A community.
2. The struggle of this community for overcoming the drawbacks and deficiencies in its environment and in itself in order to improve its quality of life.
3. The awareness of the community that ICTs can help it accomplish its development objectives and its capacity to use ICTs for this purpose
4. A physical space appropriate for the implementation of the social development programs and the use of appropriate ICTs
5. The production of information and services that support the efforts for improving the quality of life
6. An economic and legal framework that provides conditions for the regular operation of the telecenter and its ability to achieve financial, technical and social sustainability.

Research about telecenters has up to now been conducted almost exclusively by external observers on the basis of relatively short visits. It is certainly time to move into true participatory action research where the observation and analysis will be conducted mainly by the actors themselves, on a continuing basis, and be primarily directed at providing them with outcomes that can help the further development of their efforts. This of course requires that the actors be trained and equipped with the tools that will allow them to become pro-active partners in the research process. The latter will further require the participation of professional researchers from outside the communities to serve as catalysts in the processes of data collection, arbitration among diverging interpretations, and synthesizing of results. Another significant limitation to present research on telecenters is its relative lack of focus from both an institutional and disciplinary point of view, combined with a limited amount of available results. This has led [Somos@Telecentros](#), under the Telelac 2 project, to look towards the building of a virtual research consortium, called CoVITALC, open to all interested organizations (such as telecenters, academic and research institutions, public and private organizations).

Among the objectives of the proposed consortium are:

- The development of a joint research agenda and promotion of specific research activities, exploring areas of special relevance to practitioners and writing up the findings in generally available toolkits³⁸.
- Further development of the Regional Resource Center, seeking to expand its present coverage, strengthen its dissemination and exchange functions, possibly adding an open text archive of research and learning materials.
- Support the production of a participatory action-research package geared at preparing actors of the telecenters movement to effectively participate in the research process.
- Run workshops for the preparation and dissemination of the action research package.

³⁸ In addition to gender as a cross-cutting issue, particular attention is likely to be paid to such topics as: Technology for connectivity and community service, Self sustainability models, Governance of e-communities, Micro-finance and remittances, E-commerce, Production of local content, Use of national languages, ICTs for people with special needs and disabilities, Methods for assessing the role of ICT in social development, Human factors in effective use of ICT for social development, Self development and social development, Gender accountability in telecentre operations and in the LAC telecentre movement.

- Promote, and participate in the production of a comprehensive program on community informatics and telecenters (modular curriculum and syllabi with supporting teaching and learning material) that could be used in formal and informal education programs in traditional and distance education modes³⁹.
- Organize, in cooperation with the national Somos@Telecentros conferences, annual regional training workshops for operators and managers/leaders of telecenters and other digital inclusion projects in order to take stock of available know how and revise the research agenda.

It is our most sincere hope that this perspective will attract researchers and practitioners from all possible places and trades who are keen to contribute to a better understanding of, and enhanced capabilities in, harnessing ICT in the service of real human development.

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³⁹ A project which has already begun to take shape within the Community Informatics Research Network

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Building Community Social Capital: The Potential and Promise of Information and Communications Technologies

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Abstract

Increasing community social capital is widely viewed as one of the benefits of the deployment of information and communications technologies. A meta-analysis of the literature related to social capital and ICTs is completed. Using the five elements of social capital generally described in the research literature, the meta-analysis examines the empirical findings related to each of these five elements. The results indicate that much work remains to be done before it can be said with any validity that ICTs can, in fact, create community social capital.

Introduction

Rhetoric abounds regarding the central importance of social capital in considerations of community sustainability and action. Considerable rhetoric also exists regarding the potential of modern information and communications technology (ICT) to affect the development of social capital in positive ways. Other observers have questioned the notion of using ICT to build social capital (Loader, et al, 2000) and revitalize local communities (Dutton, 1999), but have yet to provide an empirical analysis of this capability. This paper examines the relationship between social capital and the pervasive nature of ICT in almost every aspect of social life, especially where community is the desired outcome or context. The fundamental question to be examined is implied in the title: can ICT successfully build social capital in communities?

This paper first addresses the notion of social capital to determine what consensus might exist about the various dimensions of social capital. Next the paper discusses the functional elements of information and communications technology with an attempt to relate the functionality of ICT (primarily those that are computer-based and tied to the Internet) with the nature of social capital formation. Then the paper illustrates the basic argument through a consideration of bonding and bridging forms of social capital and draws some conclusions about the efficacy of technology in building social capital.

One caveat is important here: this is not a technological determinist view of social processes and the influences of technology. As Gurak (2001) has noted about the Internet, "...technologies are invented by people and imbued with design choices that give these devices (software included) certain trajectories. ...The choices built into the Internet, and the choices we then make about how to use it, require a far more critical framework than we currently have." This paper views the relationship more in the context of theories of "social construction of technology" and argues from the standpoint that people can and will decide how to use this technology for their own purposes, provided that the features of the technology make it possible to do so. This paper draws on the perspectives of social informatics (Kling, 2000). We examine central elements related to ICT and social capital to determine where there may be sufficient justification apparent to warrant empirical research.

Community in Cyberspace

By way of introduction it is useful to contextualize the discussion that follows by emphasizing the importance of community as both a setting and an outcome of social action as constructed in cyberspace. We believe this meta-analysis has relevance to both communities of place and virtual communities. Much of the hubbub surrounding the Internet's capabilities has been focused on its use to create virtual communities, on-line communities where people meet, greet, discuss, share and often develop relationships that become face-to-face (Rheingold, 2000). Jones (1998) believes that, although high expectations are not always fulfilled with new technologies, expectations for social change and community remain. Castells (2001) views the Internet as creating new forms of social organization, identity and inequality, and power, and that in contrast to claims purporting the Internet is a cause of alienation from the real world or a renewed source of community or, social interaction on the Internet; rather it seems to be directly affecting everyday life. Too often the rush to "wire America" has left communities of place, both rural and urban, disconnected from the most rapidly growing form of communication ever known and drained intellectual and economic assets from disadvantaged places (Sclove and Scheuer, 1996). The "digital divide" is not just about disadvantage based on literacy or socio-economic status or race or gender; it is also about places left behind.

Networked computer and communications systems have become embedded in the lives of many in North America. Allowing public access to the Internet fostered a great number of inquiries into the widespread use and applications of the Internet. There has been a great deal of empirically grounded research about ICT and social change that could better inform questions about the impact upon societal changes (Kling 2000). The research articles are scattered in many research journals and books in many disciplines, making it difficult for both scientists and non-scientists to locate these studies. Social informatics is a term used to bring together all of these ideas in the different disciplines and to strengthen the dialogue between these different specialists (Kling 2000). Kling (2000) refers to social informatics as "the body of research that examines the design, use, and consequences of information and communication

technologies in ways that take into account their interaction with institutional and cultural contexts” (pp. 217-218).

Community informatics represents an emerging subset of social informatics that addresses the same concerns as restricted to and represented by community-based institutional and cultural factors (Gurstein 2001; Loader, et al., 2000). Community informatics tends to concentrate on communities of place rather than communities of interest. This field is focusing attention on social capital as well as studies related to community development (Doheny-Farina, 1996; Kavanaugh and Patterson, 2001; Pigg, 2001), rural economic development (Pigg and Crank, 2003), health care, and education. Additional work in this field is addressing issues such as sustainability of technology development efforts, community networking, digital divide factors (Civille et al, 2001), design issues and effective use (Gurstein, 2004).

Social Capital

Social capital is often seen as a function of network qualities, norms of reciprocity and trust. Robert Putnam, in his often-cited study of the state of Italian democracy (1993), cites these three elements as comprising the basic dimensions of social capital in Italian society and has extended this analysis to American society. Putnam, in his empirical measurement of social capital, also focuses on aspects of civic participation in social and governance contexts. More recently, Onyx and Bullen (2000) state that social capital contains five main themes: networks, reciprocity, trust, shared norms, and social agency. In the analysis by Wall, et al (1998), it is determined that social capital is “...composed of social networks which can be activated” (p.304) suggesting that social capital is instrumental in social action. Similarly, Woolcock (2001) defines social capital as “...norms and networks that facilitate collective action” (p.13). More specifically, Flora (1998) argues that only certain qualities of social networks are related to social capital, namely diversity and extensiveness. The “network” focus is popular with ICT researchers due to the parallel nature of social networks and physical communication networks that make up the Internet or other communication technologies.

We also find important the notion of the network comprising a resource that can be mobilized for instrumental action. Coleman (1990) argues that social capital is a “...set of resources that inhere in family relations and community social organization...”(p.300). For Coleman, social capital is intangible and is composed of obligations and expectations, a set of norms and effective sanctions that can affect behavior and information channels. Castle (2002) also notes that social capital has been used to analyze rural areas’ potential to achieve objectives, reinforcing the notion of social capital as an instrumental resource. What is not so clear is the precise nature of the “resources” that comprise social capital. Castle (2002) argues that, as a form of “capital,” these resources must be both durable and useful. That is, social capital has the capacity to be used in production or consumption and it can be used in more than one time period.

Wall and associates (1998) point out that a third basis for social capital is found in “reciprocity transactions” following the exchange theorists like Simmel who had a utilitarian view of social interaction and argued that such transactions could affect social status as well as economic position. The notion of a norm of reciprocity being related to social capital is well documented as an important element that facilitates the way in which interactions are structured among community members.

Portes and Sensenbrenner (1993) discuss a fourth basis for social capital: “bounded solidarity,” as well as a fifth, “enforceable trust,” from Weber’s analysis of the characteristic differences between formal and substantive rationality. Solidarity is also the focus of structural analyses such as those of Young, Spencer and Flora (1968) or Zekeri, Wilkinson and Humphrey (1994), among others. Solidarity operates as a source of collective identity and a resource for action against threats from external sources. The binding factor may be common interest, ethnicity, history, religion or culture, or anything else unique to a social group.

Weber’s analysis is well known and there are a number of recent works that attempt to determine the nature of trust with regard to its relationship to social capital. For example, Farrell and Knight (2003) define trust as “...a set of expectations held by one party that another party or parties will behave in an appropriate manner with regard to a specific issue” (p.540). Harkening back to Weber’s analysis, they

argue that the existence of institutions in social settings can influence the trustworthiness of the actors in such a way as to create ongoing relationships of trust among those actors. They suggest a model of the relationship between institutions and trust which presumes that institutions affect trust between actors insofar as they: “(1) give actors an incentive to behave in a trustworthy (or, in some circumstances, untrustworthy) manner and/or (2) affect social beliefs about the trustworthiness or untrustworthiness of actors through their dissemination of information about the expected behavior of others” (Farrell and Knight, 2003, p.542).

This brief review establishes five dimensions or components for social capital from the literature. Rather than follow the advice of some authors to “select one” from the above list (Leonard and Onyx, 2003), we use all five components. Our implicit assumption is that it is quite possible that a concept as complex as social capital is, indeed, composed of several dimensions and these five appear reasonable and well documented. This assumption does not extend to the notion that these five components are unrelated. In fact, the literature suggests that they may be interrelated in very complex and mutually reinforcing ways. Operationally speaking, however, these five dimensions can be treated as conceptually valid. Subject to further empirical research on the relationships among these five, we will proceed as if they were distinct.

Based on this proposition we now argue that these five dimensions form a basis for examining the initial hypothesis or research question: Can ICT build social capital? By examining Figure 1, we provide a framework for completing our analysis of the factors related to this question, namely the elements and capabilities of ICT and their relationship to building social capital.

As shown in Figure 1, the analysis that follows indicates the connection to ICT is based both in the communication and the information elements of ICT. As the following discussion outlines, ICT include functions that support both communication in various forms as well as information storage, retrieval, analysis and sharing. Each of these elements can be operationalized in software in one or more forms with applications currently available in cyberspace. For example, electronic mail or VOIP (Voice over Internet Protocol) represent communication software applications that permit individuals and groups to “talk” back and forth, exchanging various sorts of information. Video-conferencing is another application that permits communication and information exchange. On the information side are applications such as knowledge management and archival software functions, or even simple directory and calendar construction software systems that permit information to be created, stored and shared among various kinds of users. We discuss this distinction and its implications below in more detail.

This separation of information from communication is not trivial. It is acknowledged that information is shared in various forms of communication. Face-to-face conversation is one form of communication that includes information that is not communicated verbally (Schuler, 1993). Further, as we think about the relationship between information and social capital, Briggs (2003) has noted that social capital is built upon “instrumental” and “expressive” information forms. Similarly, it can be argued that communication includes both cognitive and affective content and that the “text” itself is meaningless without considering both content and context (Raber and Budd, 2004). The challenge in the ICT environment is to formulate formats and content in ways that communicate both the affective and cognitive elements. Cognitive elements of communication can be construed as having an instrumental purpose while the affective elements are primarily expressive. Our distinction in this discussion is that, for our analysis, communication includes both affective and cognitive, while the information category includes only the cognitive.

Figure 1. Analysis Framework

Social Capital Components	ICT Elements	
	Information	Communication
Networks		
Resource(s) for action		
Reciprocity transactions		
Bounded solidarity		
Enforceable trust		

Information and Communication Technologies

Altheide (1994) discusses how new devices that have created innovative forms of communication have also altered the rules of communication in social life: “Contemporary social life is increasingly conducted and evaluated on the basis of organizational and technological criteria that have contributed to the development of new communication formats which modify existing activities as well as help shape new activities” (p.666). Altheide seeks to understand how information technology contributes to the nature, organization, and consequences of activities (Couch 1984; Meyrowitz 1985; Altheide and Snow 1991). Altheide (1994) focuses less on the “messaging”

component and more upon the logic, formats, and principles of communication technologies. Formal bureaucratic organizations operated in the belief that information technologies could provide more rational or efficient communication in which information and communication “chase each other,” (Altheide 1994: 666). The functions, techniques, and principles of information technology in the organization have spilled over into other aspects of modern society. Altheide argues that there is a gap between the potential for these devices and applications but, in reality, people may resist; and personal and legal harm (e.g., the use of medical information databases for credit and legal purposes) are not uncommon.

The “ecology of communication” is a concept that helps to understand how social activities are connected with information technology and to provide a perspective for restructuring how communication frameworks can enlighten social participation and the resulting implications for social order (Altheide, 1995). The three dimensions of the “ecology of communication” are: an information technology, a communication format, and a social activity (Altheide, 1994). Altheide (1994) refers to ecology instead of *organization* of communication for several reasons:

First, ecology implies relationships related through processes of interaction; second, ecology implies a spatial and relational basis for a subject; third, the relations are not haphazard or wholly arbitrary in which connections have emerged that are fundamental for the technology to exist and operate; and fourth, ecologies are developmental, contingent, and emergent (p. 667).

Ecology is referred to as an emergent discourse or framework. Within this framework, Altheide (1994) utilizes two important concepts: information technology and format to describe how the elements of communication provide a structure, logic, and competence for social action. Information technology (IT) refers to external devices and procedures that are used in assisting to create, organize, transmit, store and retrieve information. (Altheide 1994). The way that the technology operates brings another dimension to any activity and can often reshape activities since IT follows a logic that involves principles and assumptions that differentiate the technology from other means of storing and disseminating information.

Format is “the selection, organization, and presentation of experience and information,” that acts to shape the nature of the activity and is implicitly an instance of social change within itself (Altheide 1994: 668; Snow 1983). Formats or applications provide the basic meaning to an activity that will always outnumber the types of IT. Dutton (1999) provides a similar perspective in his analysis of the elements of ICT.

