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Building ICT Capacity Through Cross-Sectoral Collaboration:

Summary of the March 15, 2007 Strategic Advisory Forum

Prairie and Northern Region

Authored by
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Czech Communications



Executive Summary

At its third annual meeting with the Strategic Advisory Forum (SAF), held March 15, 2007 in Winnipeg, Industry Canada again heard there is great merit in collaboration amongst the four sectors represented on the SAF: government, the information and communications technologies (ICT) industry, academia and non-government organisations.

Meeting participants agreed that cross-sectoral collaboration will help facilitate the goal of increased ICT capacity in Canadian communities and thus lead to improved quality of life and economic growth across the Prairie and Northern Region (PNR). As such, there was strong support for ongoing SAF meetings and discussion. Although members are keen to continue ongoing interaction via an online forum, they emphasized that while many discussions can take place electronically, there is also significant value in continued annual face to face meetings, particularly as a means of networking and sharing information.

It was agreed that cross-sectoral collaboration will help facilitate the goal of increased ICT capacity in Canadian communities and thus lead to improved quality of life and economic growth across the Prairie and Northern Region

The SAF accepts that stimulating ICT adoption by communities creates an environment where small and medium size enterprises are better able to grow and prosper. It is concerned, then, about the communities that still lack ICT infrastructure--broadband Internet in particular. Given the rapid pace of ICT advancement and the necessity of continuous learning to use new technologies, there is a



real danger these communities will fall further and further behind others that have embraced new technologies to spur economic prosperity and improved quality of life.

Recognizing that intervention to increase ICT adoption by communities may stimulate industry growth in those communities, it was agreed there may be a role for the SAF and government in this regard. In particular, participants see the merit of helping communities to assess their ICT capacity, then determine what next steps they should take on the road to becoming an “e-community.”

There was consensus that collaboration will bring forward a broad range of opinions and the most accurate information available, and thus lead to solutions that are more sustainable and effective and easier to implement. It is further expected that collaboration will help identify current and future ICT needs and make existing resources (money, information, mentoring, etc.) stretch further. In particular, participants believe the following areas would benefit from future collaboration:

- *Strategic intelligence* to support decision makers by providing critical information on strategic issues
- *Cross-sectoral research* to address areas where further information is needed in order to enhance ICT and develop strategies for further growth
- *Regional strategies* to deal with issues common to the entire PNR region, such as personal and financial security on the Internet, and *Area strategies* to address the unique challenges, opportunities and strengths of smaller areas i.e. communities, municipalities, provinces/territories
- *Demonstration projects* to determine new benefits that can be realized through ICT, and to prove these benefits to community members
- *Common principles for community ICT adoption* to provide a foundation for communities looking to develop/build their ICT plans

The SAF is an important vehicle for sharing strategic intelligence, developing public/private partnerships and setting a research agenda.



The latest SAF meeting ended with a number of specific conclusions and recommended next steps, namely:

- The SAF is an important vehicle for sharing strategic intelligence, developing public/private partnerships and setting a research agenda.
- While many discussions can take place electronically, there is significant value in bringing together members of the SAF at least once annually for face to face meetings.
- Government and industry should work cooperatively to demonstrate the capabilities and possibilities of ICT.
- Government, industry and educational institutions should work collaboratively to help ensure entrepreneurs and individuals receive ongoing training and learning related to new technologies.
- The SAF and Industry Canada should work collaboratively to address information gaps. In particular, the following questions should be addressed:
 - What is the level of ICT literacy across the PNR?
 - What needs to be done to stimulate ICT adoption and integration?
 - Is there a link between ICT capacity and quality of life?
 - What are the risks and benefits of technology?
- Given the strong agreement that cross-sectoral collaboration is important, Industry Canada should develop an online portal to facilitate ongoing discussion and collaborative work among SAF members, and should act quickly to do so.



Introduction: SAF Overview

The meeting of the Strategic Advisory Forum (SAF) held in Winnipeg March 15, 2007 was the third such event hosted by Industry Canada's Prairie and Northern Region (PNR). The SAF is a policy and strategic planning community comprised of four key sectors with an interest in information and communications technologies (ICT): government (at all levels), the ICT industry, academia, and non-government organisations focused on ICT and business or economic development. Through the SAF, Industry Canada PNR is able to work more closely with key stakeholders from each of these sectors.

The SAF accepts that stimulating ICT adoption by communities creates an environment where small and medium size enterprises (SME) are better able to grow and prosper, and that horizontal management between each of the four sectors is vital to ensure success.

The goal of the SAF is to investigate the key issues affecting ICT adoption and business and community prosperity. It is a multi-sector group committed to sharing "big picture" strategic intelligence related to ICT and to ongoing, cross-sectoral collaboration as a means of helping participants identify future opportunities and address priorities and challenges. Underpinning the forum is a belief that collaboration among the four sectors increases opportunities and reveals connections not otherwise obvious. It also informs policy and extends the reach and impact of each of the sectors. As such, the

The SAF accepts that stimulating ICT adoption by communities creates an environment where small and medium size enterprises are better able to grow and prosper, and that horizontal management between each of the four sectors (government, ICT, academic, NGO) is vital to ensure success.

"pillars" of the SAF are *partnership* among sectoral leaders, *ongoing collaboration*, *research* to increase knowledge, and *sharing of strategic intelligence*. (See Appendix 1 for a list of the SAF membership and Appendix 2 for the agenda of March 15, 2007).