Altheide (1994) wants to make it clear that the IT-format-activity relationship is significant to social life; it is the format of ICT that structures social ties between persons and connects them to activities. He provides a model to illustrate the relevance of organizational IT and formats for societal activities in which IT formats and an organizational context creates an effective environment for problem solving which, in turn, creates a format and organizational solution in which societal context and activities pervade the entire process. Both globally and locally, there are illustrations of the new relationships between information technologies, formats, and social action. We have all heard and used the cliché, “It’s a small world,” and have listened as many have noted that “the world is getting smaller,” as new information and communication technologies bring us “closer together.” Altheide observes the use of multiple formats of information technology in the Persian Gulf War, as electronic communication directed weapons operations, targeted decisions, and even images of the war in “real time” were streamed to United States citizens back home on national and local news stations. Altheide (1994) notes that different formats, but the same information technology brought together both “doing it” and “reporting it.” The introduction of the Internet into mainstream public usage has created different formats for information technology that enables a flow of communication that isn’t passive, but is a two-way transaction such as: email, chatting, and the use of social software.

DiMaggio et al. (2001) purport that the Internet is different from earlier communication technologies, as it offers different modes of communication (broadcasting, individual searching, group discussion) and different kinds of content (text, audio, visual images) in a single medium. Castells (2001) believes that persons transform technology by modifying it and experimenting with it; and the Internet is a type of technology that is even more deeply embedded in social history since it is, “a technology of communication” (p.4). Since the Internet transforms the way that people communicate, society is greatly affected by the Internet, although since so many actions are taking place by means of the Internet, humans are transforming this virtual technology as well. Castells refers to this process of a two-way transformation as a socio-technical pattern (2001). Resnick (2001) refers to sociotechnical capital as a “productive combination of social relations and information and communication technology (pp. 2-3).

We wish to differentiate the functionality of ICT more carefully along the lines implied by the type of technology referenced. That is, we wish to differentiate between the *information* and *communication* functions. ICT communication is multi-faceted and interactive, including text, audio and video, as well it may be real-time (as in VOIP) or asynchronous or archival/historical, not to mention any combination thereof. This capacity may offer some real possibilities for building social capital and creating community.

The *communication function* refers to the acts of transmitting information of different types, e.g., ideas and feelings, from one person to another. One of the unique features of Internet based communications is the capability of “one-to-many” communication. So, ICT communication may also be one person to many other persons. This transfer of information via the Internet is not unique to the technology, except for its one-to-many feature (and even teleconferencing by phone has this feature today) and is generally considered to supplement face-to-face communication rather than replace it or substitute for it. For example, Wellman et al (2001) have determined that the use of email and other Internet-based forms of communication are generally between people with established relationships and serve to communicate the needs for support and sharing of information necessary for maintaining a relationship.

This relationship-building activity seems very important to our consideration of how ICT might function to increase social capital. These relationships are acknowledged to exist in networks of kin, friends, professional colleagues, and other community members. Müller (1999) and Rheingold (2000) indicate that most relationships that are created online are continued in physical space, thus creating new forms of offline and online involvements. Hampton and Wellman (1999), and Wellman et al. (2001) state that online interaction increases social capital as it supplements physical local relationships, and high Internet usage is associated with increased participation in organizations. Wellman (1996) states,

“Computer-supported social networks sustain strong, intermediate, and weak ties that provide information and social support in both specialized and broadly based relationships... Computer-mediated communication accelerates the ways in which people operate at the centers of partial, personal communities, switching rapidly and frequently between groups of ties” (p.352). In the “Netville” project, Hampton and Wellman (2001) found that, in a wired community, many neighbors got to know each other better through the use of a local computer network. In a study in Blacksburg, Virginia, Kavanaugh and Patterson (2001) studied the correlation between Internet use and community involvement and attachment over a three-year period. They found that there is a significant relationship between community involvement and predisposition to use the Internet for social-capital-building activities. In 1996, Internet users who reported communication with formal and informal social groups were also involved in their community. In 1999, this same pattern appeared to strengthen as people who used the Internet for small group and informal communication reported higher community involvement, whereas interaction with formal groups offline decreased by 1999.

Other software tools that are used in this networking component would include discussion lists, chat rooms, VOIP, and video-conferencing. Each software tool has different features that better support some aspects of networking than others. For example, discussion lists are a form of communication that is “one-to-many,” while email can be either one-to-one or one-to-many. VOIP, by comparison, can be many-to-many at least for a small number of people (limited by software and bandwidth capacity). Use of such tools can build and maintain social networks (Haythornthwaite and Wellman, 1998).

The *information function* is complex because Internet based information transfer can take place using a variety of features of the network. The information transfer can be “active,” in that people share information using various communication features of the Internet including email and video conferencing, or it can be passive, based on one person’s searching for resources on the Internet and using, for example, its archiving or knowledge management capabilities. Information can be transmitted in many forms. Most observers would not view the act of passively seeking and acquiring information from an archive as “communication”, since this action generally is considered to require a two-way transaction involving “broadcast-reception-response-reception.” The most visible example of the Internet’s information-based capabilities is represented in the various on-line merchant catalogs for consumer sales (e.g., Amazon, Ebay, Yahoo, etc.). All these business models make use of a database storage system, a transaction system, a search system, and so forth, all of which we would classify as part of the information function of ICT as the communication involved is qualitatively different than, for example, in a personal email exchange.

It is not difficult to imagine a community-based system that would be primarily an information function as described above that would support the networking component of social capital building. Following Kretzman and McKnight’s (1993) “asset model” of community building, the development of a searchable database that contains a brief description of community members’ interests and skills (assets) could be useful in creating new networks among community members based on those interests or on skill building.

In addition, a similar kind of database could easily support the “resources for action” component of social capital. Knowing the assets of people in a network makes it very easy to determine who might be sufficiently interested in an issue or activity to become an active participant. The organization of on-line interest groups that share information about all sorts of topics as well as the self-organizing characteristics Rheingold (2002) describes as “smart mobs,” the WTO protest groups or the Dean for President activists represent a mobilization of resources for action unlike any form of social organizing yet observed. These latter movements represent primarily the communication function, but knowing who shares your interest makes it that much easier to target communication activities.

The “reciprocity transaction” component of social capital is more complex. The action implied is straightforward enough: one person provides something of value to another in expectation that, at some point in time, the other person will act similarly. Such reciprocity may come upon request or not and may not occur for a long period of time after the initial transaction. Exchange research is full of such transactions and their social capital building effects in communities and groups. The expectation of reciprocity is usually unstated and informal rather than explicit and contractual. Different norms as to value

and the eligibility of persons to participate in certain types of transactions are contextually specific. Usually, participation is limited to social network members rather than carried out with outsiders, but this is not always the case.

Putting aside commercial transactions in which cash is exchanged for materials goods and services, what kinds of valued things can be exchanged via ICT and is a reciprocity norm present and active? Insofar as communication may take place via the Internet that contains solicitations or offers for exchanges in which someone receives social support or valuable information not generally public, ICT can support the transaction element. The reciprocity element may be more difficult to verify or operationalize since the concept involves, primarily, informal or non-contractual relationships. For example, Miranda and Saunders (2003) have investigated reciprocity in the context of shared meanings created over the Internet when information is shared. They assert that "...intersubjective construction of meaning necessitates reciprocity" (p.89) and determine in their research that the lack of a "social presence" in electronic communications impedes reciprocity and interactivity. The "depth of information sharing did not produce shared meaning" without a form of shared presence, demonstrating again that communication involves more than words. Creating a "social presence" via the Internet is a capability that is, as yet, undocumented or, perhaps, untried.

Bounded solidarity is important in group and community identity. It has frequently been associated with social movements of resistance or opposition to power as this characteristic provides the sense of "being in this together" rather than facing threats or risks alone. Solidarity represents a social characteristic that makes it easy for outsiders to recognize members who share the characteristic. The boundary that sets a group or community apart may be ethnicity or social status or geography or history. This component of social capital solidifies connections between people who belong and makes it clear who does not.

For ICT, supporting the creation of bounded solidarity might be considered a difficult challenge. Certainly, our review of the related literature finds few documented examples of this being successfully established. In other settings it is clear that solidarity is established by communication among members of a group or community and ICT can certainly support this function. To the extent that people rally to a symbol, vision, or message communicated via ICT, those in charge of the organizing might contemplate using electronic mail, chat rooms, discussion lists and interactive web sites to publicize elements of the message to various audiences. Some messages could be directed at recruitment of people to the cause. Some messages could be targeted at individuals or groups to create stronger bonds among them based on the elements of solidarity being used or to create a sense of threat from external forces.

One can also imagine a database of, say, atrocities committed against the group for which the boundary is being emphasized as a way of supporting organizing efforts. The list of Jews who died in concentration camps is read each year on our university campus as a way of reminding Jews of one historical experience that separates them from other people as well as reminding non-Jews of the solidarity that Jews share as a social group. The Vietnam War Memorial represents a database of those who died in this conflict to which people can relate as friends and relatives and sympathizers. This "connection" binds visitors together who have never met each other by finding companionship and empathy with other visitors who share this experience. Transforming such experiences to the virtual space of the Internet is certainly within the realm of the technology. One example of how this might be done is a community site that emphasizes the unique history of the community in, say, the Civil War or the California Gold Rush, and the residents who shared that history through family members who were participants. Such "info sites" serve as good marketing tools in tourism promotion and may provide access to information about relatives, events, or other resources that attract visitors, especially those who may be doing some family genealogical work. Nevertheless, our research to date has not identified any examples of this sort of application.

What functional tools are available to achieve "enforceable trust"? There is a rapidly growing literature regarding the nature and role of trust, as well as the requirements for a trusting relationship, and the norms related to trusting behavior. This literature traces roots to Simmel (Möllering, 2001) as well as Weber (Farrell and Knight, 2003). Generally speaking, the evidence points to several dimensions of trust in human relationships. Trust is related to cognition and affective relationships (Möllering, 2001; McAllister, 1995). To the degree that we have "good reasons" to believe that someone will behave in a specific manner in a

given situation, we extend trust to that person. Our “good reasons” may or may not be inherently rational, but each of us makes the choice as to what constitutes a reasonable basis and available knowledge. Such reasons might be competency, demonstrated willingness to take responsibility, reliability and dependability in similar situations or reputation as acknowledged by trusted affiliates (McAllister, 1995). Affective reasons for trusting someone might include a personal relationship with another person, altruism, the degree to which the other person expresses care or concern about one’s situation, and the reciprocity shown or promised regarding one’s situation (Rempel et al, 1985).

Another basis for trust can be found in institutional factors (Wall, et al, 1998; Farrell and Knight, 2003; Pavlou and Gefen, 2004). Such institutional-based trust is found in our dependence on professional norms and credentialing activities. Certain professions are licensed by the state and expected to perform according to related criteria. Ethics guide other professions as well as certifications. Pavlou and Gefen (2004) take this argument to another level in their review of online marketplaces. In their words, “this ‘perceived effectiveness’ captures the degree to which a buyer believes that institutional mechanisms provide recourse, are enforceable, are convenient, are available and are cost-effective, among other factors” (p. 38). They investigate four institution-based structures: feedback mechanisms, escrow services, credit card guarantees, and trust in the marketplace’s intermediary. Their research shows that “trust in the community of sellers as a whole is a crucial factor in whether the buyer will consider purchasing products from any given seller” (p. 39). The use of ICT in this research is a direct concern and, even though the research by Pavlou and Gefen focuses on commercial activity, it is not hard to imagine that these kinds of institutional mechanisms might be replicated in non-commercial activities as well and thus produce social capital in other settings. For example, social service organizations might adopt such a model and provide parallel services to demonstrate to critical and risk-averse clients that the services they may receive from the organization are trustworthy and effective. Endorsements and referrals by related organizations more closely aligned with the social context of such clients (such as churches), affiliation with other trusted organizations such as food banks or homeless shelters, or other institutionally based demonstrations of the trustworthiness of the service provider could be demonstrated in internet based communication. Banking organizations working with the poor in third world situations that are owned by those served and governed by contemporaries in similar situations appear to be more trustworthy in the eyes of the poor than other financial institutions. Again, ICT—ignoring the lack of access possessed by such populations of poor people in third world nations—could easily be employed to handle financial transactions as trustworthy intermediaries. However, with the exception of many new E-government ventures, there do not appear to be many examples of such systems in operation, particularly serving geographically identifiable communities.

Summary

For this paper, the question becomes “does increased social capital derive from the communications or information functions of ICT or both?” We have cited examples of the use of the communication capacity to build and sustain social networks. Also cited are examples related to enforceable trust and resource mobilization. However, there are some gaps in the empirical knowledge that raise questions as to a positive answer to this research question. In Figure 2, the discussion in this section is summarized. With regard to the communication functions available via Internet technology it appears that three of the five components of social capital might be created. The relevance of the information functions of the Internet for achieving such an outcome is much more in question. It should be acknowledged that it is obvious our literature review is not yet complete as the relevant literature is quite fragmented and found in a wide variety of disciplinary sources as demonstrated in the references cited for this analysis.

It should also be noted that some research on other communication technology applications, e.g., video on demand, videotext, etc., as well as the Internet show that the user public is likely “...more interested in interpersonal and group communication and specialized services than in just having lots of information at their fingertips” (Dutton, 1999, p. 97). It is likely that content, per se, is not the driving force. Or, as some researchers describe it, the affective is clearly of higher priority than the cognitive in the applications valued by users of ICT. On the other hand, applications such as small video cameras that monitor children’s daycare facilities for parents at home or work via computer/Internet connections can be an important value-added functional use of ICT (Dutton, 1999, p. 100).

Figure 2. Results of Review of Literature

Social Capital Components	ICT Elements	
	Information	Communication
Networks	No empirical studies	Yes
Resource(s) for action	No empirical studies	Yes
Reciprocity transactions	No empirical studies	Yes
Bounded solidarity	No empirical studies	No empirical studies
Enforceable trust	Yes, in commercial applications and possibly E-Government	No empirical studies

Two Forms of Social Capital

Leonard and Onyx (2002) examine how strong and loose connections of members of community organizations affect social capital. Bonding social capital is usually associated with strong ties of kin and neighborhood and localized trust (Leonard and Onyx 2002). In contrast, bridging capital is associated with Granovetter's notion of "weak ties" and "thin impersonal trust with strangers." Leonard and Onyx (2003) think that there are three uses of the concept of bridging capital in the discussion of social capital, in which the three uses are not necessarily meant to be used collectively:

To refer to relationships that cross demographic divides of class, age, ethnicity, etc. (e.g., Portes 1998); to refer to bridges across structural holes, or gaps between networks which are not necessarily of dissimilar people, but where there has hitherto been little connection—such gaps may occur for example as a result of geographic distance (e.g., Burt 1998); and to refer to the capacity to access resources such as finance, information, and knowledge from external sources to the organization or community (e.g., Woolcock and Narayan 2000) (p. 191).

Further, Leonard and Onyx (2003) believe that networks are lateral associations of individuals and groups, and that individuals working together create social capital, in which bridging social capital would involve a large, less dense network with fewer "multiplex" relationships. Reciprocity is referred to as the individual providing a service or favor in expectation that the favor will be returned. They believe that the conditions of reciprocity would need to be more clear and direct than those of bonding social capital. "Thick trust" is usually associated with bonding social capital whereas "thin trust" is associated with bridging social capital. Finally, social norms are an undocumented but commonly understood recipe for shaping what patterns of behavior are expected in a social context and what forms of behavior are valued or socially approved. Without strong norms, rules have to be negotiated, decided upon, and enforced for every interaction, making social relationships complex. Social norms are assumed with bonding social capital whereas bridging across social distances creates the need for the conscious exploration of norms and can only proceed if a foundation of shared values can be established (Onyx and Bullen 200, p.192).

The conceptualization of bridging and bonding capital above suggests that bridging social capital places agency as the central focus. Social connections are created mainly to increase agency, whereas the reverse is true for bonding social capital (Leonard and Onyx, 2003). Bridging social capital is associated with large, loose networks, relatively strict reciprocity, more frequent norm violation, a thinner or different

sort of trust, and more instrumentality. Bonding social capital is associated with dense, multiplex networks, long term reciprocity, shared norms, thick trust, and less instrumentality.

The intersecting, close-knit ties of the well-bonded community can be harmful to bridging social capital or to extending relationships to a wider and more diverse group. Portes (1998) reviews the positive and negative effects of social capital, highlighting the possibility of negative effects of norms that enforce conformity and limit the ability for individuals and groups to move across social borders. Bonding social capital is composed of connections among persons and groups with similar backgrounds, such as similar ethnic groups or social characteristics, while bridging social capital links diverse community groups to each other and to groups external to the community (Flora and Flora, 2004). Bridging ties are usually purposive whereas bonding ties are emotionally charged (Briggs, 2003). Bridging capital encourages diverse ideas since it connects diverse people from a variety of cultural and social backgrounds.

Narayan (1999) believes that bonding capital may actually be reinforcing social norms that encourage inequality and stratification, whereas bridging capital is developing cross-cutting or weak ties that facilitate access to information, resources, and opportunities. Leonard and Onyx (2003) studied how people understand and benefit from their strong and loose ties within the networks formed by community organizations in Australia. Study participants stated that their really strong ties were with their friends and family, but that their community organizations did provide opportunities for members to extend their networks. In rural settings, trust seemed to depend upon years of connection, whereas in urban areas, length of time is still important, but frequency and intensity of contact can be at least as important, particularly in new circles of people (Onyx and Bullen, 2003). Respondents also felt that reciprocity was an important aspect of strong ties in which many turned to their strong ties in times of need for material and emotional support. The sharing of common values and backgrounds was an essential ingredient for the development of strong ties. Many respondents believed that many of their loose ties involved people in the same networks as the strong ties, but a further relationship had not developed since history and common activities had not been shared or it was not possible to give the same intensity of emotional investment to everyone. Loose ties were often among members of the same organization who possessed different personal and social characteristics who gave a broader sense of perspectives to many respondents. The loose ties within organizations seemed to be bridging people across social categories. Leonard and Onyx (2003) believe that both strong and loose ties are found in organizational networks and their functions overlap such that both create a sense of belonging to achieve concrete outcomes for the community.

Leonard and Onyx (2003) found empirical evidence that links between groups were used to access information and other resources and were used to achieve outcomes that could not be accomplished solely from the resources of a single organization. Action and social agency was created by strong links across different groups and organizations within the same community. Briggs (2003) also notes the instrumental functions of bridging forms of social capital. Leonard and Onyx (2003) believe that the degree of trust plays an important role in determining whether people will take risks in bridging other networks to attain information or other resources. The looser links were characterized by lower degrees of trust, which were marked by differences in values in which trust was “thinner” and it is less likely that the loose ties would be used for helpful purposes.

Each community member has varied needs for bonding capital and intentionally works to acquire this based on emotional and (personal) material needs. Bonding capital is frequently derived from kinship networks and kinship norms that underlie both reciprocity and trust. “We trust each other *because* we are family.” The norm is fundamental to the relationship and is most often affective and institutional. Bridging capital is, primarily, a basis for collective action and community members seek bridging capital to satisfy political and (collective) material needs; bridging capital requires mobilizing diverse assets and access to information about the who and the what. Bridging capital built upon a foundation of diversity in network quality, reciprocity based on exchanges of material and political assets, and trust based on long-term relationships in which behaviors has become reasonably predictable. Trust is based on cognitive and institutional factors.

Modifications to Figure 2 can be made to add the dimensions of these two forms of social capital. Adding another axis to represent these two forms would likely reinforce the conclusion already drawn: ICT

can be useful in building social capital, but the empirical data have not documented this relationship as yet. ICT are more likely to be useful in increasing bonding capital via communication functions and bridging capital via information functions. Increases in bonding capital are likely derived from affective and institutional trust and reciprocity and solidarity. The networks of strong ties supporting bonding capital are taken for granted. Bridging social capital is derived from cognitive and institutional trust, reciprocity and resource mobilization as primary factors along with access to and support from diverse social networks of weak ties. This is not to suggest that increasing one form comes at the expense of the other form of social capital but does suggest that different technology applications and attributes will be effective in producing desired outcomes. Nevertheless, until there is evidence of more focused attention being directed to the dimensions of social capital and the two forms in which it is manifested—bonding and bridging—with regard to their information and communication aspects, we are unlikely to see much progress in the community venture of linking ICT to social capital development.

Conclusions

This meta-analysis of the relationship between social capital and information and communication technology is only a beginning but still suggests that a degree of “analytical skepticism” should be extended to the assertions of those advocating the deployment of ICT for creating social capital (Wolgar, 1999). Based on a deconstruction of the social capital concept, our analysis suggests ICT has the capability to contribute to enhancing and extending social networks, providing access to resources that can be mobilized for action, enhancing solidarity in social groups, and supporting mechanisms of enforceable trust and reciprocity in transactions. Our analysis distinguished between communication and information, as being of a different nature and function, especially as perceived by users. The empirical evidence to support the relationships described is yet very limited in many of these areas even if the potential may exist.

At the same time, it is entirely possible that the trajectory of development of these technologies is still in a very early stage and these applications are in the wings waiting for the appropriate “demand.” From a community informatics perspective, however, waiting means taking the risk that the global influences so pervasive in cyberspace will never provide opportunity for “local” networks and content to gain a significant foothold. It is only when user-centered design and human-centered networks are given priority that opportunities for the creation of social capital and building stronger communities will be realized (Gill, 1996).

This analysis also focused primarily on communities of place rather than virtual communities. There may be cause for greater distinction in this analysis as some observers argue that geographically based communities are not well served by ICT (Beale, 2000). Many are not well connected with quality hardware systems and they often represent very complex technical situations. Regarding the potential of ICT, a strong argument can be made for the positive outcomes that might be experienced in building stronger communities and increasing social capital. ICT, it can be argued, can support collaboration and decentralized decision making among citizens. ICT can support learning functions that may reduce conflict and improve the quality of decisions and actions taken. As Beale (2000) states: “At a deeper level, communities need to be able to learn about themselves, their world and from their mistakes and successes” (p. 60). ICT can provide support for “...self-knowledge: of people, places, cultures and of resource usage; community memory and history via the knowledge of events over time; (and) the learning function: the ability to construct meaningful knowledge from data, facts and events.” There would likely be little disagreement here, but this view is simply not (yet) supported by the evidence available and what evidence is present is focused almost entirely on communities of interest. Efforts to develop “local knowledge” for access via ICT must become much more focused on the specific forms of knowledge; its representations online, and the uses people have for this kind of knowledge. Access to local knowledge must also take into account a broader range of technological tools than is present in most community networking activities. Schuler’s (1993) observation that most of what takes place online is “conversation,” does not represent the full capacity of this technology. A more complete understanding of the differences between forms of communication and information storage and retrieval (in the context of ICT) must be fostered if successful creation of social capital is to be achieved. More research and further documentation is necessary before we can say for certain that ICT can and do create social capital and, thereby, build community. Enhancing social networks is obviously necessary, but this analysis suggests it is certainly not sufficient to support the

claim of ICT advocates. However, the empirical records are so fragmented among disciplines and sources that this meta-analysis has only scratched the surface. Further, it had to rely on research into some factors that did not include reference to the role and functionality of ICT, forcing the authors to extrapolate from potential to possible.

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Towards a Neo-Apartheid System of Governance in Latin America –Implications for the Community Informatics Guild

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Governance today is being reconfigured by the evolving global demand for unskilled labor in the North and elite intransigence linked to limited capital inflows in the South. The emerging profile is one of dual economies wherein the wealthy dominate decision-making systems and strategic sectors while struggling to sustain a return on their investments, and the poor either emigrate or administer meager resources in the informal sector of their respective national economies. Remittance transfers now sustain this growing corpus of diaspora communities throughout the region.

This grim scenario is now widespread in the context of States under reconfiguration, moving toward a “ritual and virtual fiction” of e-governance orchestrated by shrewd and skilled elites who have responded adaptively to the challenges that information technologies represent to their historical leadership and hegemony while astutely orchestrating an “apertura democratica” that is more form than substance. Latin America with its pronounced income distribution inequities is the region where this process is quite visible. And its current intensification should belie illusions about enhancing democracy via top down, “government as online citizen administrative chores and tax payment systems” and kindred supply side information technology initiatives. E-government programs in this context may only exacerbate the current class and ethnic polarities.

Students and practitioners of “community informatics” need take this scenario into account when either designing research protocols or consulting with activist ICT non-governmental organizations who are committed to a rustic, ingenuous “better connectivity=enhanced democratic culture” strategy. The latter today too often ignores the power of national elites who have configured their regulatory regimes to favor quasi-monopolistic market dominance in cahoots with foreign IT hardware and software interests. At the same time, this innocence fails to lead to a critical perspective on the design and impact of official connectivity programs too often tailored without critical, public input in the Ministries’ chambers and much attuned to the interests of corporate hardware and proprietary software suppliers.

Today, many government subsidized connectivity projects languish in schools, libraries and public health centers where community “buy-in” is scarce, training limited, maintenance infrequent and content often irrelevant to the needs and aspirations of the local, young IT consumers. This growing population has already been weaned at the town or village cybercafe, a regional network of mom and pop connectivity shops whose self-sustaining human and technical resources are largely ignored by the State programs. This profile of the Latin American connectivity and ineffective use pattern, suggests community informatics in this region of the South requires distinctions and caveats in any general arguments meant to apply globally, an urgent priority for forthcoming conferences on the topic.

As we slouch toward the second World Summit on the Information Society (Tunis, November 2005), Latin American States emerge from a lengthy and costly reconfiguration of public assets. Now largely privatized, these resources allow national and regional elites and capital groups (plus their foreign allies) to sustain their historical controls via modern IT-anchored mechanisms, whereby partnerships with “privatized” public entities and foreign capital partners effectively concentrate power in the key media, telecommunications and energy sectors of the respective national economies; such societies already being dramatically polarized between rich and poor. As a result, the emerging privatized Latin American State may be a ritualized fiction that sustains a democratic drama while power is increasingly concentrated and constrains any radical democratizing process (recent events in Venezuela are indicative).

In these States there is no civil service, little or no due process, limited transparency re public contracts and government budget disbursements, an elite-controlled media and telecommunications sectors, and the remittance economy has become the social safety net for the poor. The scale of the latter today permits these same elites to applaud the growing remittance flows while attenuating pressures on national social service budgets whereby “the poor appear to be able to pay their own way”. Add to this the discourse about decentralized municipal authority and it is not difficult to perceive the ruse that camouflages the concentration of effective power in these countries. Plans for the delivery of key government services via online portals may portend a “virtual State” where the programming protocols of the servers remain in the discretionary hands of a few. This is not the model of e-governance some of us may have in mind.

Local Learnings: An Essay on Designing to Facilitate Effective Use of ICT s

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Abstract

In this essay, we explore some of the details of what it takes to own, use and derive benefit from information and communication technologies, with a focus on regions where ICT adoption and use is especially low. We begin with a fairly meticulous description from our ethnographic work to which we'll refer throughout the paper. Though we consider this particular instance, we note that it represents of a wide range of instances from our ethnographic work in homes and businesses over several years in Brazil, Costa Rica, Chile, Ecuador, Bolivia, Peru, Korea & India. Our goal in this paper, however, is to change the conversation from discussions of infrastructure and capacity building to considerations of local, lived conditions in actual homes and actual businesses to suggest design alternatives that make effective use of ICTs more amenable to various locales. We offer two design directions especially for high tech corporations: Designing for Locus of Control and Designing for Local Participation. Along the way, we'll argue to re-frame of the current conception of "digital divide", putting the burden not on those with limited access, but on limited understanding within the high tech industry.

Introduction

We start with a fairly lengthy description Jose Miguel, his village and his use of computing. From this, and other examples of our ongoing ethnographic work, we offer two design directions which are subsequently discussed.

Jose Miguel

Walking down the road you can see the mud brick house, surrounded by a crumbly wall of adobe. The grounds of the small courtyard are uneven, reflecting years of erosion and compacting from rain and the walking of human and animals. A piece of PVC pipe pokes up out of the ground with a hand pump like those seen in some American western movies when people had to work to get water from the ground. Nearby is a large, plastic, blue barrel that is the water tank for the household. There's no hot water unless someone heats some. A dog lives in the courtyard and it is his job to guard the house. Other things are strewn about: a bicycle, the frame of a doghouse under construction, some drying clothes, and a variety of parts from a variety of devices.

To one side, a door of loose-fitting wooden slats opens onto a small room with a floor made of the same wooden slats. Just below the floor is dirt – dirt that sometimes works its way up from between the floorboards. There are no windows. The only light comes from the doorway when it's open. The ceiling is lined with newspaper to keep dust and debris from falling into the room when people walk on the floor above. Cloth coverings over clothes, books, and musical instruments serve as further defenses against the ubiquitous dust.

Back outside, along the perimeter of the courtyard, there are two tiny “chicken coops”. Unlike Jose Miguel's room, both of the coops are heated. Yellow propane canisters sit right there on the ground with a hose running directly to a small heat lamp hung low over the floor to keeping the chicks warm. The floor of the coop is a comfortable tussle of wood chips and the chicks are fed nutritious food, which is more than the dog gets and sometimes more than the family gets.

Across the road, Jose Miguel works a small carefully tended organic garden with an American man who lives nearby with his wife, a photographer and Fulbright scholar. Jose Miguel is starting to apply his new college degree in “Agropecuaria” (roughly animal husbandry and agriculture) to meet the needs of his home village. His chicken business is cleverly called “*Pollitos Gigantes*” (Giant Chicks). He's the first from his village of 83 households to graduate from college. His father, a poor farmer, was forced to sell some precious land to pay the college expenses of his second son, the only one of his five children to have this opportunity.

To finish his five-year program, Jose Miguel was required to research, write and orally defend what I can only report is the equivalent of an American master's thesis at any US college and a doctoral dissertation at some. With unbelievable good fortune, the American couple loaned him US \$200 (four to six month's income for many in the village) to “rent” a computer for four months from a computer vendor in a nearby city. (Although no such thing as “computer rental” is available in this part of the world, a private arrangement was made and secured by the Americans' cash loan.) . Jose Miguel had four months to finish his thesis.

The computer and everything he needed was in that room. No windows, only light from the open door. Electricity— when there was electricity— was supplied through an extension cord run in from another room. A richly woven blanket covered the computer to keep away the gentle fallout of dust and dirt from the ceiling.

What's amazing to us is not that Jose Miguel had the computer in this poor room, but that he needed one. There were two other computers we knew of that were in use in the community. One was the result

of a grant to the local civic organization; it sat in the director's office where it went mostly unused. The second wasn't actually in the community, but more than an hour's bus ride away where Jose Miguel and a few other people from his community were working in a homemade recording studio to make a CD of their music.