Assessing ICT capacity in communities

According to Statistics Canada¹, while the price of transporting people is increasing, the price of transporting information via telecommunications has been falling since the 1960s. Communities dependent upon sectors that are losing jobs (such as lumber, mining and farming) need to find something new to export in order to maintain local employment levels, and increasingly affordable ICT can help communities accomplish this, provided they have sufficient ICT capacity.²

To describe the varying levels of community ICT capacity, Industry Canada PNR has developed an ICT Adoption Continuum model which examines four key indices:

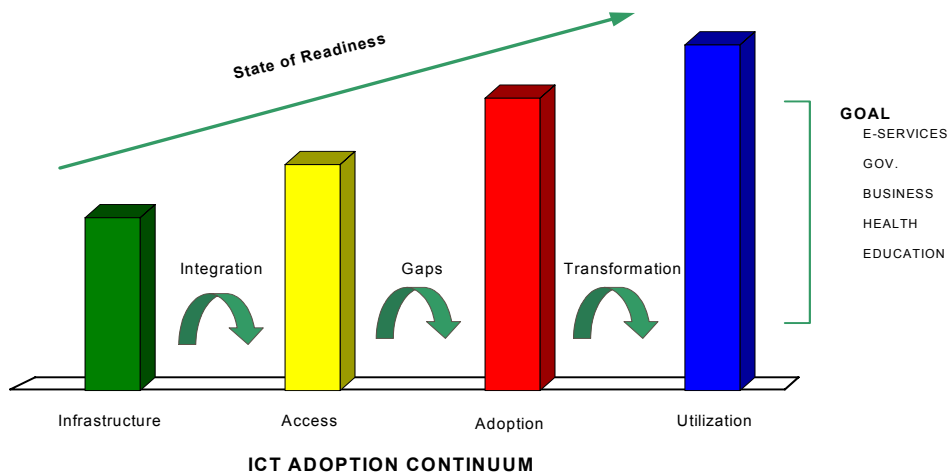
- *Infrastructure* in place.
- *Access* to the infrastructure.
- *Adoption* i.e. the degree to which communities provide their citizens with ongoing exposure to, and opportunities to adopt, continually evolving information technology. Adoption also refers to the skills and literacy required to make use of ICT, and the degree to which individuals understand how specific technologies and applications are relevant to them.
- *Utilisation* i.e. a “higher level” of technology that goes beyond common usages such as surfing the Internet and sending email. “Utilisation” suggests a community may use technologies and applications such as tele-health, distance learning, and video conferencing in support of socio-economic development and opportunities to increase prosperity.

¹ Presentation by Ray Bollman, Chief, Research and Analysis, Agriculture Division, Statistics Canada to the Strategic Advisory Forum, March 15, 2007.

² It is important to note that ICT “capacity” refers to not just physical infrastructure, but also citizens’ ability to have meaningful access to the infrastructure, their awareness of its capabilities, their skills in using it, and the degree to which they use ICT in their daily lives.



The graphic below illustrates the “path” that individuals, groups and communities progress from being non-users of ICT toward becoming sophisticated users and adopters of the technologies, integrating them into their daily lives. With each step along the continuum, e-readiness and capacity are increased. The SAF recognised the importance of measuring community ICT capacity as a means of understanding the current state of PNR communities and a means of measuring both progress over time and the impact of possible future SAF interventions in communities.



One means of measuring community ICT capacity is the Community Progression Scorecard, a tool developed by Industry Canada PNR. This tool, similar to a report card, measures a community's capacity or 'state of readiness' in each of the four ICT Adoption Continuum measures and then generates an overall community score. The higher the score, the more ready the community is to take advantage of the opportunities presented by a networked, global economy.

At the SAF, Industry stated that approximately 90% of Canadian communities already have ICT infrastructure in place, so it is doubtful they will invest in servicing the remaining 10% because profit potential is minimal and there are insufficient incentives to service rural and remote communities. This is a significant concern, since communities that are unserved, or do not have access to high-speed Internet, will fall further and



further behind, given the rapid pace of ICT advancement and the necessity of continuous learning to use new technologies.

It was pointed out, however, that as community ICT capacity grows, communities will be

What is an e-community?

Industry Canada PNR has, through consultation and validation with its clients, stakeholders and SAF partners developed the following definition of e-community:

An e-community is a collaboratively unified group whose members are electronically networked and connected so that, independent of geographic location, information can be created and delivered and resources shared to increase socio-economic benefits and opportunities.

The mandate of an e-community is to break down barriers, improve quality of life, and create economic vitality through the use and adoption of information and communication technology.

better able to develop and sustain new industry and more infrastructure. In other words, as communities increase their capacity to support industry, industry will increase its level of involvement with those communities. This reinforces the need to move communities along the ICT Adoption Continuum. Without this progression, the ongoing introduction of new technologies/applications may tend to increase the gap between served and unserved communities.

Recognising that intervention to increase ICT adoption by communities may stimulate industry growth as well, the SAF sees there may be a role for itself and government in this regard. In particular, SAF members recognise the need to collaborate to help communities assess their ICT capacity, determine what next steps they should take on the road to becoming an “e-community” and to assist communities to implement their technology/business plans. SAF members observed that communities may need assistance developing their own plans, but

that this is a necessary step to ensure capacity development is built from the “bottom up,” rather than “top down.” “Bottom up” development will help ensure technology is



developed to meet the needs of entrepreneurs and other users, rather than forcing the users to “fit” the existing technology.

Linking community ICT capacity to SME productivity

As small and medium size enterprises are one of the key drivers of the Canadian economy, that which benefits business also benefits Canadians. PNR wished to validate its belief that increasing community ICT capacity positions SME to realise increased productivity and prosperity. On behalf of the PNR, Dr. Thomas Keenan of the University of Calgary Faculty of Environmental Design assessed the ICT capacity and economic prosperity of several communities in the region.

The quantitative part of the study investigated the relationship between ICT capacity (as measured by the CPS and other data) and business productivity/prosperity (as measured by a basket of economic indicators reported by Statistics Canada on a community level).

The qualitative aspects investigated attitudes towards ICT adoption and how Canadian SME (and other entities such as local governments) are using, or are planning to use ICT, especially broadband Internet access, and how it is affecting, or may affect, their economic well-being.

While causality could not be proven, the research determined *there was a consistent and significant positive correlation between community ICT capacity and SME/business productivity and prosperity* as measured by economic indicators.

Research has determined there is a consistent and significant positive correlation between community ICT capacity and SME/business productivity and prosperity .

The research further showed it is imperative that a number of minimum requirements be met if e-business is to thrive in a community:

- Awareness of ICT. The community must understand the available/potential ICT



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- options and perceive a benefit from using ICT.
- Diagnosis of ICT needs and applications
- Integration of ICT planning as part of broader community planning.
- Appropriate training for personnel.
- Broadband connectivity e.g. to support high quality videoconferencing
- “Industrial strength solutions” e.g. secure file transfers through FTP sites
- Financial infrastructure e.g. online bank accounts, ability to accept electronic credit card payment, eBay, PayPal, etc.

Dr. Keenan’s report *Information Communication Technologies and Business Success* is attached as Appendix 3.

Collaboration

It was agreed that cross-sectoral collaboration will help facilitate the goal of increased ICT capacity in Canadian communities and thus lead to improved quality of life and economic growth across the PNR. As such, there was strong support for ongoing SAF meetings and discussion. SAF members are keen to continue ongoing interaction via an online forum. However, they emphasized that while many discussions can take place electronically, there is also significant value in continued annual face to face meetings, particularly as a means of networking and sharing information.

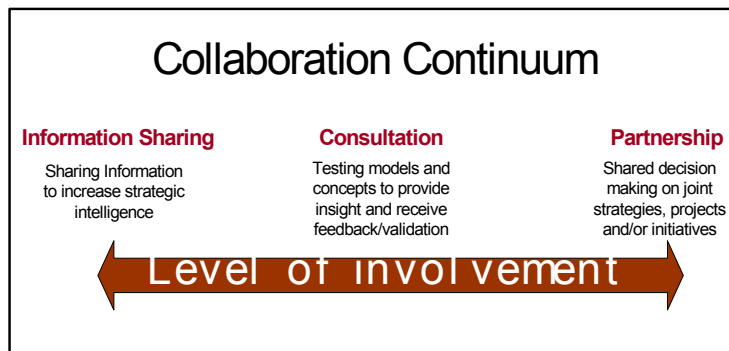
As illustrated in the graphic below, collaboration can take place over a continuum which includes sharing information to increase strategic intelligence, consulting to test ideas and receive feedback and, ultimately, to form partnerships that enable joint development of recommendations and active participation in decision making. Within this continuum, there was recognition that some SAF members will “come and go” and their participation level will fluctuate based on their own needs. In addition, the various collaborating “partners” will bring different assets to the collaboration: Some may bring money, goods and services, while others may contribute their experience and expertise.



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There was consensus that collaboration will bring forward a broad range of opinions and the most accurate information available, and thus lead to solutions that are more sustainable and effective and easier to implement. It is further expected that collaboration will help identify current and future ICT needs and make existing resources (money, information, mentoring, etc.) stretch further. This sharing of resources may allow for solutions that would not be possible for any one member to achieve on his/her own.

It is agreed that collaboration will allow SAF members to:

- provide and obtain new intelligence on emerging plans and initiatives
- discuss new ideas and opportunities
- develop a better understanding of issues, priorities and challenges
- address areas of concern, clarify views and constraints, assess options and ways to implement them
- make recommendations to decision-makers
- discuss conclusions, decisions, commitments and next steps

Industry Canada PNR suggested that an online SAF forum be developed to allow continued collaboration, sharing of strategic intelligence and dialogue. At Industry Canada's request, the University of Calgary developed a mock-up of what the portal might look like and presented about potential functionality. This proposed online portal would be a place for SAF members to discuss a variety of issues related to information



technology. Portal features could include forums (including link posting and attachments), file uploads and downloads, an event calendar, private messaging, real time chat, a member directory, and glossary of government terms and acronyms. Participants endorsed the notion of an online forum that was broad and inclusive (rather than narrow

Industry Canada should move quickly forward to develop an online discussion forum for the SAF community, before momentum is lost.

and focused), and there was general agreement that Industry Canada should maintain a leadership role by “seeding” questions to kick-start discussion, and “pushing” new posts to members via email. The recommendation was also made that Industry Canada should move quickly forward to develop an online discussion forum for the SAF community, before momentum is lost. In response, the University of Calgary and

University of Athabasca have begun work, in conjunction with Industry Canada, to develop and host an online portal for review by the SAF.

Areas for Future Collaboration

Meeting participants clearly saw the merits of partnerships, and identified a number of immediate partnership opportunities:

1. Strategic intelligence

By sharing strategic intelligence, SAF members expect to gain a better understanding of the total ICT environment—including competitive, economic and political. They will participate in environmental scanning to better understand external forces, and to see impending problems and upcoming opportunities, and to avoid surprises. They will share intelligence on trends and issues that will impact ICT in the long-term, and thus be better positioned to help inform policy and contribute to long-term decisions that focus on the big picture and are aligned with expected future conditions.



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2. Cross-sectoral research

Participants identified a number of gaps in information where they feel more research is needed in order to enhance ICT and develop strategies for further growth. Although each sector independently identified gaps from its own perspective, there was, in fact, significant commonality among the sectors, such that their suggestions can be grouped as subsets of four key research questions:

- i. What is the level of ICT literacy across the PNR?
 - ii. What needs to be done to stimulate ICT adoption and integration?
 - o How can ICT awareness be developed?
 - o What is the level and type of demand for ICT and ICT-based services?
 - o What type of content do Canadians want delivered to them via information technology and the Internet? What is relevant content?
 - o What is the appropriate medium for encouraging access (public access, in home, elsewhere, free, fee for service, other)?
- o How can technology be used to make research and education more accessible and relevant to aboriginal people?
 - o Why are some communities embracing ICT while others are not, even though the infrastructure is available?

Using ICT to make research more accessible

to aboriginal people: The University of Winnipeg and Red River College have partnered with aboriginal groups to create a wireless corridor between the university, college and the Aboriginal Centre in downtown Winnipeg. Qualified candidates can lease a used laptop computer from the college and receive free Internet access and computer training. Through this program, the educational institutions are attempting to address the “digital divide” in the city’s core area.