Other than that, there was no one else in his community who needed a computer enough to find a way to get one or get use of one. The village is mostly comprised of farmers and craft workers, laborers and herders, children and the elderly. Few have documents to process or CDs to record. And yet, some do. It's not there's no need – it's just widely distributed. In many ways, the folks that are accessing PCs in these environments are akin to Eric von Hippel's commonly used notion of "lead users"; they go through extraordinary means to gain access, in many ways modifying their environment to make it happen.

Jose Miguel's story here gives us a window into a living system that is ill suited to accommodate computing. The PC was invented and has developed in a highly refined physical and social environment available – and often limited to – the wealthiest countries and to the wealthiest people around the world. This is certainly not to say that all people adopt technology similarly; and yet, there seem to be certain assumed capabilities required to own and operate a computer – capabilities that are mostly beyond the immediate locus of control in any particular home or business.

In the next section, we offer a brief description of our methods and approach, followed by two design directions referencing the example of Jose Miguel.

A Note on Methods

As part of the People and Practices Group at Intel Corporation, we use ethnographic techniques, e.g., shadowing, participant observation and nondirective, situated interviews, to gain insight into the lives of people, places and systems of interaction in various places around the world. The content of this essay derives from several years of work specifically to identify potential applications, needs, desires, appropriate technologies and business models relevant to a large corporation for bridging the "digital divide".

Overall, we examined many different sites at various levels of detail. In many ways, the work evolved over the years. As a result of this long term, but less structured sampling, we are not making grand claims. We are offering a more generalized position that considers a breadth of data, derived over time, from multiple sites and in various contexts. From this, we extract more generalized patterns reflecting the intersection of people and places that we hope may be beneficial to ICT adoption and use in places currently without access. Field work contributing to this essay, explicitly and implicitly were collected over a period extending from 1999 through 2002; therefore, at the time these data were collected, newer technologies, such as WiFi wireless connectivity were not available.

Design Direction: Locus of Control

There are many discussions of "digital divide" that have discussed a wide range of attributes defining the "digital divide", including limited infrastructure and limited access to ICTs (cf., Campbell, 2001) as well as presumed benefits of ICTs, including eradication of hunger, gender empowerment and improved education (cf., Batchelor, et al., 2003). It's unnecessary to write about them again here. However, it's the former rather than the latter to which the business units of multinational corporations (MNCs) often turn their attention and apply their considerable resources – when they do anything at all. The issue can be, perhaps crassly, but certainly honestly, summed up as this general question: "What's preventing people from buying our stuff?" The United Nations, among others, clearly supports the contention that ICTs are beneficial to ICT development; so there must be some barriers preventing adoption and use – barriers that reside not with the ICTs themselves, but with the environment.

Rather than delineate the laundry list of issues yet again, I'd like to consider a few small details of the physical environment from Jose Miguel's perspective to illustrate this point: it's the little things– little

things that often go unconsidered – that add up making a big difference in the ability to effectively use ICTs (Gurstein, 2003). Providing free satellite connectivity won't matter if these "little things" that are part and parcel of the local environment are unconsidered in ICT design. That is, the digital divide is less about *them* and more about our (those in the high tech industry) limited understanding and intuition about these potential market places.

Let's consider an almost trivial example: There's an electrical extension cord that brings power from one part of the Jose Miguel's house passing right in front of the door to his room over to the computer. Although not the typical focus of high tech research, this extension cord is illustrative of what is often taken for granted.

In American households, extension cords are a commonplace, extra item held in reserve, just in case it's needed. In the extreme case, it's not all that unlikely for an American to find a used extension cord casually discarded in the trash some family put out on the street for collection. (I found a not insignificant portion of my graduate school furnishings in the trash the gracious townfolk of Somerville Massachusetts left on the street.) In lieu of searching the rubbish bins, a cord similar Jose Miguel's costs US \$2 in a Goodwill store; new from a bona fide hardware store, they cost about US \$12, which represents 0.028% of the median annual US household income. For Jose Miguel, that same \$10 is 1.6% of his household income. An extension cord is not something he can find on the street and it's not something he can get "on the cheap" – because otherwise everyone would. (Interesting aside: While driving between towns north of San Jose, Costa Rica with a man who has a small photo shop, he suddenly pulled over, got out and picked up a log he saw on the side of the street. I gave him a hand. He apologized, but said that the log would be good as part of the background set in his photo studio: "You don't see good things like this on the road often. People take up the good things fast.")

However much the extension cord can be considered a scarce resource, it is largely within Jose Miguel's control to get one and not having one is not a significant barrier to adopting computing. In fact, in one family home in Cuenca, the third largest city in Ecuador, the light "switch" was actually two ends of wire the physical connection of which provided a live connection and turned on the kitchen light. The family had been unable or unwilling to install, pay for or cajole the landlord into the installation of an actual switch, and yet, the kitchen, being in a windowless room, required light, and not infrequent electric shocks were a small price to pay. Thus, the local infrastructure is not always a barrier to use; given the ability to control the situation, many people are resourceful and find – often minimally – acceptable means. Of course, these inconveniences certainly sum and provide a less than ideal foundation for adopting and using ICTs. Yet, aspects that can be locally controlled have a better chance of being adopted than aspects that are controlled elsewhere.

For example, a grid source of reliable electricity is somewhat beyond Jose Miguel's sphere of influence; and when it's off, he might do something else other than continue writing his thesis. However, we note that his chickens are not heated with electricity, but with liquid propane. If the electricity goes out, they may die – and that's his livelihood; besides, electricity is more expensive than propane and, additionally, he can control when the lamps are on and off in accordance with temperature requirements rather than availability of electricity.

Most computers are not designed with this feature in mind. In India, among other places, some local businesses have taken matters into their own hands and purchased a universal power supply, which acts as a large, rechargeable battery to power the computer during times of no grid provided electricity. Too bad computers do not accommodate different sources of power – propane, wind, sun, car batteries, etc. Designing computing to accommodate various sources of power, for various periods of time seems not unreasonable in these contexts. However, designing ICTs to accommodate these conditions requires an understanding perhaps exceeding the collective experience of many high tech firms whose employees simply assume full power anywhere, anytime. The divide in this case is less about having grid provided, stable electricity and more about limited awareness and understanding on the part of the manufacturers.

The actual provision of power is one thing, but to use the equipment there's an expectation of constancy. For example, in work we've done in India, information kiosk operators use computing and

connectivity to provide desired services to rural villagers. However, in many places, power is off for at least 12 hours *during the day*. Daytime, not surprisingly, is when most people open their shops and conduct business. There's a conflict here. Although, as described above, backup power sources are available and used, they are insufficient to operate throughout the day. The result is that services are limited to what can be deferred until the end of the day when the power comes back on. Actually having the alternate power is representative of the fact that this is a business and can justify the capital expenditure. However, because of the power limitation, growth of the business is constrained to services that meet this rather arbitrary power requirement. For Jose Miguel, no power during the day means he needs to read and write at night, when it's dark; in his unheated room, when it's cold. He could aim one of those heat lamps on himself. But then the chicks might have something to say about that.

The point we are trying to make regarding infrastructure is that these details matter a lot for the adoption of technology for everyday use. Every "little thing" that must be overcome is one more barrier in the way. Having electricity is clearly important. Being able to get electricity to where it needs to be is also important. Having an expectation of when you can use it is important. An American corporation may assume a certain balance between *proximal* (close to the user) and *distal* (far from the user) control. Such assumptions, when inappropriate, lead to user difficulties in adapting the technology to local contexts. For the corporation, these difficulties reveal themselves as "surprises" that violate their assumptions. I daresay Jose Miguel's relative difficulty acquiring an extension cord would surprise decision makers in most high tech corporations – and it's just one little thing; the dust falling from the adobe ceiling would be another; that his room is unheated would be another. And so on. The result is a "digital divide".

One way around this is to design technology explicitly to support a variable locus of control such that the technology can adapt to reflect an appropriate balance of proximal and distal control. Perhaps it's possible to design technologies such that when considering the long list of infrastructure issues, the question is to not "what's available" – the full set currently assumed simply won't be available for quite some time. Rather, the question is to consider the range of potential infrastructures and design to support a range of available combinations in a way that's also responsible to the corporation.

Let's approach this issue from the perspective of "digital divide". The phrase suggests digital "haves" and "have-nots". It also suggests that the have-nots are missing out, specifically on economic development. Further, the discourse about the "digital divide" leads one to work to create conditions to turn the have-nots into haves through lists of things they don't have. It's a fine, long-term goal. But it's a *long-term* goal and it assumes parity at some point. Meanwhile, technologies continue to evolve at an increasingly rapid pace and the digital "haves" continue to extract more and more benefit and advantage, meanwhile driving the two sides of the "divide" further apart.

Perhaps what corporations should do is not go down this garden path, and actually design to accommodate local conditions. From a corporate point of view, the goal should be to accommodate the conditions among the have-nots such that they have what the haves have and, therefore, there are fewer and fewer impediments to buying things the corporation is selling. It's really not that radical a concept. Yet, the whole concept of "digital divide" seems to have mobilized a much grander movement that may be, to offer the cliché, missing the trees for the forest.

We find the utility of the "digital divide" as a construct largely without utility in a corporate context because it absolves corporations from a responsibility to make products that suit the market. Rather, high tech corporations ought to address these potential markets in appropriate ways. In this example, they ought to embrace variability in infrastructures and design accordingly. As one direction, we suggest designing to support a variable balance of proximal and distal locus of control.

But still, just having the technology is without significant meaning (Gurstein, 2003). A second direction we propose here is to design to support local participation: designing technologies such that local the local communities can benefit at least as much as any individual.

Local of Participation

As we mentioned, Jose Miguel raises chicks as well as working a small plot of land as an organic farm. To you and me, these endeavors might not seem particularly innovative, but he's making an attempt to apply his newly earned college degree to improving the lot of his community. *Pollitos Gigantes* and the organic farm are experiments he's running to figure out how his community can benefit. That is, he's locally adapting his knowledge – a resource gained from outside the community – to the local conditions. We'll briefly outline three examples and then discuss them in terms of participation.

Example 1: By keeping the chicks warm, more of them survive. Since he purchases the chicks in bulk – by the flat, there's already loss during transportation. Typically, there's further loss due to local conditions and natural attrition. We know that warmth improves yield. But he's got to provide the warmth economically for his business. We already know that a few dollars can represent a significant portion of household income. He's got to reliably improve yield while increasing his operating costs and he's got to do it in his local context of relatively few dollars, limited outlets for sale, limited means of distribution, etc.

Example 2: Farmland is fairly open in Cañar; animals and people use the fields for their daily needs. Rain is limited for half the year; and the town is at elevations exceeding 10,000 feet. Farmland is also not collocated to their homes. Often, Cañari people have to walk long distances to get to and from their fields, which were allocated to them through agrarian reform, where the main crops are potatoes, corn, peas, and grains such as barley and quinoa, indigenous to the Andes. As an aside, Jose Miguel tells us that there are older people who remember more than 80 different varieties of potatoes, many of which are particularly suited to that altitude and climate. Many varieties of corn also appear to be lost and part of Jose Miguel's endeavor is to find their strains and bring them back. In addition, the community likely eats more rice now, because of the price differential; rice is not locally grown and this is therefore not a local solution. Anyway, Jose Miguel knows that certain farming techniques such as irrigation, appropriate fertilization, attentive maintenance, etc., will result in greater yields. Yet, the situation is the same as with *pollitos gigantes*: it's unclear how to balance local constraints with the techniques he's learned.

Example 3: We invited Jose Miguel to visit and speak at a conference we held at Intel. Together we managed to secure a visa and he arrived. He spoke about his people and himself; then he wanted to see some farms. James is a local organic subscription farmer we happen to know socially and he invited us to his farm. A subscription farm is one in which households subscribe to receive a share of the produce over the course of the farms production, in this case, year round. James himself uses a PDA to track where in his four acres crops are located and when they've been planted, etc. Of course the few Intel people there were particularly interested in this high-tech/low-tech farming operation. On the other hand, Jose Miguel met one of the farm hands and they went off speaking Spanish. Turns out Jose Miguel was particularly interested in the irrigation system, especially the hoses. For James, it's just a low water-use irrigation hose with openings that can be regulated along its length. For Jose Miguel, he saw immediate utility for his village and of course queried the farmhand about all sorts of practical details regarding its manufacture and use. He knew its local value; none of us did. Even James didn't, and he's a farmer. We also found out that the hose can be purchased in various increments, larger ones costing less; if the village aggregated capital to make the purchase it might be of interest. Getting it there, is another question all together.

It is rather impractical for Jose Miguel to discover innovations by coming to the US to speak at a conference and visit a farm. And yet, it is on farms like James' where innovations such as this hose are used because James, as fringe as he is, is actually part of a market. It's only recently that Prahalad & Hart (2002) & Prahalad & Hammond (2001) have posited that there are profitable markets at the "bottom of the pyramid". Their writing establishes that it is possible for large corporations to market to these people. Our question is somewhat different: how – if at all – can ICTs empower people to interact with and participate in extant markets such they don't need (to wait) to be marketed to, or preached to, or given to?

One way suggested by our research is to think actively about what it means to participate and to imagine technologies that permit appropriate participation. We focus here on what local participation means. In Cañar and surrounding areas, the *Carnival* festival in February is the focus of a year's planning.

One of the scattered indigenous villages per year assumes primary responsibility for the entire festival, including its funding, and derives a variety of benefits from the community in response. The responsibility of playing host for the festival is considered a principle honor in the community. Separately, on Palm Sunday, the villagers gather to parade their patron saints to the town cathedral for blessings. During harvest, farmers gather to assist each other with the work through a process known as the *minga*, akin to the “barn-raising” of Amish fame. Jose Luis, a cousin of Jose Miguel, has a small photography shop near the town center; the shop is also a place for various community groups to meet. It’s also a place for a musical group to meet, to which Jose Luis and Jose Miguel belong. By the way, most of the equipment for the band is owned collectively, and not individually.

There is at least one mode of participation that is not individual. Jose Miguel is expressly applying his collegiate skills to his community. He’s made a conscious choice to remain in his community for that purpose, when most young men his age are emigrating illegally to the U.S., Spain, and other countries. His allegiance is to his people and to that place. Participation is communal. Participation is local and locally oriented. In contrast, the PC and its applications – to a large extent – has evolved to support individual, global participation. If Jose Miguel had invented computing, what might it look like?

First, it might support local wireless communication needs – people talking to each other when they are away from their homes and lands – or people within various of the scattered communities coordinating with each other to secure the rights and also to operate commercially. It might serve as a hub for local communications, which means many wireless peripheral devices. Second, its focus might well be far less on document writing, and far more on audio and video communication/archiving – for example, gathering and storing the knowledge of those 80 potato varieties. Third, almost certainly it would support music composition and performance. Fourth, it might also be a mini-projection facility to project movies (and play music) at festivals and in the evenings. Fifth, it could support multiple electronic mailboxes – one per person to function like a postal office of sorts. Sixth, it might serve as a library for books and other reading materials that can be “checked out” or read there. Seventh, it might support a wide range of remote cameras and sensors to monitor their own lands and territories and protect themselves from encroachment from large corporate interests – or at least get a good price. Finally, if he had his druthers, heat from the machine, would be channeled to warm his room – or, perhaps, his chickens,

This is just one list that I daresay reflects a bit more of his interest in local participation and a good deal less of our interest in them as a market. Unfortunately, this list is made without his cooperation. So while these items seem more relevant, it is our supposition that they remain off the mark, being tainted, as they are, by our own biases. Regardless, many of these issues aren’t new to Jose Miguel; but he remains without any voice in technology evolution. Heartening for corporations is that many of these needs are now among the cutting edge in terms of technological development. The better news (for manufacturing corporations) is that these sorts of needs are prevalent to large populations around the globe. More distressing is that corporations are going to have to develop a new sensitivity to listen to and collaborate with the majority of the planet.