- What non-technical factors play a role in determining whether a community takes full advantage of ICT?
 - At the individual level, what are the barriers to use of ICT? Why is not everyone taking advantage of it? Is it a question of lack of infrastructure, or are there other barriers to use? Are these barriers the same or do they differ across geographic areas?
- iii. Is there a link between ICT capacity and quality of life?
- How is ICT contributing to the success of communities?
 - What is the economic effect?
 - What is the social effect?
- iv. What are the risks and benefits of technology?
- What are the short and long-term impacts of using more technology (and less human interface) to deliver educational programs?
 - How can ICT be used to stimulate literacy?
How should efforts in this regard be supported?
 - What has been the impact in rural communities of providing more government services via the Internet?

Using ICT to stimulate literacy: The University of Winnipeg has opened a free learning centre, complete with 25 computers, across from its main downtown campus. It is intended to provide the local, core area community with free access to computers and the Internet. By providing this technology--along with homework assistance, tutorials, etc.--the university is stimulating literacy and becoming more visible and relevant in the community. At the same time, it's hoped the youth it serves may eventually look to the U of W for post-secondary education.



3. Regional and area strategies

It was agreed there is merit in developing strategies to deal with issues common to the entire PNR region. For example, there is interest in jointly addressing issues of personal and financial safety on the Internet, as well as “cyber” crime. It was suggested the SAF might help determine appropriate roles for government, industry and academia in addressing this issue.

At the same time, it was recognised that one size may not fit all, and that within the PNR region, strategies may be required to properly address existing realities in smaller areas i.e. communities, municipalities, provinces/territories. It was agreed there is also merit in analysing the status quo across these smaller areas, developing long term goals and targets, then implementing strategies that reflect the unique challenges, opportunities and strengths of various Canadian communities and areas.

Using technology to provide new benefits: Red Arrow buses that travel between Edmonton and Calgary now provide wireless Internet access. This was accomplished via the establishment of a wireless corridor involving several Internet service providers. This project has been beneficial to bus passengers, the bus line, and ISPs.

4. Demonstration projects

There were a number of calls for joint demonstration projects in the Prairie and Northern Region to determine new benefits that can be realized through ICT, and to prove these benefits to community members. Ideally, these demonstration projects would involve partnerships and resource-sharing among governments, business and research institutes. It was suggested end users of the technology also be involved to ensure it is meeting an actual need. It was noted that clear benefits will make individuals more likely to adopt the technology.

Some ideas for demonstration projects included the following:



- A project to show how technology can help overcome labour shortages. For example, participants heard about a paediatric radiologist in BC who will accept and read X-rays from anywhere in Canada. In this way, technology is helping to address labour shortages in some professions and communities.
- A project to demonstrate how ICT can help communities reduce their environmental footprint and, in particular, greenhouse gases.

5. Common principles for community ICT adoption

It was agreed that development of a common set of principles for communities may assist with community ICT adoption. For example, one commonly-supported principle was that capacity development in communities should be organic i.e. driven by entrepreneurs and early adopters from the bottom up, rather than top down. These principles might also include appropriate indicators for measuring progress and determining success.

Conclusions and Next Steps

- The SAF is an important vehicle for sharing strategic intelligence, developing public/private partnerships and setting a research agenda. The SAF and Industry Canada should develop a set of principles under which the SAF and federal government will interact. These principles might include a determination of when SAF engagement will be triggered, how SAF participation will inform the decision-making process, and collaborative approaches to be used. They might also include desired outcomes and indicators for determining success.
- While many discussions can take place electronically, there is significant value in bringing together members of the SAF at least once annually for face to face meetings.



- Government and industry should work cooperatively to demonstrate the capabilities and possibilities of ICT. It was noted that infrastructure is in good shape--with the vast majority of Canadians having access to broadband--and that Canadians now need to take better advantage of existing technologies. In particular, rural communities should be shown the value of ICT and should be made aware of how ICT is contributing to the success of small cities and towns.
- Government, industry and educational institutions should work collaboratively to help ensure Canadians receive ongoing training and learning related to new technologies. This training is required for both entrepreneurs and individuals.
- The SAF and Industry Canada should work collaboratively to address information gaps. In particular, the following questions should be addressed:
 - i. What is the level of ICT literacy across the PNR?
 - ii. What needs to be done to stimulate ICT adoption and integration?
 - iii. Is there a link between ICT capacity and quality of life?
 - iv. What are the risks and benefits of technology?
- Given the strong agreement that cross-sectoral collaboration is important, Industry Canada should develop an online portal to facilitate ongoing discussion and collaborative work among SAF members, and should act quickly to do so.





Appendix 1

Strategic Advisory Forum Community

Government	Academic	Private Sector (ICT)	NGO/Associations
Ray Bolmann Chief, Research and Analysis, Agriculture Division, Statistics Canada	Dr. Robert Annis ** Director Rural Development Institute, Brandon University	Dr. Moe Barakat ** President, IMT	Jean Beaumont Executive Director Association of Bilingual Municipalities of Manitoba
Stacey Burnette Manitoba Competitiveness, Training and Trade, Government of Manitoba	Dr. Michael Gertler Community-University Institute for Social Research, Fellow in Community and Co-operative Development and professor of Sociology at the University of Saskatchewan	Michael Bugg President, Infometrics	Mark Cabaj ** Strategic Consultant, Tamarack Institute for Community Engagement
Eleanor Brockington Director, Policy and Strategic Initiatives Aboriginal and Northern Affairs Government of Manitoba	Dr. Gordon Gow Assistant Professor, Faculty of Extension, University of Alberta	Charlie Clark ** President & CEO I-NetLink Wireless	Jason Denbow Executive Director, Community Futures Partners of Manitoba
Mona Cornock Director, Economy and Rural Development Knowledge Centre Government of Manitoba	Dan Hurley Executive Director of Government Relations, University of Winnipeg	Brian Farley Director Internet Product Management, Internet Marketing MTS	Allan Earle President, Saskatchewan Urban Municipalities Association
Cindy Hodges Science, Technology, Energy and Mines, Government of Manitoba	Monica Juarez Alder Community-University Institute for Social Research, University of Saskatchewan	Paul Gillard ** General Manager ARDICOM Digital Communications	Barry Gunther ** Vice President of Villages, Resort Villages & Northern Communities Saskatchewan Urban Municipalities Assoc - SUMA
Rick Gensiorek Director, SITT - IHB, Prairie and Northern Region Industry Canada	Dr. Thomas Keenan Professor, Faculty of Environmental Design, University of Calgary	Dave Jenkins Senior Account Executive, Shaw Business Solutions Inc	Ken Hoppins Director, Alberta Association of Municipal Districts and Counties

**** Denotes SAF member unable to attend the March 15, meeting due to scheduling conflict**

Government	Academic	Private Sector (ICT)	NGO/Associations
Kate Humpage Manager, Rural Research and Analysis Agriculture and Agri-Food Canada	Dr. Philip McRae ** Director, Alberta Initiative for School Improvement (AIS) University of Saskatchewan	Greg Loader Manager, Telecom Services, Manitoba Hydro	Al Hykaway President, Information Processing Society of Manitoba
Dale Johnston Western Diversification Co-chair of the Manitoba Rural Team	Dr. Joanne C. Keselman Vice-President (Research) University of Manitoba	John Longbottom Department Head, Aboriginal Strategy, IBM	Darcy Marit ** President Sask Assoc of Rural Municipalities - SARM
Collette Jubinville Director of Policy and Research Policy Coordination and Regional Analysis, Industry Canada	Dr. David Mitchell ** Professor, Faculty of Communication and Culture, University of Calgary	David McPhail Director Enterprise Learning, HR Strategy, Performance Management & Measurement, Telus	Dany Robidoux Coordinator, Knowledge-Based Economy Conseil de développement économique des municipalités bilingues du Manitoba (CDEM)
David Katz Saskatchewan Industry and Resources, Government of Saskatchewan	Frits Pannekoek ** President, Athabasca University	Jeff Philipp ** President /CEO, SSI Micro	Keith A Sinclair Vice-Chair Information and Communication Technologies Council of Canada
Linda Maljan ** IT Consultant, Office of the CIO, Government of the NWT	Jennifer Rattray Director of Strategic Initiatives, University of Winnipeg	Charles Reichert, Executive Director of WiTec Alberta Director, INFOPORT, Calgary Technologies Inc	Greg Sutton ** Executive Director, Saskatchewan Advanced Technology Association
Gerry Marques Strategic Services, Service Canada	Cyril Scheske President- SRNet, University of Regina	Jeff Rohne, Director, Manitoba Operations, TR Labs	Sue Welke ** Director Policy & Advocacy) Alberta Urban Municipalities Association – AUMA

** Denotes SAF member unable to attend the March 15, meeting due to scheduling conflict

Government	Academic	Private Sector (ICT)	NGO/Associations
Robert Masten ** A/Director Program Operations Office of Learning and Literacy Human Resources and Skills Development Canada			Vincent Tanguay Directeur de projet, Recherche, Transfert et Valorisation, CEFRIO
Johanne Mennie Deputy Director, Policy Development Community Development and Partnerships Directorate, Human Resources and Social Development Canada			Verona Thibault Executive Director, Saskatchewan Economic Developers Association
Dion McGrath ** Executive Director, Policy & Planning Regional Econ & Cooperative Dev Government of Saskatchewan			
Russell Milon Director, Regional Cohesion Policy Coordination and Regional Analysis Industry Canada			
Richard Murray, Executive Director Policy & Planning, Information Technology Office Government of Saskatchewan			
Lori Lee Poitras Manager, Regional Education Unit (Saskatchewan), Indian and Northern Affairs Canada			
Ann Scotton Director General, Strategic Policy and Research, Intergovernmental Affairs Privy Council Office			

** Denotes SAF member unable to attend the March 15, meeting due to scheduling conflict



Appendix 2

Strategic Advisory Forum
March 15, 2007
8:30am to 4:30 pm



Location: Millennium Suite, 2nd Floor, Winnipeg Convention Centre, Winnipeg Manitoba

Session Objectives:

- To identify criteria for evaluating horizontal strategy and partnership development opportunities and to guide priority setting
- To develop an ongoing policy community (including the development of a sustained online portal)
- To provide a forum for members to network, share valuable strategic intelligence, pose questions and engage in dialogue.
- To inform policy and planning for SAF members.
- To influence the strategic direction of the Industry Canada PNR relative to our efforts relating to community ICT capacity

Session Agenda:

Registration and check-in: 8:30 a.m.

Morning Session: 8:45 a.m.–12:15 p.m.

Welcome and Opening Remarks:

E-Communities: Strategic Intelligence, Network Development and Partnership Engagement

Rick Gensiorek, Director, Industry Canada, Prairie and Northern Region

Interactive Presentation:

Factors driving rural Canada's economy

Labour-saving technology or the increasing value of human time, as a key force driving the economy in the nation's rural areas

Ray D. Bollman, Chief, Research and Analysis, Agriculture Division, Statistics Canada

Facilitated Discussion:

Sector perspectives relating to the current state of ICT deployment.

Identifying sector specific perspectives on the current regional environment, what our collective priority should be vis a vis ICT deployment in the PNR communities and the roles that each sector might play

Key topics to be covered include:

- (a) Identifying what key information gaps exist: What do we need to research/learn to better position us for success?
- (b) Setting strategic intelligence/research priorities

Luncheon Keynote Address:

Horizontal Policy Management

Anne Scotton, Director General, Strategic Policy and Research Intergovernmental Affairs, Privy Council Office

Afternoon Session:

1:00pm - 4:30p.m

Research:

Examining correlation between Community ICT Capacity and Business Productivity and Profitability

Dr. Thomas Keenan – University of Calgary

Facilitated Discussion:

Performance management in a collaborative setting

Establishing criteria for collective engagement, opportunity assessment, and ensuring mutual benefit.