All of this is not to say that Jose Miguel wishes to remain isolated in his community. As he demonstrated so naturally at James’ farm, there’s a lot to be learned from outside his community. These are the sort of things ICTs have supported quite well among those with access and all the additional attributes that enable people to effectively use ICTs. What’s far more difficult to support is localizing what’s available from ‘everywhere’ to what’s relevant to particular individuals in particular locales. These issues appear heavily influenced by business ecosystems, legal structures, property management and entrepreneurial endeavors; this discussion is reserved for another time.

Summary

The hope of this paper is to motivate technological innovations to support local contexts. Two suggested directions were proposed to emphasize designing to support locus of control and locus of participation. The bulk of this paper, however, is spent in simply relaying the details of the lived

experience in sufficient detail to make the case for and the connection to innovative technology concepts and ideas.

It is vital, we believe, to attend to the details and to attempt to enliven the lived experience in such a way that it can be “felt” by engineers who are inventing and designing technologies; and it is increasingly important as employees are further removed from the locales for which they may be designing. The vast majority of engineers, marketers and management in multinational corporations simply do not have an intuitive understanding of these locales. They are far from each other – in physical, social, cultural, symbolic and emotional distance. If there must be a “digital divide”, it might make more sense and be far more useful for everyone if we were to redefine the divide as a lack of corporate intuition, understanding and empathy for the majority of the planet, than a characterization of haves and have-nots.

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Role of Community Informatics in Socio-Cultural Transformations in Russia and the CIS

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Preface

The last decade is marked by the intense growth of the social sciences in Russia, expressed in the sharp increase in number of publications, and the volume of research projects, translations and periodic editions, scientific forums of different levels, and theses among others. Especially all this concerns investigations using the different interdisciplinary approaches, non-traditional research instruments and methodologies.

The evident trend toward inter-disciplinary integration in modern social investigations are clearly the “objective processes”, reflecting the external and determining circumstances of modern social and cultural processes and equally resulting in the requirement for the use of non-traditional research tools, a change in the researcher’s perspectives and in the approach to the interpretation of results.

The single object (the so-called “singularity” characteristic of the case-study methodology) and also the micro-level of social processes and institutions can be seen to be the focus of many recent investigations. As experience has shown, such methods allow one to work effectively in the new Russian social reality characterized by a plurality of social practices, values, lifestyles, cultures, and ways of communication.

Community Informatics (CI)—an interdisciplinary research approach linking the wide circle of specialists from the subject areas of information and communication technologies, management, social planning, social administration and some others—has just recently become known to Russian specialists.

In June 2003 within the framework of the international conference “Building the Information Commonwealth: Information Technologies and Prospects of Civil Society Development in Commonwealth of Independent States (CIS) countries”¹ a series of events were held (round table, workshop, meeting of the working group) for the presentation of CI ideas and methodologies to the researchers from CIS and other participants of the Conference. The discussions were carried out by the recognized leaders of international CI, particularly Prof. Michael Gurstein, Chairman of the Global Network of CI Researchers², Prof. Michel Menou, leading the series of research CI projects in the countries of Latin America and Prof. Wal Taylor, head of the Internet Academy, Australia.

At the same time at the conference a book entitled *Community Informatics: Community Network. Prospects. Approaches. Tools. Part I*³ was presented. This book is up to the present moment is the only book in Russian reflecting the different (theoretical and practical) aspects of CI.

During the past year the different questions of “applicability” of CI theory and practice to the current social and cultural situation of CIS countries have been regularly discussed within the framework of a

¹ <http://www.communities.org.ru/conference>

² <http://www.ciresearch.net>

³ <http://ci-text.researcher.at>

specialized mail list, as well in non-formal discussions of the CIS participants of the CI Research Network. Here we'll try to analyze the results of these discussions and also the general problem area of applicability CI theory and practice in the CIS region.

Is it possible to talk about “research in local communities” in relation to contemporary post-Soviet social reality?

A principle position of the author of this article is to suggest that Russia is a country with a qualitatively different, compared to the Western world, set of economic and political institutions, and a country where the introduction of the neo-liberal model is manifestly following a line of borrowing the terminology, but not the real content of new social processes and institutions. This statement is based on the very considerable research undertaken in recent years, and in particular, the work of S. Kyrдина (2000).

For example, if we speak about the real content of the modern “market mechanism” of post-Soviet Russia (and also including the majority of the CIS countries) on the one hand it is possible to talk about the domination of pseudo-market forms of the relations (Nureev 2000), and on the other hand – that this name does not reflect the character of this social phenomenon (as an example, “our joint-stock companies are joint-stock companies only in form”(Nureev 2000)).

Addressing the main field of the research interests of CI—the application of information and communication technologies (ICTs) at the “local” level for the purposes of local social and economic development—we should in the first place observe that for the most part current ICT projects are financed by the state (so-called e-government is largely directed to the activities and operations of the state administrative bodies).

In our previous work we have tried to show the principal dangers of such an unbalanced approach especially in the Russian context, leading as it appears to do to the further strengthening of a closed group of people (the local elite) which is often not really interested in social development or in the instrumentation of effective social policy (Stafeev 2003).

It seems appropriate to show here how different leading social researches are formulating the real purpose of the current informational and wider social policy in Russia, i.e. towards the maintenance of stability in society for the convenience of the governing elite (and therefore it is by no means concerned to address a support for socially unprotected and vulnerable groups in the general population) (Danilov 2003).

These circumstances place the researcher following CI principles in a difficult situation that requires not only professionalism and a non-standard way of thinking but also a distinctly civically oriented (and wider – an ethical) position.

A high level of corruption characteristic of the majority of the post-Soviet countries, which has now been transformed into an on-going and stable system of societal relations, is widely recognized. As a rule specific “contract relations” appear to be in the process of being established between entrepreneurs and state executives and in this case the relations between State executives and entrepreneurs are often one of becoming long-term business partners (Radaev 1998).

At the local level the electoral power as a rule is gravitating toward identifying itself with local communities (Stafeev 2003), with self-government in its true and full form and at the same time with the inheritance from the Soviet day's secrecy towards information and to making decisions without consultations with local citizens or with procedures of such consultations which are very formal.

Taking all this into account it can be said that one of the main difficulties of social studies in Russia is connected to the fact that very often using the traditional “Western” terminology does not reflect the essence of the existing social processes or phenomena.

As a most simple example of such mismatching of terminology related to the field of ICT research we can use some programs of e-government at the level of municipalities. It is possible to say that the state lends support to the institutions of self-government in order to increase their efficiency and openness but probably it would be more true to say that a big corporation – i.e. the State – informatizes its affiliation through “Municipal institution xyz Joint Stock Company”.

We can, with a high degree of certainty, foresee wide use of sophisticated municipal information systems (e.g. created within the framework of the Federal Target Programs of “Electronic Russia”) for personal benefit and also for enhancing inequality (of property, information and so on) at the local level⁴.

Under such conditions the position of the social researcher as an individual citizen becomes most important: rejecting the status of courtier counselors and ideological legitimators of the existing order with the researcher in this instance taking the role of social critic interested not only in formal studies of the efficiency of this or that system, or this or that ICT project, but also trying to get outside to observe the real state of affairs. What in reality are the performed ICT projects bringing into the everyday lives of ordinary citizens, members of local community?

And here, according to the author’s opinion, lies the potentially high value of using the CI approaches in our countries – and principally through the humanitarian, value-dependent direction of these studies.

An underlying but most set of criteria for upon carrying out CI research would appear to be those developed by UN Human Development Index (HDI). Without touching on details concerning the methods of the HDI design and calculation, it is important to point to the exoteric reliability and objectivity of this index including anticipated life-span, literacy of the adult population, amplitude of primary, secondary and higher education coverage, the special indicator of material well-being based on real GDP per capita and so on. Summarizing the factors of this Index, the task of all the development projects is to increase gratification of three main human needs: to live a long and healthy life, to acquire knowledge, and to have access to the resources for providing a normal standard of living.

During recent years our foreign colleagues have demonstrated a series of examples of high-level socially directed analyses, far from the standard formulations and general positivistic statements. An example might be the discussion of an “Effective Use” rather than a “Digital Divide” approach directed against superficial understanding of modern situation in the world concerning ICT use (Gurstein 2003).

CI and diversity of information experience

Unlike its “research twin” – Informatics of Organizational Systems (MIS) CI is based on the principal acceptance of the importance of non-formalizable (or formalizable with difficulty) information in undertaking studies in local communities, which in turn allows for a re-interpretation of managerial rationality using direct speech, non-formal cultural practices, non-explicit social interactions (or “voices of the subcultures”).

The attention of the researcher appears to be directed not only to the research itself, to the analysis of channels of creation, consuming and transfer of information but also to investigation of specifics of using of technical means in concrete socio-cultural circumstances. In this connection, studies of the independent (and therefore mostly local) sources of information—the so-called community media—acquire very considerable significance as for example, local radio stations, community networks, local cable television etc.

It is well known that the post-industrial (“Information”) society in its contemporary version develops on the basis of very serious changes in social and personal psychology. All the spheres of people’s life, beginning

⁴ See examples in (2001). *Municipal Management of Economy in the Russian federation: Results of Investigation and Recommendations*. Moscow, TACIS.

from the geopolitics of big national states and ending with everyday life are changing rapidly, being placed into new info-communicational realities and global networks.

It is also widely accepted that the information revolution – the Internet, communication satellites, “knowledge-based economy”, has resulted in a growing inability by governments to control information flows and opportunities for everyone to get, through the Internet, access to unlimited knowledge.

There is, however, a further global process that also can be positively called the information revolution: it is radical change in the content of information flows. There is no doubt that mass media are becoming more diversified, dynamic, engrossing and entertaining. At the same time the mass media is rapidly becoming more commercialized and dependent on advertising and advertisers. At the other end of this cord are located the consumers of these information flows, urban populations, “the inhabitants of the global village.”

Outside the limits of this “CNN galaxy” can be found those different groups and individuals who are being marginalized with relation to the “flows of power, resources and innovations” (in terminology of Manuel Castells): cultural minorities, communities trying to keep the traditional way of living, people without education and so on.

This divide is very rigid and overcoming this depends not only on the accessibility of technical means but also on correct policy of being able to use the new opportunities presented by ICTs, in efforts towards the creation of adequate “content”.

The problem of the development of independent information sources is extremely topical for the CIS region. Such independent information systems can become the centers of real local development, sources of innovations for the development of social capital of the territory. But this requires careful investigations that might give an opportunity to suggest the appropriate strategy and tactics for the support and realization of such projects.

CI and State Informational Policy

While reasoning about the limits of CI applicability in the post-Soviet space, it seems necessary to ask the question about the practical use of CI results and in particular about their use for influencing and “correcting” the results of state policy in the field of informatisation.

One of the most probable areas would be in using a CI methodology for “interactive monitoring” of State ICT programs. Historically in Russia large-scale state programs (the Federal target Program “Electronic Russia” is an example) have never had mechanisms or actors for monitoring their performance or output. That is why, for example, there is so little flexibility or “reflexivity” (responsiveness) in such programs.

It often happens that some program elements are found to be defective or simply unneeded, but there is nobody in a position to provide a systematic monitoring and feedback on these programs to make this known at the level of execution.

Understanding of this circumstance might help the authorities to see in CI a highly effective methodology of alternative (independent) “interactive monitoring” capable of fixing, measuring and analyzing the technological and socio-cultural factors which appear in the course of ICT programs realization and which usually stay outside the “attention focus” of the specialists responsible for results estimation within the program itself.

Such a role requires not only constant reflection towards analytical prescriptions supportive of multi-paradigmatic and interdisciplinary approaches, but also collaboration with civil society institutions which are themselves capable not only of impartially criticizing state policy but also of developing strategies and methods for constructive cooperation.

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WOMEN CONNECT: Lessons from Practice

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1. An Introduction to Women Connect	91
2. What is Women Connect?	92
3. Women Connect – Phase Two Reflections	95
4. Online and Offline Networking	101
5. Women Connect: Community Development & The UK Policy Context	102
6) The European and International Policy Context	108
Bibliography	114

Background and Overview

This article has been written to inform and update interested bodies on the work that Women Connect has been doing since 2001 when the first Phase report was produced. Much of this article is taken from the Phase 2 report that will be published in the winter of 2004. It also provides information about the international policy context in which we are working and maps out a vision for the future role for Women Connect.

Networking

“(W)omen’s usage of networking is not as a noun, but as a verb. It’s a process, not an end in itself. In that sense, networking is loosely knit and lateral, a contrast with the more closed, hierarchical style of such male counterparts as professional associations, fraternal orders, interlocking directorates and old boys’ networks themselves”.

“In the eighties and nineties, networking is what consciousness-raising was to the seventies. It’s the primary way women discover that we are not crazy the system is. We also discover that mutual-support groups can create change where the most courageous individual woman could not”

Gloria Steinem

Outrageous Acts and Everyday Rebellions

1. An Introduction to Women Connect

Women Connect is a practical response to the resource needs of women's organisations in the voluntary and community sector. Our aim is to help build the capacity of women's to use information and communication technologies (ICT) effectively and thus enable these groups to improve their ability to network, form new partnerships, share information and to engage in democratic participation..

The Context

The UK and International women's sector faces significant challenges. Research shows that throughout the decades women's organisations have been a positive force for global change in many areas. Yet the impact these organisations have made has been limited by long-term under-investment and short term funding strategies (Page & Scott, 1999).

A further significant challenge comes in the form of information and communication technology. ICT's are a significant element of British society and ICT skills are now rated as a third basic life skill after literacy and numeracy (Bradbrook & Fisher, 2004). For many, this heralds the emergence of an 'information society' which has personal implications for individuals directing them to acquire the necessary skills and knowledge to fully participate and take advantage of the anticipated benefits (Loader & Keeble, 2004).

Such skills however, are not uniformly spread across the population and there is much concern over the emergence of a so-called 'digital divide' between the information rich and the information poor (Loader & Keeble, 2004). This 'divide' maps well to patterns of social exclusion and women are far more likely to be located on the wrong side of this divide--amongst the information poor.

Despite there being growing numbers of women using the Internet, research demonstrates that women appear to be less confident in using ICT. Women also remain the main users of public services and with the continued development of e-government it is vital that women's organisations are skilled and engaged in accessing and maximising ICT use and skills (Bradbrook & Fisher, 2004).

ICT offers immense possibilities for women: they can help women to overcome isolation, provide women with a voice, improve governance and help advance gender equality. Women Connect can help provide the groups in our network with the skills and equipment that they need to adapt to the information society.

The Network

Women Connect has established a network of women's organisations based throughout England. The network currently has over 50 members. The network has also made links with women working in similar ways across the globe. The original aim in selecting organisations to join the network was to achieve a balance and diversity in communities representing for example a range of size, location, services providers and level of experience in using electronic communication. In addition, the project aimed to include a range of communities by involving black and ethnic minority, lesbian, disabled and older women.

For the first phase of the project (December 1997 - November 2000) Women Connect used a matrix to recruit nineteen member organisations to the network. It was expected that all organisations would demonstrate good practice in providing equal opportunities for access, participate fully in project activities and be committed to networking (Page & Scott 1999).