Key discussion/questions to be covered include:

- (a) Determining where horizontal collaboration is warranted. What situations/opportunities require collective action?
- (b) Meeting the needs of the partners: What do you need to see? What would draw you to participate?
- (c) Measuring progress and determining success; Defining appropriate indicators and targets

Presentation:

Community Progression Scorecard (CPS)

Review of the results from the beta test of Industry Canada (PNR)'s community ICT capacity measurement tool.

Paul McMullan – Industry Canada, Prairie and Northern Region

Interactive Presentation:

SAF Online: An ongoing policy community

Demonstration of a prototype for an online portal with the intent to enable ongoing collaboration and intelligence gathering by the SAF community

Dr. Thomas Keenan – University of Calgary

Closing remarks and Adjournment



Appendix 3

**Information Communication Technologies (ICT)
Capacity and Use and
Business Productivity and Prosperity**

A Report for

**Industry Canada
Prairie and Northern Region
Winnipeg, Manitoba**

Prepared By

Dr. Thomas P. Keenan, FCIPS, I.S.P., CISSP

**Professor, Faculty of Environmental Design
Adjunct Professor, Department of Computer Science
University of Calgary**

March 28, 2007

Abstract

The purpose of the research was to determine (1) whether there is a correlation between aggregate community ICT Capacity and SME Productivity/Prosperity and (2) the strength of the correlation, if such a relationship exists.

Several communities in the Prairie and Northern Region, including three of varying sizes which were visited and studied in depth were assessed. Each was analyzed to ascertain the community's ICT Capacity, Business Productivity and Prosperity and the extent to which ICT is already "making a difference" in their communities. A combination of quantitative and qualitative research methods were used. Given the size of these communities, the preponderance of businesses are small and medium sized enterprises. (SMEs)³

For the communities studied in depth, there was a consistent significant and positive correlation between community ICT Capacity and Business Productivity and Prosperity as measured by economic indicators. To determine if this was simply a function of increasing population (since the largest community scored highest on both measures) two other communities were included and the effect was found not to be simply population-related. In fact, the correlation between ICT Capacity and Business Productivity and Prosperity still held.

There was a pervasive belief in all communities studied that ICT can be a powerful force for development in their community. At least some people in each of the communities that were studied in depth could envision one or more mechanisms by which this was already occurring, and could continue to grow. Finally, there was objective anecdotal evidence that economic growth is already being driven by ICT, especially in the larger communities.

Background

A number of studies have recognized the potential for Information and Communications Technology (ICT) to improve the productivity and profitability of Canadian (Net Impact Study, Canadian e-Business Initiative, 2002) and American (Measuring Broadband's Economic Impact, Lehr, 2005) businesses. The optimistic figure for a Canadian business provided in the Net Impact Study was "a firm with \$10M in revenues, with a 20% gross margin and 10% net margin, can achieve increases in net profit of up to 154% in the "best case" scenario with these changes in revenues and costs." Clearly these optimistic results are not being attained on a regular and consistent basis, but there is

³ Defined by Statistics Canada as any business establishment with 0 to 499 employees and less than \$50 million in gross revenues.

convincing evidence that e-business is becoming a part of the mindset of some Canadian SMEs, and that they are profiting from increased awareness of, adoption and use of, ICT.

There is every reason to believe that this should be the case. A major UK econometric study, covering the years 1998-2003, observed that these factors:

- investment in computer hardware and software
- use of e-commerce for buying and / or selling
- use of electronic business processes
- use of computers or the internet by employees
- use of telecommunications

all “have statistically significant (positive) relationships with business productivity.” (Clayton, 2005)

That study, which investigated “business output for 23,000 firms on hardware and 59,000 observations on software” concluded that:

Across all industry sectors, IT hardware and software capital makes statistically significant returns. Value added returns associated with IT capital are higher for service sectors than in manufacturing (14% vs. 10%). In both the returns to IT are higher than the proportion of IT in total business capital in the sector, which indicates that higher IT investment is associated with higher firm productivity. Productivity effects of IT investment are consistent across large and small firms, they are robust to business specific ‘fixed effects’, to controls for sector and region, and are additional to productivity effects associated with skills, other forms of investment.

Informed by these previous findings, the present study seeks to determine if a similar positive relationship exists between ICT Capacity and Use and Business Productivity and Prosperity in selected Canadian communities.

Methods

The quantitative part of this study investigated the relationship between ICT Capacity (as measured by Industry Canada Prairie and Northern Region’s Community Progression Scorecard (CPS) and other data; and Business Productivity/Prosperity, as measured by a basket of economic indicators reported by Statistics Canada on a community level.

The qualitative aspects investigated attitudes towards ICT adoption, and how Canadian SMEs (and other entities such as local governments) are using, or are planning to use ICT, especially broadband Internet access, and how it is affecting, or may affect, their economic well-being.

Three communities were selected on the basis of

- a) their size (representing Small, Medium and Large communities, and excluding Extra-Large cities such as Calgary and Winnipeg which are outside the scope of this study.)
- b) An expressed interest in participating in the research and a professed desire to become a “Smart Community”
- c) Geographic diversity, while still falling in the Prairie and Northern Region as defined by Industry Canada

Each community was visited and interviews were conducted with key informants. In addition to discussing ICT use and issues, they were asked to complete the Community Progression Scorecard for their community, after receiving an explanation about it. Phone interviews were used in cases where face to face meetings were not feasible. Reports and other documentation were collected and reviewed. Relevant government and other databases were also consulted.

Results

The following table displays key data about these communities from the Census of Canada⁴ as the 2001 (latest available at the time the study was conducted, except for population data from 2006 which is now available) Census of Canada, as well as and submissions on the Community Progression Scorecard site current through March 9, 2007.

Table 1. Community Characteristics

Community	Population In 2001	Population in 2006	Change	CPS score
Herbert, SK	812	741	-8.6%	73
Olds, AB	6,607	7,248	+9.7%	78
Yellowknife, NT	16,541	18,700	+13.1%	87

Recognizing the possible limitations of the CPS data (small and variable number of respondents; a mixture of group and individual responses; and the fact that it is an instrument currently still being beta tested) the researcher also conducted an independent assessment of the ICT capacity of these three communities, primarily from data collected during visits to each. Factors considered included the estimated ICT employment in each community as a percentage of population; the number of ICT related businesses operating in the community, and the

⁴ The data is from the 2001 Census of Canada which was the latest available at the time this study was conducted. A small amount of 2006 Census data has been released and is included to show population trends

highest level of sophistication of ICT personnel that could be identified.

While there were some interesting surprises (e.g. the town of Herbert has an excellent town webpage, due to the presence of a talented and dedicated webmaster in the community,) the ranking of the communities' aggregate ICT capacity of the communities came out as shown below.

Table 2. Community ICT Capacity

Community	Infrastructure (per CPS)	Access (per CPS)	Adoption (per CPS)	Utilization (per CPS)	Qualitative Rank
Herbert	9	16	18	31	3/3
Olds	10	16	17	35	2/3
Yellowknife	10	17	20	40	1/3

It should be noted that the overall CPS scores in Table 1 may differ slightly from the sum of the CPS scores in Table 2 due to rounding.

Qualitative rankings, obtained through observation and discussion with well-informed community members, therefore agree closely with the quantitative results obtained from the Community Progression Scorecard.

Assessing Business Success (Productivity and Prosperity)

A note on SMEs

Since this research is specifically targeted towards SMEs, it is worth noting that SMEs form the great preponderance of commercial enterprises in the three communities studied. This was one of the factors that led to the exclusion of "Very Large" communities such as Calgary and Winnipeg from this study.

In attempting to determine an index of "SME intensity" for the communities studied, no meaningful data could be found, since very few non-SMEs (companies with over 500 employees) operate in these communities (except for national firms such as accountants and consultants with small branch offices in Yellowknife and the Diavik Diamond Mine which reported 725 employees in 2005 but only 322 of them in Yellowknife.⁵) Most commercial business, in these communities is SME business. It is also worth noting that Olds has been called the "SME Capital of Canada" due to a large number of small entrepreneurial businesses there.

⁵ Diavik Diamond Mine, Socio-Economic Monitor Report for Operations, January to June 2005, p 9

Of course, there is also the public sector, which in Herbert consists of the school and community health centre and municipal government; in Olds the Chinook's Edge School District, Olds College, Alberta government offices and the Town of Olds; and in Yellowknife the Federal, Territorial and municipal governments. Those public entities contribute, in varying degrees, to the prosperity of each community.

There is no practical way to separate the economic effect of SMEs from other commercial and non-commercial enterprises since wage competition and other factors produce a seamless economic fabric. Therefore, overall economic prosperity indicators for the community have been used in this analysis.

Indicators

Several experts, including those at Statistics Canada, suggested using the Community Profiles information from the Census of Canada as published by Statistics Canada. The latest fully available dataset at the time of this study is for the 2001 Census of Canada, though a small subset of the 2006 data has been made available. Relevant studies from the Canadian Chamber of Commerce, the Canadian Federation of Independent Business, and Industry Canada were also reviewed.

Three indicators in this dataset were chosen as metrics for Business Productivity and prosperity in a community. Together these indicators measure the earning power of individuals, the income of households, and the average cost of housing.

Since Yellowknife is a Northern community, the question arose about whether or not the Yellowknife data should be adjusted for the extra cost of living in the North. However, upon determining that the Northern Living Allowance (NLA) provided by the Government of the NWT⁶ for people living in Yellowknife in 2007/2008 is only \$2,500/year it was concluded that this was not a material difference. In essence, while some things do cost more in Yellowknife, but the difference is not as great as in remote Northern communities such as Holman, where the NLA can range up to \$20, 717/year.

Table 3. Business Productivity and Prosperity Indicators

Community	Avg. Earnings (2001)	Med. Household Income (2001)	Avg. Dwelling (2001)
Herbert	16,541	29,540	41,113
Olds	26,314	23,345	130, 914

⁶ See <http://www.hr.gov.nt.ca/policy/documents/NorthernAllowanceRates2007Excl.pdf>, accessed March 27,2007.

Yellowknife	43,055	81,544	177,522
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It should be noted the Average Earnings figure is an arithmetic mean, based upon only those who reported earnings in 2001. Median Household Income is the midpoint that divides the upper and lower 50% of household incomes, for all households.

Determining the Correlation

Comparing Tables 2 and 3 shows that:

- **The ranking on ICT Capacity/use is identical to the overall economic ranking for these three communities**
- **This holds true even if the Yellowknife data was adjusted for the cost of living in the North. (at GNWT NLA of \$2,500/year)**
- **Minor anomalies such as Median Household income between Olds and Herbert do not affect the overall trend and ranking**

The question of community size

Since the ICT Capacity (Table 2) and Business Productivity and Prosperity (Table 3) also correlate with community size, as measured by population, it was necessary to test the hypothesis that this was simply a “size effect,” i.e. that larger communities have both more ICT Capacity and greater Business Prosperity.

While time and resources did not permit visiting additional communities, two additional communities were now selected⁷. Since Olds was the “middle” community in this study in terms of size, it was decided to chose a larger community (Brandon, MB) and a smaller one (Smithers, BC.)

Arranging these communities by population around Olds produces these results.

Table 4. Analysis of Size Effect on ICT Capacity and Business Success

Community	Population 2001/2006	Average Earnings (2001)	Median Household Inc (2001)	Average Dwelling (2001)	CPS
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⁷ An effort was made to avoid “exceptional communities” (e.g. Fort McMurray, AB with its hyper inflated economy, and Canmore, AB, with its high percentage of recreational property ownership) to minimize the effect of other confounding factors, though of course, all communities have their unique characteristics.