Of the nineteen original members six elected to join phase two of the project. The second phase of the project (2001 – present) recruited an additional twenty-seven organisations to the network. The second phase saw an extension in the types of organisations who can join the network – for example, women’s organisations that are led and managed by women but who are providing services to male perpetrators of domestic violence could join the network.

2. What is Women Connect?

Women Connect was primarily funded to provide new hardware and software or upgrades, and subsidised online costs for the first year of participation to women’s organisations that joined the network. Once accepted as a partner organisation the groups could expect to receive free, training, networking events and subsidised travel to events. The emphasis has always been on the effective use of communication technology rather than technology by itself.

However, the role of Women Connect has evolved over the years. ICT is now much easier and cheaper to acquire than before. Instead of simply providing equipment, Women Connect has been able to focus on providing support to encourage women’s organisations to make better use of the available technologies. The main role of the organisation is now very much one of capacity builder and facilitator.

The Funders

Women Connect is a collaboration between the library association and the Community Development Foundation (CDF). The project started in January 1998, funded by the National Lotteries Charities Board and CDF. The first phase of the project was completed in November 2000. Phase 2 began in 2001 and was funded by the Community Fund and CDF. Funding for the next phase is not yet fully secured.

The Community Development Foundation

The Community Development Foundation (CDF) is a non-departmental public body supported by the Active Community Unit of the Home Office with substantial support from local government, charitable trusts and the private sector. Its role is to pioneer, study and promote new forms of community development, in order to inform public policy, professional practice and community initiatives.

Our Mission

Women Connects’ original mission statement was to ‘use and shape the internet together’. We set out to assist women’s organisations to use and shape the internet for the benefit of women. However in Phase 2 of the project we have updated our objectives due to the numerous benefits

that can be gained from helping organisations to network with one another. Our mission statement now reads;

'To network and connect women online'.

Women Connect aspires to use the internet to build a sustainable community of women's organisations and resource contacts, who are working in a wide range of different fields and communities. The project supports, advises, trains and equips member organisations to develop skills for using the internet and networking. As a result members have the potential to improve their practices, form partnerships, access wider resources and influence decision makers.

Women Connect also works in partnership with other organisations such as the National Alliance of Women's Organisations, the European Women's Lobby, Women's National Commission and the Women's Programme of the Association for Progressive Communications. Our goal is to link up with other projects to build an online presence of value to women in the UK and beyond. The project aims to inspire women to work together to benefit from the potentials of ICT. Our two equal aims in this context are:

- 1) Networking and information exchange as a means of empowerment
- 2) Resourcing the needs of the women's voluntary and community sector

Women Connect's initial sub aims were to:

- Establish an online network of women's organisations that is based on women's needs.
- Increase women's influence over the policies that affect their lives.

To achieve these aims, Women Connect has been committed to:

- Challenging the commonly held view of women's interests in and use of the Internet.
- Advocating for women's access to online facilities and training based on their individual needs and those of groups and organisations.
- Supporting and piloting women's grassroots influence over regional and national policies through online activities

Our Values

Women Connect has developed values that describe the spirit in which we aim to work together. These are here to guide us in practical terms: in our daily working lives; in how we develop policy; and in how we develop the future of the partnership.

1. We recognise that we do not live in a just or equal society and that there are groups of women who are discriminated against because of their beliefs, abilities, sexuality, ethnicity, age, social status, income and health. We are committed to supporting each other to ensure that we do not discriminate against each other.

2. We respect other women's views whether they are the same or different to our own.

3. We have a transparent relationship with one another. We encourage each other not to make assumptions, to communicate to the best of our ability, and to be clear and open.
4. We create a supportive and safe space in which women can learn, develop and have fun. This means that we can learn when and where we want and at a pace that meets our needs and to goals that we decide for ourselves.
5. We are open to personal learning, change and development. We will encourage each other to be reflective, to be flexible in response to challenge and change. We will embrace innovation where it is appropriate.
6. We are committed to working together to influence policies that affect our community of women.
7. We work towards solutions that are sustainable and are aware of the impact on our wider community. We will not take actions that cause harm to others or our environment.

Our Current Activities

One area of our work is to facilitate the networking of women's groups and organizations and other stakeholders, through local and national events. We work to bridge the gap between grassroots and policy. For example, over the past three years we have held three national conferences – 'Women with Megabyte' in May 2003, 'Women with Megabyte II' in June 2004 and 'Raising the Profile' – a national awareness raising day women's organisations in July 2003. Women Connect has also held numerous smaller and more regional ICT workshops. Further details about the events we have hosted can be located on our website.

Another area of our work is action-planning with women's groups and organisations. This entails face to face visiting of groups via outreach work to develop and follow through on agreed action plans. We carry out ICT audits and identify training and development opportunities for ICT strategy implementation.

We also produce a quarterly newsletter, which aims to update women and other stakeholders on topical issues concerning ICT, social cohesion and gender equality and we host an e-discussion group and feed into relevant policy agendas.

3. Women Connect – Phase Two Reflections

This section will look back over what Women Connect has accomplished over the last three years. It is based upon on the findings of the second evaluation report and some interviews with partner organisations conducted by a CDF researcher. This section will run through three case studies of our partner organisations to provide some illustrations of the work Women Connect has done to build our partners organisations capacity.

As ‘good practice’ Women Connect has their work appraised by independent evaluators. We believe that this is necessary in order to ensure that we are working to our objectives and to learn about the areas in which we can make improvements in our work. Women Connect has had two evaluations both conducted towards the end of each phase.

The Phase 1 Evaluation

The Phase 1 Evaluation, conducted by Anne Moggridge of the University of the West of England in 1999, found many positive outcomes of the project. In all cases, the equipment and training supplied by Women Connect had given members access to information and communication resources, which they otherwise would not have had. All the partner organisations also reported improvements in communication and/or access to relevant information as a result of their use of technology. Generally members felt that had increased their skills in effective use of electronic communication and IT, this had enabled members to strengthen and extend their own networks as well as their access to information.

The Delphi forum, a private web based bulletin board only open to members and associates on the Women Connect Web site, also created an online information resource for and with member organisations. In addition the Women Connect web site had attracted considerable praise and interest from women outside the network. Several member organisations also reported example of women who had contacted the group having discovered them through the web site.

The evaluation report also noted that there was little evidence that a supportive network had been established. However, the researcher found that a looser network was evolving, extending beyond the boundaries of the project itself so that in the future many more women may be able to benefit from opportunities to access and shape the internet.

Despite much optimism at the start of the project, the evaluation reported that it appeared that the project had become one of providing technology and training in ITCs. Whilst it may have been very successful in doing this, its true potential as a facilitator or umbrella organisation had been more difficult to achieve.

Phase 1 served effectively as a pilot for Women Connect, it tested the approach Women Connect took and our starting assumptions about the learning needs of women’s organisations for ICT and the potential for their usage. It demonstrated the importance of face to face networking opportunities in stimulating partnerships and networking. Recommendations put forward in this evaluation have helped Women Connect to move in a new direction. As well as supplying IT equipment and training, it was time for Women Connect to have networking as a dual objective.

Phase 2 Evaluation

The Phase 2 evaluation was conducted by Leigh Keeble, of the University of Teesside in February 2004. The data that informed the evaluation came from questionnaires distributed to over a 1000 women's organisations, interviews conducted with the staff at the Community Development Foundation and interviews with Women Connect project staff from the first and second phases of the project. Leigh also conducted interviews with some of Women Connects partner organisations at two events run by Women Connect; the 'Women with Megabyte' conference and 'Raising the Profile'.

The following sections will run through the major findings from the second evaluation. It will be structured as the evaluation report was structured around the three of the key aims of the Women Connect project: Capacity building, networking and influencing policy.

Capacity Building - Has Women Connect helped partner projects enhance their organisational capacity to help deliver what they want to deliver?

Main Findings from the Evaluation:

The introduction of PCs and connectively had increased the capacity of organisations in three ways:

- The use of PCs for office administration has streamlined many administrative activities.
- The interactive nature of access to the internet and email has allowed for changes in the way that some of the groups communicate
- Some groups have been able to extend the services that they are able to offer to their projects users.

There was a general perception amongst the first phase interviewees that computing skills had improved. During the second phase of Women Connect, it was more likely that the organisations had more than one computer and that were used everyday and most staff and volunteers felt confident in using them.

'Thanks to Women Connect our administration has become computerised...we no longer have just boxes full of information, it's all on the computer...even our pay system is now on the computer'
Partner Project, August 2003

The evidence from the research suggested that skills in computing had increased and if staff and volunteers were able to use the computers to assist with administrative tasks then the capacity of their projects had certainly been augmented.

The use of ICTs to improve communication both between staff, volunteers and agencies outside the organisation was also continuously identified as a positive benefit to the partners. The researcher also found other example of management committees of projects to communicate, circulate minutes and make decisions using email.

Leigh also found other examples of where the introduction of PCs meant that a project was able to extend or consider extending the services they were offering to users. For example, one project had been able to provide basic ICT skills training to women, another organisation had developed an online forum providing help and advice for victims of rape.

Networking - Has an online network of women's organisations been created?

Main Findings from the Evaluation:

- There was little evidence of the creation of a supportive network amongst the Women Connect Partners
- There was considerable evidence of the partner projects using the technology to extend and enhance their own network
- The project partners need a clear reason to network with other partners.

The Phase 2 evaluation found very little evidence that Women Connect has created an online network of women's organisations. The discussion group web site for chatting online is barely used. There are many reasons for this which range from women not having the time to chat online, to being nervous of asking questions and disappointment from no getting no response back when they did post questions online.

However, what was apparent from the interviews was that the support of Women Connect has allowed many of the groups to develop and extend their own networks. This was regarded as an extremely positive outcome of the project. A high proportion of groups felt that their communications had been enhanced as a result of being online.

Face to face events organised by women connect are also very popular. Many of those attending the events left feeling convinced that they would make contact with some of those groups that they had met. In reality, though, this rarely happened as many found no strong reason to make contact. For many, the attraction to join Women Connect was being part of a women only network. The diversity of the groups involved in the project meant that the groups have struggled to find a reason to network (interim report phase 2, p6) However, it was felt by some of the interviewees that if partners did attend more face to face vents, they would perhaps have more reason to network,

'In the first phase of the project there was an expectation that women's movement type organisation would 'join'. Defining those types of organisations was problematic. Again there was an expectation that women's movement organisations would naturally want to network but that just didn't happen. There remains a question as to how you make a network work.' CDF Manager, July 2002

Whilst the second phase of Women Connect has seen an extension in the types of organisations who can join the network for example orgs that provide services to women not just those made up of women, the issues still remains as to why they should network.

If Women Connect is to continue the development of the network into an area of active participation by its partner projects the evaluation recommended that it must consider the capacity of the organisations to do this and the demands placed on Women Connect staff in generating and encouraging participation.

Influencing Policy - Has Women Connect helped to increase women's influence over the policies that affect their lives?

Main findings:

- Women Connect can influence and input into policy consultations and decision making both via women connect staff and the individual projects.
- Whilst there is some evidence of projects actively engaged in the policy process, more help and support is needed to focus this activity.
- The Women Connect web site provides links to consultations of potential interest to partners but could be more active in engaging the partners.
- Information about the growing developments and potential web sites providing support in different areas of health and social care should be shared with partner projects.

There has been a growing amount of discussion around the potential of the internet to improve civic participation and encourage democracy. However there is little evidence that the internet is actually achieving this. Education continues to be the key to civic participation as educated information seekers tend to use the internet to inform their beliefs and are more likely to be interested in public debate and politics (Loader & Keeble, 2004).

However there does appear to be a role to support and train people to actively participate in consultations and democracy. This is where Women Connect can greatly assist.

The researcher identified that the Women Connect project coordinator has been active in engaging in policy dialogues with a range of organisations including the Women's Equality Unit, the Institute for Public Policy Research, the Women's National Commission, National Alliance of Women's organisations and the Gender and Trade expert group. This work has continued with the coordinator now working with CDF on an Active European Communities and European Development project (ACED) to try to influence the funding criteria of European Structural Funds from purely economic outputs to including issues of social capital and active participation.

From the perspective of the partner projects there is evidence that the introduction of the technology and the internet to the groups has led to some becoming involved in projects which will have an impact on those groups or in policy debates. For example, it was noted that one of the groups had used the internet to take part in a national debate; another group had participated in a conference run by CDF in which she discussed the role of her project in providing a community for survivors of domestic violence.

In addition to the work conducted by the project coordinator and the individual projects, the Women Connect staff have used the website to provide access to government consultations that affect women's lives. For example, the White Paper 'Fairness for all: A New Commission for Equality and Human Rights', the Voluntary and Community Sector infrastructure document – both

of which Women Connect responded to as an organisation. It has not been possible to establish how many of the partner projects have actually made use of this facility although from the interviews it was noted that very few of the partner organisations accessed the Women Connect Web site – suggesting limited use of the links to consultation.

Women Connect has also produced quarterly newsletters that contain a range of content which includes high lightening current polices and debates that potentially affect women. For example the World Summit on the Information Society has recently taken place and Women Connect has worked to raise awareness of the summit through the network whilst highlighting the lack of consideration given to issues of gender throughout the summit.

The newsletter also contains information on events Women Connect are hosting, information on current ICT policy and planning and what's going on in the IT sector and often links to other websites that may be useful to help update ICT skills. There is also a section and links to other topics that may be of interest such as funding and resources. We also include a section introducing partners who have recently joined the network and updates on what other partner's have been doing.

The Case Studies

This section will look at three case studies of our partner organisations. We have chosen three very different types of organisations to give the reader an idea of the range of organisations we are involved with. The case studies will provide a quick introduction to the organisation and the work they are involved with, before looking at what Women Connect has done to help increase the organisations capacity.

Case Study 1 – Newham Asians Women's Project

Newham Asians Women's Project (NAWP) was set up in 1987 to provide advice and support for Asian women and children experiencing domestic violence. Initially the group opened a hostel to provide emergency accommodation for Asian women and their children escaping violent family and home environments. Since then they have expanded and the group now operates from seven sites, a refuge, a second stage hostel and a resource centre all in outer London. Services at the resource centre include legal advice, training, mental health support, counselling, project on self harm, and a young women's support group and other support groups called Teens.

NAWP wanted to join the Women Connect Network and get online in order to make their services accessible to more women, especially those unable or who experience difficulties leaving their homes. They also wanted to make communication within the organisation and with other agencies more effective and efficient. NAWP's IT system needed revamping as their server was overloaded, not all computers were connected to the main server and the system was very slow as they were not connected to broadband. The project was worried that they were not making the most of the equipment they had.

Once the Project had joined the Women Connect network, Women Connects project worker went to visit the group in February 2003 to draw up an action plan to assess the equipment the group has in place, the groups needs, the next steps the groups need to take and the help needed to get the group there. The key priorities identified included upgrading the groups ICT equipment and review

their internal communications and administrative systems. The group also wanted to establish a website.

Women Connect financially contributed to the development of their website which is now up and running and can be seen at <http://www.nawp.org/>

The last chair of NAWP was involved with our Raising the Profile event, member of the project have also attended both our national conferences.

Case Study 2 – The Freedom and Empowerment Network

The Freedom and Empowerment network works with women in the Wirral who are experiencing/ have experienced domestic violence. The group runs programmes and self help groups that enable women to see the beliefs and tactics of the abuser. Knowledge of the tactics used against the women empowers them to break free of the beliefs that enable domestic violence. The network also provides speakers and trainers to raise awareness of the issues of domestic violence and networks with other local organisations that work with women in mental health, alcohol and drug abuse.

Before the network joined Women Connect the group did not have access to the internet as they lacked adequate computers and the necessary funds. The network was desperate to get online in order to improve communication within the group. They were also really keen to get online so that they could access information and statistics available on the web in order to influence policy at a national level by networking with other groups to push for changes in the law and the way women are treated in society.

Once accepted as part of the network our project worker arranged to visit the organisation and formulate an action plan agreed upon by both Women Connect and the Freedom and Empowerment Network. The action plan identified some key priorities; these included improving the networks communication processes, developing a website and upgrading the networks computers.

Women Connect provided the Freedom and Empowerment Network with an internet ready machine. This has made a real difference to the way their work. One example is of a tale relayed to us about a woman the project visited. The women in question had three school aged children who were not attending school. She was receiving £150 a week widow's pension and her rent was £90 a week. She had no other income and was seriously depressed. The Network felt the financial situation was pivotal to the family unit and needed attention.

As a result of the new equipment the network was able to access the internet and calculate the woman's child tax credit entitlement. She has subsequently received a backdated payment of £1000 and her life is now free of the dire poverty the family was experiencing. The network has reported that there is now renewed hope in the family for a happier future.

The Freedom and Empowerment Network has also played a significant role in the Women Connect network. Members of the group have hosted a workshop on domestic violence at the Women with Megabyte II Conference, and at CDF conference on 'Safe Communities' The network facilitated a discussion group on safety 'In the Home' which was about why women

underreport domestic violence and what needs to happen to encourage women to report. For more information on this please see: <http://www.womenconnect.org.uk/C2B/events/Event.asp?ID=32&CatID=2>

Case Study 3 – The Women’s Organic Community Allotment Association

The Women's Organic Community Allotment is a community group that enables women to grow organic food and herbs on an allotment in Sheffield. The group promotes allotments as a friendly, inviting place for women to use and help to re-address the imbalance of female allotment users. The association aims to promote health and well being through the physical work involved with gardening, eating local, fresh, organic produce, the self-confidence gained through learning new skills and working with others, enjoying a relationship with the natural environment and the empowerment of being able to help women to create the ultimate necessity in life – food.

Before joining Women Connect, the allotment association had limited IT equipment. The group wanted to get online in order to attract more volunteers and so they could be a source of advice, inspiration and support to other women’s groups and food and environmental issues groups.

Their action plan highlighted key areas for organisational development and resourcing. This resulted in the group receiving a new computer and printer, modem and software from Women Connect.

Being part of the network has had many benefits for the allotment association. They believe that having a computer and email has meant that are taken more seriously. Email has been particularly beneficial for the group in that they have been able to make connect with local and national organisations on issues around food giving and advice. The internet has also allowed the group to take part in the national debate regarding GM crops

As part of the network the association has attended a regional training event in Sheffield for women using ICT’s for organisational sustainability. They have also contributed to the Women Connect website with information about the Women’s Organic Community Allotment Association and have helped raise awareness of the Women Connect project locally amongst other women’s organisations in Sheffield.

4. Online and Offline Networking

This section reflects on the networking barriers women face both online and offline.

Many of the barriers faced by Women Connect are not specific to women’s organisations, but are shared by other voluntary and community sector organisations of similar size and resources. One of the prime examples of this is the lack of long term strategic funding faced by Women Connect.

Generally the voluntary and community sector suffers from short term unstable funding. The funding culture in which most voluntary and community sector organisations function is that projects are funded for typically one to three years. This can often create many difficulties. In

many cases the funding runs out and the project finished right at the point when it is operating at its most effective. Short term funding also means that projects are constantly looking for other sources of funding instead of concentrating on their mission. Even if another funder is found new contracts can mean that the original mission of the project will have to change/ adapt.

This situation is worse outside of the UK where there is no tradition of a voluntary sector. Women's organisations are well use to working with very little if any funding to create a lot in terms of change.

The fact that Women Connect exists and is able to draw attention to the inequity of funding, the resource needs of women and the positive power of networking within the UK and beyond.

For example the network connections that have been possible using technology since Beijing (the UN Fourth World Conference on Women and NGO Forum 1995) have been invaluable to the UK women's sector. This can be seen in a policy context not least in getting recognition by the UK Government of the CEDAW Convention. The alliances that have been strengthened across Europe would not have had the same energy if networking technology did not exist. Having said that, the recent Berlin Women's Conference 2004 was a time to reflect that the struggles of women in 1904 when the first Berlin Conference took place were not dissimilar to today's struggles and when networked and communicated and came together to celebrate and work for change without highspeed broadband or even email.

One keynote speaker at that conference reflected:

African women had come to be part of the political processes and claiming their rights as human rights and voters' rights were: women should grab power. Do not expect men to bring it to you on a golden plate, as men have to fight to grab the power from other men so do not expect them to bring it to women for free.

The discrepancy that still occurs to women having access to the global world should be acknowledged. Women in her district have oil lamps to read the books, if she can read, but no electricity to download from a website for instance.

The word download is meaningless to her, just like running water from the tap, television, etc. We have to be careful that the world does not become more divided between north and south, rich and poor. Networking is the most essential thing for women, but only feasible if women find accessible ways to communicate with each other.

Inge von Bönninghausen, the key-note speaker H.E. *Ambassador Gertrude I. Mongella* (better known as Mama Beijing) from Tanzania and currently the President of the Pan-African Parliament and President of Advocacy for Women in Africa, Secretary General of the 4th World Conference on Women in Beijing (1995)

5. Women Connect: Community Development & The UK Policy Context

How Women Connects work relates to Community Development

Women Connect is based in the Community Development Foundation in London. The Community development Foundation (CDF) is a non departmental public body supported by the Active Community Directorate of the Home Office.

So why is Women Connect based at the CDF? The work that Women Connect is involved with is led by the ideas that underpin Community Development work. Community development is a nebulous term but it is generally agreed that much of the work done with community development is about capacity building. The Home Office provides a good definition of community capacity building;

‘Activities, resources and support that strengthen the skills and abilities of people through enabling them to take effective action and leading roles in the development of their communities’.

Basically, capacity building is the development of an organization’s core skills and capabilities, such as leadership, management, finance and fundraising, programs and evaluation, in order to build the organization’s effectiveness and sustainability. It is the process of assisting an individual or group to identify and address issues and gain the insights, knowledge and experience needed to solve problems, implement change and to take part in democratic processes.

Women Connect use a range of community development tools such as networking, newsletters, outreach work, action planning, face-2-face meetings, workshops and conferences to strengthen the skills and abilities of women, enabling them to take effective action and leading roles in the development of their community.

Women Connect and the UK Policy Context

We now want to turn our attention to policy in the UK, European and International contexts concern gender and ICT. We have included this aspect in this article so as to provide a simple introduction to these important new policies that women need to be aware of, yet often aren’t.

It is a major concern that government policies do not filter down to the grassroots level. Many people believe that government policy is something that they will never understand or indeed have any affect them upon them. We cannot emphasis strongly enough that this is not the case. Women need to be informed about such policies so that the struggle for equality for both genders is at the forefront of policy.

The UK Policy Context

We cannot allow gender to slip off the government’s agenda as gender equality is far from being achieved. Women still face discrimination in many areas of their lives. For example, statistics shockingly reveal that:

- The pay gap between men and women still remains at 18% after 30 years.
- Nearly half of women in the UK have a gross individual income of less than £100 a week, compared to just over one fifth of men.

- Reported rape has trebled in the last decade but the conviction rate has dropped from 24% to 6%.
- Two women a week are killed by their current or former partner.
- The female prison population almost trebled between 1993 and 2003.
- Women in pensioner couples receive just 32p for every £1 of income received by men.
- On graduating women can expect to be paid 15% less than men.
- We have only 118 women in the House of Commons – this means that only 18% of MPs are women
- Only 28% of local councillors are women.

All figures from the Fawcett Society Website: <http://www.fawcettsociety.org.uk>

This section will provide a brief overview of some of the most important policies that are currently being debated over in UK in relation to gender. If you are interested in reading about any of the subjects touched upon in this section in more detail please follow the web links provided or see the bibliography in the appendices for suggestions on further reading and useful websites.

The New Commission for Equality and Human Rights

The current equality commissions are about to go through a major transition. In October 2003 the Government announced its intention to establish a single commission for Equality and Human Rights. A white paper 'Fairness for All: A New Commission for Equality and Human Rights' was published by the Department of Trade and Industry. This paper proposes a merger of the Commission for Racial Equality, The Disability Rights Commission and the Equal Opportunities Commission into the Commission for Equality and Human Rights (CEHR). The new commission will also incorporate, for the first time, four new strands of age, faith, sexual orientation and human rights

The Government believes that the existing commissions have laid an excellent basis on which we can build, but the changing nature of society poses significant new and complex challenges to social, economic and political life. The new commission will be responsible for promoting equality throughout our whole society and will be better equipped to respond to these challenges. One of the commission's major advantages is that it will be able to tackle deprivation on multiple grounds, as the Commission for Equality and Human Rights will provide a single access point to information, advice and guidance.

However, some women's groups have expressed anxiety that gender might get pushed to the back of the government's agenda with such a merge. There is ongoing concern that some streams may be marginalized and women's organisations are particularly concerned that gender might find itself at the bottom of a hierarchy of discrimination. The Northern Ireland experience of a similar Equality Commission is evidence that this can happen as in this particular case the majority of resources were allocated to faith. If the new commission is to deliver strong, joined up working, there must be no possibility that one strand is seen as having priority over another.

<http://www.womenandequalityunit.gov.uk/equality/project/>

The Gender Duty – A Summary

Since 1999, the Government has promised to introduce a gender duty. This has been touched on again in 'Fairness for All; A New Commission for Equality and Human Rights'. A gender duty would oblige public bodies to promote equality and eliminate discrimination between women and men – this would be the biggest change to gender equality legislation since the Sex Discrimination Act was introduced 30 years ago. However, at present the legal duty on public bodies to promote equality applies only to race and it is about to be extended to disability, but not to gender.

The government is currently drafting the legislation for a gender duty and it is hope that the bill will go through parliament in the 2004/2005 session with the New Commission for Equality and Human Rights bill. Women Connect strongly supports the introduction of a gender duty. We need this gender duty to bring law on gender equality more in line with law on race and disability. It would mean that public bodies have to ensure that they take the needs of women and men into account equally in the way they provide services. This positive duty would mark a radical new approach to eliminating discrimination and achieving equality.

After three decades of legislation that only tackles individual discrimination *after* they occur, this duty would herald a radical new approach to eliminating discrimination achieving equality – it is important for the public sector to lead by example. The duty will help to combat institutional sexism in our public services. In the long termed it is hoped that the duty will be extended to the private and voluntary sectors – particularly when carrying out contracts for public bodies.

<http://www.equalities.org/issues-psdg.htm>

Paying the Price: A Consultation Paper on Prostitution July 2004

The Home Office has recently published a consultation paper, Paying the Price, which offers some possibilities for the first major overhaul of laws surrounding prostitution in almost 50 years. The paper has been published to prompt a public debate on how to deal with the issues raised by prostitution in England and Wales.

Research findings listed in the consultation paper demonstrates that traditional enforcement methods such as police crackdowns are not working. Ministers say they are open-minded about the changes that are needed and the official consultation paper is careful to list both sides of the argument in its discussion of the options for controlling on- and off-street sex trade.

The Home Office welcomes views on the paper from everyone with an interest in this area of public policy, but particularly from those with experience of involvement in prostitution, those with experience of the impact of prostitution in their neighbourhood, and from those agencies - both voluntary and statutory - working in this field. It is hoped that the feedback from the paper will pave the way for the development of a coordinated strategy for prostitution – aimed at reducing the harms associated with prostitution, experienced by those involved and by those communities in which it takes place.

To view the document please follow this link:

http://www.homeoffice.gov.uk/docs3/paying_the_price.html

The IT Policy Context

➤ **Promoting Social Inclusion Using ICT**

ICT is now viewed as the 3rd basic life skill after literacy and numeracy. However, after many government initiatives and campaigns to promote the usage of ICT, more than one third of adults have never been online. Digital inclusion is a cross cutting issue and many of those who do not use ICT's are often the same groups who are at risk of becoming socially excluded. Therefore, promoting digital inclusion is closely linked to solving social exclusion issues. The government is currently investing significant funds in promoting social inclusion using ICT – below we will take a quick look at a number of the schemes the government is currently involved with to promote British Citizens involvement with government and ICT.

In terms of women and ICT - the gender gap in ownership and access to ICTs is diminishing. However there are still varying differences in men and women's abilities to use the technology. Inclusion into the Information Society is much more than just an issue of technology diffusion, or of acquiring or gaining access to ICT artifacts.

Women Connect supports women's orgs to develop their ICT potential. The introduction and development of the e-government agenda means that women's organisations need to be skilled in accessing, using, educating and providing information and support via electronic service delivery. Women Connect has the potential to contribute to this agenda which is most important as women are the main users of public services and many of the organisations Women Connect currently support provide frontline public services.

➤ **E-government**

The government has recently reiterated its commitment to ensure that over 500 government services are delivered online by 2005. The portal www.direct.gov.uk has now formally replaced its predecessor, UKOnline, as the official first port of call for information on public services across all parts of government. Its tag line is 'the place to turn to for the latest and widest range of public service information'. Through this web site it is possible to order a new passport, pay your television license, register to vote, find a job and get foreign travel advice amongst many other services.

Today, over two-thirds of government services are online, every local council has a website, and 96% of Britain's population is aware of a place where they can readily access the internet (e-envoy report 2003). Some sites, such as NHS Direct, driving theory test bookings, Companies House and UCA however have proved really successful, the 2003 report adds.

However, despite the growing numbers of such services being available online, take up of these online services is really low; the 2003 report by the Office of the E-Envoy quotes that three-quarters of British citizens have never visited a government website. Despite the introduction of self-assessment tax returns and online benefits, only 8% of internet users have ever carried out an online transaction with the government.

Interestingly, a disabled female internet user who attended our Women with MegaByte 2 Conference was quick to point out that in a survey conducted by SCOPE the governments websites were found to be the least user friendly for the disabled. Amazon, the BBC and RNIB were given as examples of great websites for disabled users.

➤ **E-citizens**

Parity, an IT training specialist, has recently launched the e-Citizen learning programme, the first basic ICT skills qualification to be accredited by the British Computer Society (BCS). The course is intended to help people cross the digital divide, and offers a flexible way to acquire all the necessary skills to use computers and the Internet. It takes a few hours to complete and culminates in an e-Citizen qualification, which is the entry level stepping stone to the ECDL learning programme (European Computer Driving License).

The training takes students through a step-by-step programme, from the basics of starting up a computer to getting on the web. Students can then begin to use the Internet in their everyday lives, and benefit from improved job prospects and access to online services including email, shopping, local services, even online voting.

➤ **E-learning**

If someone is learning in a way that uses ICT then that is e-learning. E-learning means using new multimedia technology and the internet to improve the quality of learning. Multimedia technologies allow the use of movie, audio and text to enrich the contents. The internet gives easy access to resources and services and it can empower the individual where ever they are – people can learn at school, at university at work and at home. One of the main objectives for e-learning is to reduce the disparities and inequalities between groups and individuals by providing universal access for all.