Brandon	39,716 41,511	25,297	38,951	100,892	42 ⁸
Olds	6,607 7,428	26,314	23,345	130,914	78
Smithers	5,414 5,217	31,543	55,724	148, 131	83

Observations from the Quantitative Data

- **As with the other communities, the ranking on ICT Capacity and Use as measured by the CPS is strongly and positively correlated with Business Success as measured by these Economic Indicators.**
- **Despite the fact that Brandon is the largest community, it ranks lowest in both ICT Capacity and Business Success, and Smithers, though the smallest community ranks highest.**
- **This data provides a counterexample to the hypothesis that we are simply observing a “size effect.”**
- **In fact, the community that shows the highest ICT Capacity and the strongest economic indicators is both the smallest in this group, and the only one that lost population from 2001-2006**

Observations from the Qualitative Data

Each of the three main communities in this study (Herbert, Olds and Yellowknife) was visited to make on the ground observations about ICT Capacity and Use, and to consult with community leaders. In addition, a number of experts were present at the Connect NWT Conference⁹ which coincided with the visit to Yellowknife and provided additional insights.

- **There is a need for ICT diagnosis.**
 - Proper planning requires the ability to establish baseline scores for ICT capacity and to track progress over time.

⁸ CPS data for Brandon was obtained in a live session in Winnipeg in 2005 instead of via the online version but the instrument was the same.

⁹ See http://www.connectnwt.ca/symposium_who.html for a list of attendees. Accessed March 28, 2007

- Many people expressed a general idea that ICT would be good for them, their community or their business, but couldn't say exactly how
 - At the municipal government level, there was also a lack of clarity about how ICT could be usefully applied to improve services
 - There is a lack of qualified ICT experts, especially in smaller communities, to assist with this function
- **Access is hardly a problem anymore**
 - The issue to be addressed now is one of stimulating adoption and integration of the technology.
 - In line with the CPS scores, which are generally quite high on Access, most people expressed the ability to get connected to the Internet at reasonable speed
 - Some, however, felt their specialized business needs (e.g. high quality videoconferencing) would not be met until they had high speed (e.g. fibre to the premises) access
- **A culture of ICT use is definitely spreading**
 - Fuelled by the phenomenal acceptance of ICT among young people, but reach all ages, there was a strong sense that ICT was important, useful and would benefit people and communities.
 - Even a native elder, while expressing no interest in ICT personally, said she came to the Connect NWT Conference "because it's important for our young people."
- **One missing link can break the e-business chain.** Even with ICT Capacity and a desire to use it, if some key enabler is missing the use of ICT may be severely limited. Examples that were cited included:
 - Northern communities (other than Yellowknife) where credit cards and even bank accounts are rare so e-commerce is difficult
 - The lack of a secure file transfer facility that causes a business consultant in Olds to have to courier CDs and other media to clients
 - The lack of trained personnel in Herbert which limits what can be done locally on the ICT front (though the town has an impressive homepage)
- **There is a hunger for credible training in ICT**
 - Many people in the communities are self-taught in ICT, but many expressed a desire for more formal training. For example, people who would like to sell items on eBay often who do a Google search for "eBay training" find over 50,000 offers, including commercial

outfits that charge hundreds of dollars. These people say they find it difficult to know which course, if any, will meet their needs and not be just an online scam.

- **There are real concerns about online security.**
 - Several people expressed reluctance to do online banking or use their credit cards online.
 - The recent high-profile TJX Hacker case has made people even more cautious

- **Each community was facing a significant ICT opportunity**
 - Yellowknife it was the announcement that all NWT communities will soon have broadband Internet
 - For Olds it is the building of a new \$57M Community Learning Campus
 - For Herbert it is the availability of a vacant building, formerly the town's hospital, that could house ICT-related activities

Businesses that Cannot Exist Without ICT Capacity, especially Broadband Connectivity

The author developed, in consultation with people in the communities and other experts, a brief list of businesses that cannot be effectively carried out from a community without ICT infrastructure including high speed Internet access. That list includes:

- Interpretation of images (e.g. X-rays)
- Analysis of seismic and other resource industry data
- Freelance graphics work and media production (both in- and out-sourcing)
- Videoconferencing based businesses
- Many e-Health applications
- e-Learning that is media rich

It is also worth noting that the growth of virtual business activity does not necessarily have to be at the expense of physical business activity. As Jeremy Howells of the Centre for Research on Innovation and Competition, University of Manchester, explains:

Moreover what disintermediation and virtualisation that does occur, will not entail all physical activities associated with services will disappear. Many will expand. Wholesalers may come under increasing pressure, but transport distribution and logistic operators will expand to handle people

and firms purchasing over the internet and encouraged by the rise of e-commerce. Logistic firms will also benefit from the trend towards outsourcing by companies. (p. 22)

Conclusions and Recommendations

- **For the PNR communities studied, the greater the ICT Capacity/adoption the higher the level of economic prosperity as measured in this study**
- **While this methodology cannot establish a causal relationship, it does demonstrate a very strong correlation between ICT and prosperity**
- **ICT diagnosis and integration of ICT in community planning is vital.**
- **All communities studied have ICT visions that are valid for them and have identified a specific, timely opportunity to embrace ICT**
- **The Community Progression Scorecard proved to be a valuable tool in assessing ICT Capacity and Use, and can certainly be improved to be used as an ongoing, longitudinal, tracking tool. As the Conference Board of Canada found with its Connectedness Index, the time may have come to move from measuring the availability of Internet connectivity to focus more on measuring “the effective use of ICT.” (p. 6)**
- **There are identifiable roadblocks to ICT Adoption and Use (see Qualitative Data above) which are adversely affecting a move towards an ICT Culture of Use in some communities. Targeted action to address these impediments could be very useful in advancing the agenda of helping businesses succeed through ICT.**
- **Further research could include fostering collaboration among Canadian communities. Although they are competing for resources, new industries, smart people, etc., they share common challenges and might well be able to share solutions to mutual benefit if encouraged to do so.**

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