A Summary

The UK Government emphasis on providing services through ICT is a double edged sword for women. Many specific groups of women are going to be at risk of exclusion; both older women and disabled are going to have to face many barriers in accessing the ICT, women whose first language is not English may also have problems understanding the websites. At the same time though, providing services through the internet means universal access for all. The government will have to be extremely careful to ensure that:

- a) Mechanisms are in place to provide for the needs of groups at risk of exclusion
- b) Content on government websites is equally accessible to everyone

The Governments approach to reaching citizens online is in marked contrast to the approach Women Connect takes in assisting our partners to develop their ICT skills and get online. Women Connect's approach is closely linked to community development work. We take an action planning approach and consult with each group individually to establish the organisations needs. We believe that face to face contact is important in the initial stages of helping groups get online and that our groups have the right to feed into the action planning process.

This differs tremendously from the approach the Government is taking which is about training rather than starting and finishing were people are or want to be. The Government is primarily concerned with training people to develop skills necessary for the workplace and easing the bureaucratic burden of form filling. Both of these are necessary and important, but Women

Connect feel this approach is lacking and is not joined up with the current policy move towards consultation and inclusion.

There is now much government rhetoric about getting citizens involved and a concern to consult with the public on their views and opinions – Tony Blair’s ‘Big Conversations’ are such an example. However, this rhetoric is not backed up by the government websites. The limited models for training people in ICTs are not going to suit everybody. Different groups have very different needs and from the information our partners are feeding back to us, UKOnline for one, was not catering to needs of our partner organisations. That has now gone into the hands of the University for Industry, who are openly proud of their forthcoming strategy that completely ignores women and their ICT needs. Government initiatives such as this need to join up with the current move towards consulting the public and also helping citizens become more informed about and involved with the policy making processes. E-Citizens for example is not about developing people as citizens rather it is about providing training.

6) The European and International Policy Context

Europe

Britain has now been part of the European Union (EU) for 30 years and whilst many people are not fully aware of what the EU does it has had a major impact on our everyday lives. The most important decision making is now happening in the EU and women need to be involved in the decision making processes in order for women’s interests to be represented. We have to ask who is deciding what Europe is and it seems that men are, as statistics on gender in the EU show that men are dominating the decision making processes. Europe has the potential to improve every woman’s life and we have to ensure that women are equal partners in the design process.

The media has generally portrayed a very negative image of the European Union. More information has to be provided so that women get a more balanced view of Europe. We need more widely published information that demonstrates how people have already benefited from the UK’s involvement in the EU. For example how the single market makes it easier for British businesses to have access to their biggest market and how it also gives consumers access to a greater variety and quality of products at competitive prices.

EU funding has also helped create jobs and regenerate poorer areas; for example the UK will receive EU structural funds worth £10 billion between 2000 and 2006. Cornwall, Merseyside, South Yorkshire and West Wales have qualified for special EU funds worth £3.3 billion. The funds also support areas blighted by decline – between 2000 – 06 for example £2.8 billion will be spent on the industrial, urban and rural sector. The UK is also eligible for an additional £2.9 billion for education, training and employment programmes in the same period.

The European Union & Women

Equal opportunities for women and men have also become a significant issue in the European Union. Since the creation of the European Communities in 1957, legislation on equality for women and men has made extensive progress. The first legislative step was to guarantee equal pay for

women and men. Now European legislation has been extended to cover all forms of sexual discrimination in the workplace. Women in Britain now benefit from an EU agreement which means that they automatically qualify for maternity leave without having to work for the same employer for two years. It is also a ruling of the European Court of Justice that women are not discriminated against in occupational pensions (European Women's Lobby, 2002).

In the areas where Member States have given the EU the power to act, European laws take precedence over national legislation, and a national law that contravenes European law has to be changed. In other words, if progress is made at the European level, it must be incorporated at the national level. It is therefore *essential* for women to be fully informed of the possibilities the European Union has to offer and to be involved into the EU making policies and to promote gender equality at the EU level.

However, at the European level, women are worryingly under represented. For example, in 2000 women accounted for:

- 17.1% of members of the Economic and Social Committee (various interest groups representing the EU's economic and social sectors)
- 14.9% of the Committee of the Regions (222 delegates from local and regional political groups in the Member States who defend the interests of their region)
- 6.5% of the European Council (composed of heads of State and government)
- The European Convention on the Future of Europe comprises only 16,2% women - (Women in Europe Report Resource Paper for the EWL Seminar - "Capacity building for gender equality in view of European Union enlargement" WOMEN IN DECISION-MAKING)

Although it remains modest, progress is visible in the area of political decision-making. The idea of parity and positive action as vital conditions for democracy seems to be making headway. Many women's organisations feel that parity democracy (women constituting 50% of the membership of all decision-making bodies) should be added to the agenda for the revision of the Treaty of Amsterdam.

The measures proposed for achieving democratic parity range from thresholds for parity to target figures to positive action. The process will involve changes to election laws at European and national level and the elimination of constitutional and legal obstacles to the introduction of quotas or positive action (European Women's Lobby, 2003).

To help this process the European Commission could draft guidelines, to be followed by national action plans, for the promotion of women in decision-making created by the Member States. These plans should lay down clear objectives and budgets and establish assessment mechanisms. A great example of parity in practice is the Welsh Assembly. Women make up 50% of assembly members in Wales – the Welsh assembly has the highest proportion of women's representation in the world and is the only national parliament in the world with equal representation of men and women.

To learn more about the EU see: <http://europa.eu.int/>

For information on Women in Europe see
<http://www.womenlobby.org/home-en.asp?LangName=english>

➤ **The Referendums**

The UK government has promised to hold a referendum (a vote where all the people in the country are asked if they agree with a particular proposal or policy) about joining the euro. However it looks more unlikely that they will hold a referendum on the changes to the EU Constitution as recommended by the Convention for the Future of Europe

The draft Constitution proposes a complete change in the way that the European Commission works. For the first time it lays out the objectives and values of the EU, enshrining the right to strike, the objective of full employment and social justice, equality and solidarity and gives the EU new powers to harmonise legal systems across Europe.

These are important changes and they will have a real impact on our lives. The people ought to have the right to decide whether we accept the new constitution. Women also need to take an active interest in the constitution to ensure our needs and interests are accounted for.

To learn more about the referendum process and how to lobby the government please see this link: <http://www.labour-referendum.org/>

Internationally

At the international level there are also many policies that women need to be informed about. Here we will look at the UN Convention on the Discrimination of Women and applaud the government for recently signing the optional protocol of the convention. We also take a quick look at the Millennium Development Goals and the Beijing Platform for Social Action as well at one of the latest and most exciting programmes for incorporating gender analysis

➤ **The Committee of Elimination of Discrimination against Women (C.E.D.A.W)**

The UN convention on the elimination of all forms of discrimination against women was adopted in 1979. When a government signs up to the Women's Convention it is under an obligation to bring its laws and practices into compliance with the convention. The women's convention protects women against discrimination by public authorities or agents of the state. It also holds a state party responsible for discriminatory acts committed by private individuals or organisations.

Article 17 of the Women's Convention established a committee on the elimination of discrimination against women that we now know as CEDAW. The committee consists of 23 experts who have signed up to the convention and are elected by ballot. Governments that have ratified the convention are obliged to submit reports to CEDAW on their implementation of the convention every four years.

There is an optional protocol that countries can sign which means that any individual women or group, whose rights have been violated under the convention, will be able to take the case to CEDAW on condition that all effective means of domestic remedies have been exhausted. Women Connect are pleased to say that under the recommendations of the Women and Equality Unit, Britain has now signed this optional protocol. This is a good example of what can be achieved when women's groups work together to lobby government.

➤ **The UN Millennium Development Goals**

In September 2000, eight Millennium Development Goals (MDGs) were agreed at the United Nations Millennium Summit. Nearly 190 countries have subsequently signed up to these goals.

They were introduced as part of a wider attempt to encourage the international community to stop talking about making a difference in the developing world and join forces to do something about it.

These goals commit those that signed up to an expanded vision of development - one that vigorously promotes human development as the key to sustaining social and economic progress in all countries, and recognizes the importance of creating a global partnership for development.

In total there are eight goals. These are:

- 1) To eradicate extreme poverty and hunger
- 2) To achieve universal primary education
- 3) To promote gender equality and empower women
- 4) To reduce child mortality
- 5) To improve maternal health
- 6) To combat HIV and AIDS, malaria and other diseases
- 7) To ensure environmental sustainability
- 8) To develop a global partnership for development

18 targets related to these goals have been set to give the international community a number of tangible improvements to aim for within a fixed period of time. This also makes it easier for countries to measure their progress.

The intention is that almost all of these targets will be achieved by 2015. The Department for International Development (DFID) recognizes that the Millennium Development Goals have a crucial part to play in reducing poverty and encouraging progress in the developing world. As a result, DFID has made them the main focus of all of its work.

The third millennium development goal is to promote gender equality and empower women. The target set for this goal is:

Target 4: Eliminate gender disparity in primary and secondary education, preferably by 2005, and to all levels of education no later than 2015.

Unfortunately, while some significant progress is being made towards meeting some of the targets in some of the affected countries, in many cases progress is patchy, too slow or non-existent. For example, although improvements have been made in many areas in Sub-Saharan Africa the number of people living in poverty there is still greater now than it was in 1990. We have to continue to lobby governments to ensure that work continues to be done to meet these goals.

➤ **The Beijing Platform for Action**

However, there is a tension between the MDG's and the Beijing Platform for Action. Some women's organisations are concerned that one may overshadow the other. NAWO, for example, believes that there is an 'uneasy relationship' between the two projects. Gender equality has to be at the forefront of the goals otherwise they will fail.

What is the Beijing Platform for Action?

The Platform for Action is an agenda for women's empowerment. It aims to 'remove all the obstacles to women's active participation in all spheres of public and private life through a full and equal share in economic, social, cultural and political decision-making'.

This means that the principle of shared power and responsibility should be established between women and men at home, in the workplace and in the wider national and international communities. The Platform for Action reaffirms the fundamental principle (set forth in the Vienna Declaration and Programme of Action, adopted by the World Conference on Human Rights) that the human rights of women and of the girl child are an inalienable, integral and indivisible part of universal human rights. As an agenda for action, the Platform seeks to promote and protect the full enjoyment of all human rights and the fundamental freedoms of all women throughout their life cycle.

The Platform for Action emphasizes that women share common concerns that can be addressed only by working together in partnership with men towards the common goal of gender equality around the world. It respects and values the full diversity of women's situations and conditions and recognizes that some women face particular barriers to their empowerment.

The Platform for Action requires immediate and concerted action by all to create a peaceful, just and humane world based on human rights and fundamental freedoms, including the principle of equality for all people of all ages and from all walks of life, and to this end, recognizes that broad-based and sustained economic growth in the context of sustainable development is necessary to sustain social development and social justice.

The Millennium development goals and the Beijing Platform for Action are both policies that could really make a difference in helping to promote women's right and equality. However we have to carefully monitor how closely governments are working to meet the targets set by both programmes and lobby them in areas where they are failing to make achievements.

To learn more about these programmes please see:

<http://www.un.org/millenniumgoals/>

<http://www.un.org/womenwatch/daw/beijing/platform/plat1.htm>

➤ **Association for Progressive Communication – The Womens Networking Support Programme.**

At the international level Women Connect heard and seen many examples of inspirational women working to create change within their communities with and without technology. These stories are full of courage and initiative, and serve to enthuse and motivate us to continue to work and network with women on and offline.

One good example is the work being done by the Women's Networking Support Programme at the Association for Progressive Communication. The programme is a global network that supports women networking for social change and empowerment through ICT's. The network consists of over 130 individual female members from thirty six countries.

In the last ten years, the support programme has been active in advocating for a gender perspective in ICT policies, training women in the strategic use of these technologies, supporting women's

networks and investigating women's conditions as well as exploring gender issues in relation to the emergence of the what is now being referred to as the 'information' society. Three years ago, the Women's network embarked on a pioneering project to develop an evaluation framework and methodology (GEM) to examine how ICT's are empowering women and contributing to achieving gender equality.

Overview of Gender Evaluation Methodology (GEM) toolkit.

Traditionally gender differences and disparities have been ignored in policies and programmes dealing with the development and dissemination of improving technologies. As a result women have benefited less from and been disadvantaged from technological advances.

Women therefore need to be actively involved in the definition, design and development of new technologies otherwise the information revolution is in danger of bypassing women. GEM provides a means for determining whether ICTS are really improving women's lives and gender relations, as well as promoting positive change at the individual, community and broader social level.

The first version of GEM was designed two years ago and was tested on 26 projects internationally. From findings from the piloting process they have revised the tool and are now at point of completing the revision.

For more information on the tool please visit the GEM website which offers a comprehensive oversight on the tool and how to use it. The APC WNSP has published the GEM Tool under the terms of the Creative Commons Attribution-Non Commercial-ShareAlike License. Under this license you are free to use the tool.

To find more information about the tool please see: <http://www.apcwomen.org/gem/go4gem/>

Concluding Comments.

As this article has tried to show Women Connect is supporting women's use of technology so that change will take place not least through and by women's active political participation. From the feedback from two evaluations and our partner organisations it appears that our work is done in terms of providing equipment in the UK. Most organisations already have their own equipment and now there are many other ways of getting hold of equipment both cheaply and easily.

Women now may have the equipment to get online but we need to concentrate on helping women's organisations develop their capacity to network with one another in order to ensure that gender never slips off governments agendas. Women Connect is led by what our partners want and our partners want to be able to use ICT effectively. Women Connect is now concentrating on getting women's organisations together for face to face encounters and to learn the lessons from using ICT to network effectively.

Equality between the sexes has by no means been achieved and it vital for women to come together to help raise the profile of gender and lobby governments to ensure that progress is still being made towards achieving equality between the sexes. Information about policy changes that concern gender need to be made far more accessible. Our vision for Women Connect is to take our work up one level. We want to share information through our network to encourage women's

organisations to work together to lobby governments to ensure that gender equality is being strived for at every level.

This is also of particular importance for hearing the many voices of women. It is our task to support every woman, as her path was already much more difficult than that of her male colleagues. This is true especially as we see the promises made in Lisbon for a social agenda submerged by the economic agenda that invariably affects women disproportionately. As evident from our work the possibility to share lessons and build support for each other is no different from what women were trying to do in Berlin in 1904.

The technology enhances our work, but it's the fundamental way women communicate and network that will and does create change.

For more information

<http://www.womenconnect.org.uk>

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Useful Websites

Association for Progressive Communications
<http://www.apc.org/english/index.shtml>

Beijing Platform for Social Action

<http://www.un.org/womenwatch/daw/beijing/platform/plat1.htm>

C.E.D.A .W

<http://www.un.org/womenwatch/daw/cedaw/>

Europe

<http://europa.eu.int/>

<http://www.britainineurope.org.uk/>

European Women's Lobby

<http://www.womenlobby.org/home-en.asp?LangName=english>

Annual Report 2003

http://www.womenlobby.org/PDF/EN_LR.pdf

Equal Opportunities Commission

<http://www.eoc.org.uk/>

Fawcett Society

<http://www.fawcettsociety.org.uk>

Millennium Development Goals

<http://www.un.org/millenniumgoals/>

The Women's National Commission

<http://www.thewnc.org.uk/>

National Alliance of Women's Organisations

<http://www.nawo.org.uk/>

Referendums

<http://www.labour-referendum.org/>

Women and Equality Unit

<http://www.womenandequalityunit.gov.uk>

Glossary of Terms

APC	Association for Progressive Communication
CDF	Community Development Foundation

CEDAW	Committee for Elimination of Discrimination against women
EWL	European Women's Lobby
GEM	Gender Evaluation Methodology
ICT	Information Communication Technology
MDG's	Millennium Development Goals
NAWO	National Alliance of Women's Organisations
WNC	Women's National Commission